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Olive Germplasm – Italian Catalogue of Olive Varieties

Innocenzo Muzzalupo

Additional information is available at the end of the chapter

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1. Introduction

It is of great importance to evaluate and characterize the existing genetic diversity of the crop species, mainly for those, such as the case of olive, which still have a well preserved great cultivar patrimony, in spite of the disturbance of the environments where they are cultivated. This issue is of particular importance in areas where a number of varieties show adaptation to the difficult local environmental conditions.

The genetic patrimony of the Mediterranean Basin's olive trees are very rich and is characterised by an abundance of varieties. Based on estimates by the FAO Plant Production and Protection Division Olive Germplasm (FAO, 2010), the world's olive germplasm contains more than 2.629 different varieties, with many local varieties and ecotypes contributing to this richness.

The problem of olive germplasm classification is not only complicated by the richness of its genetic patrimony, but also by the absence of reference standards and by the confusion regarding the cultivar names, with numerous cases of homonymy (one denomination for several genotypes) and synonymy (one genotype with several denominations).

The Italian olive germplasm is estimated to include about 800 cultivars, most of them landraces vegetatively propagated at a farm level since ancient times. The number is probably underestimated because of the scarce information on minor local varieties widespread in the different olive growing areas. The study of these less-common cultivars is important because they may have traits not considered important in the past but necessary to meet the challenges of modern olive growing. Low vigour, resistance to low temperatures, salinity tolerance, adaptability to low pruning systems, late ripening and fatty-acid content are important traits for olive or olive oil quality. Additionally,

morphological characters are sometime correlated or associated with disease susceptibility and can be used as markers in breeding.

The largest olive collection (accounting for 17 percent of the total olive trees with more than 500 varieties) is held by Agricultural Research Council - Olive growing and oil industry research centre (CRA-OLI) in Italy, followed by the collections of the Centro de Investigación y Formación Agroalimentaria Córdoba (CIFACOR) in Spain. The systematic collection of Italian olive varieties for deposit into specific catalogue fields began in Italy in the 1980s. A similar international collection was begun in 1997 by CRA-OLI of Rende, Italy. Collection entailed the following steps: a survey of the territory, individuation, basic characterization, and introduction into the gene bank field. Material identified by other international scientific institutions (International Treaty on Plant Genetic Resources for Food and Agriculture - Plant Genetic Resources RGV-FAO Projects) was also included. To date, roughly 500 varieties have been introduced into the CRA-OLI collection, and this list has been published (web site <http://apps3.fao.org/wIEWS/olive/oliv.jsp>). The goal of such collections is to safeguard all cultivars, and particularly the minor ones, to avoid a loss in genetic diversity and to offer an interesting genetic basis for breeding programs. Knowledge of genetic diversity in a crop species is fundamental to its improvement. A variety of molecular, chemical and morphological descriptors are used to characterize the genetic diversity among and within crop species.

Morphological and biological characters have been widely used for descriptive purposes and are commonly used to distinguish olive cultivars. Agronomic characterization also allowed the classification of different olive cultivars. Different molecular markers have recently been used to characterize and distinguish the olive cultivars.

Management of the CRA-OLI collection includes a description of its genetic diversity for a reliable characterization of all accessions since several cases of mislabelling, homonymy and synonymy could exist.

In the present work, we used morphological characterization and molecular markers and to characterize all accessions present in the CRA-OLI collection, to build a first molecular and morphological data-base and to analyze the genetic relationships between cultivars.

We used SSR markers for genotyping the complete collection of the olive germplasm. The experimental approach was based on using the parameters as recommended by International Olive Council (COI) for characterization and the bio-agronomic observations concerned the morphological characteristic of the trees, leaves, fruit and inflorescence and the flowering period. The fruits were examined for their morphology and oil composition and for endocarp characteristics.

Over 200 elaiographic cards with colour photos, graphs and tables and with full details relating to the identification the olive varieties growing in the CRA-OLI olive germplasm collection in Calabria, Italy were reported in annex. Additional information about agronomic behaviour of the plants, and the organoleptic oil values, as determined by a *panel test*, were also recorded.

2. Materials and methods

The passport data of the olive cultivars has permitted the unequivocal classification and location of all identified genotypes. The information provided in the passport data has the aim of integrating the morphological, agronomic, and molecular data of the olive genetic resources; this information has been complemented by the photographic documentation of each accession recovered.

The elaiographical cards were made up according to the International Union for the Protection of New Varieties of Plants - UPOV method and the biometric and morphological parameters evaluated for each of the accessions were as follows: trees, leaves; inflorescences; fruits and stones.

The agronomic characteristics have been evaluated on the observations of 4-5 trees over a period of 4-5 years. Additional information about cold and agronomic behaviour of the plants, and the organoleptic oil values, as determined by a *panel test*, were also recorded. All the olives varieties analysed were growing in the CRA-OLI olive germplasm collection at Mirto-Crosia (Cosenza, Italy).

2.1. Morphological characterization

The systematic utilization of descriptive morphological characters of the tree and various tree organs has enabled the characterization and discriminatory identification of varieties. The methodology used for describing the olive biodiversity recovered has considered a set of 24 morphological characters (tree: 3 characters; leaf: 3; inflorescence: 2; fruit: 8; endocarp: 8).

2.1.1. Characters of the tree

Three qualitative characters (vigour, growth habit, and canopy-density) are considered.

2.1.1.1. Plant vigour

This refers to both the size of the tree and the intrinsic ability of the scaffold branches and shoots to grow in length and width. It is divided into the following categories:

- a. *Weak*. Tree whose growth is modest even under optimal agronomic conditions. When mature, the trunk and the area projected by the canopy of the tree are distinctly less than what is expected of a specimen of this species.
- b. *Medium*. Tree which, in each area and when normal cultural practices are applied, displays the average development expected of an olive tree.
- c. *Strong*. Tree which, in each area and when normal cultural practices are applied, displays strong growth, marked trunk and canopy development in terms of both height and volume, and vigorous, long branches.

2.1.1.2. Growth habit

This character describes the natural distribution of the scaffold branches and shoots before there is interference from the training shape adopted and when vigour exerts little influence. Growth habit is divided into three categories (Figure 1):

- a. *Drooping*. Natural growth habit that can be characterized by plagiotropic branching, i.e. by shoots and limbs which are small in diameter and bend downwards from the outset.
- b. *Spreading*. Characterized by initial orthotropic branching. The weight of the canopy and/or of the crop subsequently forces the limb to bend down and turn in the direction in which the greatest amount of light and space is available. The canopy thus becomes hemispherical in shape (even when the olive has several trunks, they always remain quite distinct from each other).
- c. *Erect*. Habit characteristic of certain cultivars whose branches tend to grow vertically and have a strong apical dominance. The tree acquires a fairly pronounced conical shape which becomes cylindrical on reaching maturity. As a rule, cultivars which have an erect growth habit are also vigorous although there are some major exceptions.

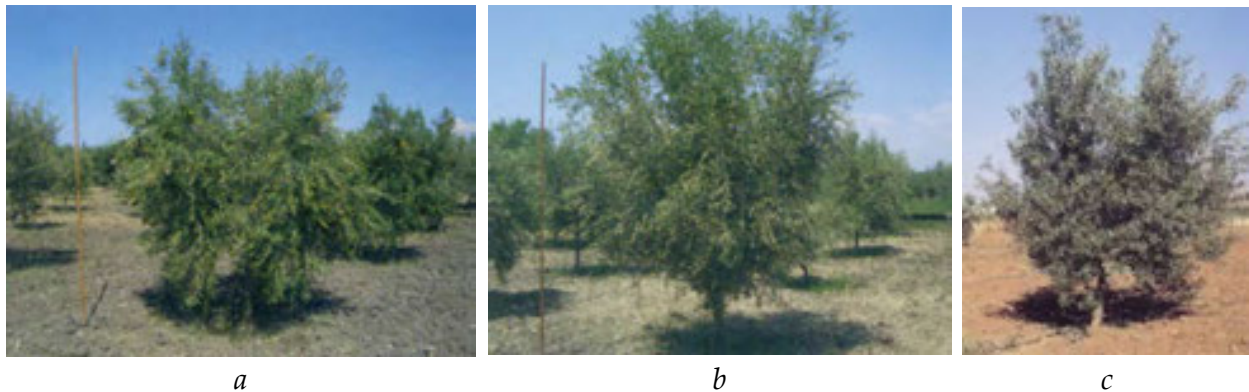


Figure 1. Categories of growth habit of the olive trees

2.1.1.3. Growth habit

Indicates the extent of canopy vegetation and can be measured by the possibility of light penetration. Result of the interaction between the length of the internodes, the number and vigour of the shoots and the size of the leaves. It is classified into three categories:

- a. *Sparse*. This is normally associated with fast-growing cultivars with long internodes. From any point “space” is observed through which light can penetrate.
- b. *Medium*. Density typical of the species. Vegetation is abundant but internode length and growth always leave internal space which produce a shading effect.
- c. *Dense*. This is characteristic of cultivars with short internodes, abundant branching and heavy foliage. The canopy displays a compact surface, the inner section of which is shaded.

2.1.2. Characters of the leaf

Three quantitative characters (length, width, and shape) are considered. Observed in samples of about 100 adult leaves and taken from the middle section of 8-10 one year old shoots chosen from the most representative shoots on the south facing side of the tree at shoulder level.

2.1.2.1. Blade length

Observed in samples of about 100 adult leaves taken from the middle section of 8-10 one year old shoots chosen from the most representative shoots on the south facing side of the tree at shoulder level.

Blade length (L) is classified into three categories:

- a. *Short* (< at 5 cm)
- b. *Medium* (from 5 to 7 cm)
- c. *Long* (> at 7 cm)

2.1.2.2. Blade width

Observed in samples of about 100 adult leaves taken from the middle section of 8-10 one year old shoots chosen from the most representative shoots on the south facing side of the tree at shoulder level. Blade width (W) is classified into three categories:

- a. *Narrow* (< at 1 cm)
- b. *Medium* (from 1 to 1.5 cm)
- c. *Broad* (> 1.5 cm)

2.1.2.3. Shape

This is determined by the ratio between the length and width. Shape is divided into three categories:



2.1.3. Characters of the inflorescence

Two quantitative characters (length and number of flowers for inflorescence) are considered (Figure 2).



Figure 2. Two different inflorescences

2.1.3.1. Length

Observed in samples of about 100 inflorescence at bud stage, taken from the middle section of 8-10 fruiting shoots chosen from the most representative shoots on the south facing side of the tree. It is classified into three categories:

- a. *Short* (< at 2.5 cm)
- b. *Medium* (from 2.5 to 3.5 cm)
- c. *Long* (> at 35 cm)

2.1.3.2. Number of flowers for inflorescence

Observed in samples of about 100 inflorescence at bud stage, taken from the middle section of 8-10 fruiting shoots chosen from the most representative shoots on the south facing side of the tree. It is classified into three categories:

- a. *Low* (< at 18 flowers)
- b. *Medium* (from 18 to 25 flowers)
- c. *High* (> 25 flowers)

2.1.4. Characters of the fruits

Two quantitative characters (weight and shape) and six qualitative characters (symmetry, position of maximum transverse diameter, apex, base, nipple, and lenticels) are considered. Some characters refer to two positions:

Position A in which the fruit generally displays the greatest asymmetry when held by either and between the index finger and thumb.

Position B is reached by turning 90° from *position A*.

2.1.4.1. Weight

Determined in a sample of 100 fruits taken from the middle section of fruiting shoots chosen from the most representative shoots on the south facing side of the tree. It is classified into four categories:

- a. *Low* (< at 2 g)
- b. *Medium* (from 2 to 4 g)
- c. *High* (from 4 to 6 g)
- d. *Very high* (> at 6)

2.1.4.2. Shape (position A)

Ratio between the length and width of fruits. Determined in a sample of 100 fruits taken from the middle section of fruiting shoots chosen from the most representative shoots on the south facing side of the tree. Shape is classified into three categories:



a-Spherical (< 1.25)



b- Ovoid (1.25 ↔ 1.45)



c- Elongated (>1.45)

2.1.4.3. Symmetry (position A)

Extent to which the two longitudinal halves match. Determined in a sample of 100 fruits taken from the middle section of fruiting shoots chosen from the most representative shoots on the south facing side of the tree. It is classified into three categories:



a- Symmetric



b- Slightly asymmetric



c- Asymmetric

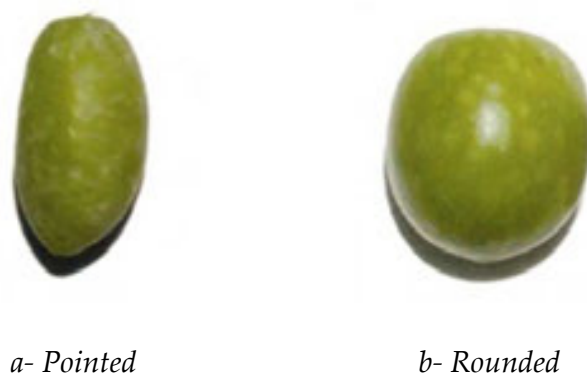
2.1.4.4. Position of maximum transverse diameter (position B)

According to its location. Determined in a sample of 100 fruits taken from the middle section of fruiting shoots chosen from the most representative shoots on the south facing side of the tree. It is classified into three categories:



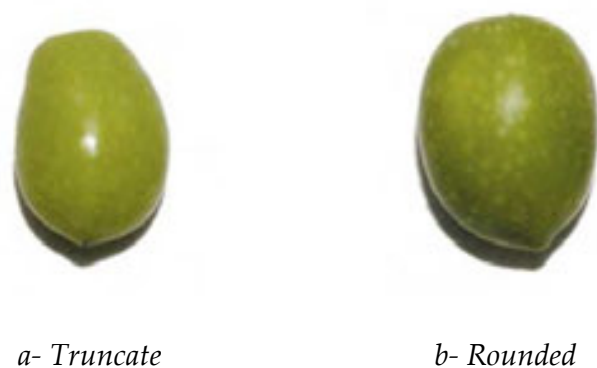
2.1.4.5. Apex (position A)

Determined in a sample of 100 fruits taken from the middle section of fruiting shoots chosen from the most representative shoots on the south facing side of the tree. It is classified into two categories:



2.1.4.6. Base (position A)

Determined in a sample of 100 fruits taken from the middle section of fruiting shoots chosen from the most representative shoots on the south facing side of the tree. It is classified into two categories:



2.1.4.7. Nipple

Determined in a sample of 100 fruits taken from the middle section of fruiting shoots chosen from the most representative shoots on the south facing side of the tree. This characteristic of the tip of the fruit style is:



a- Absent

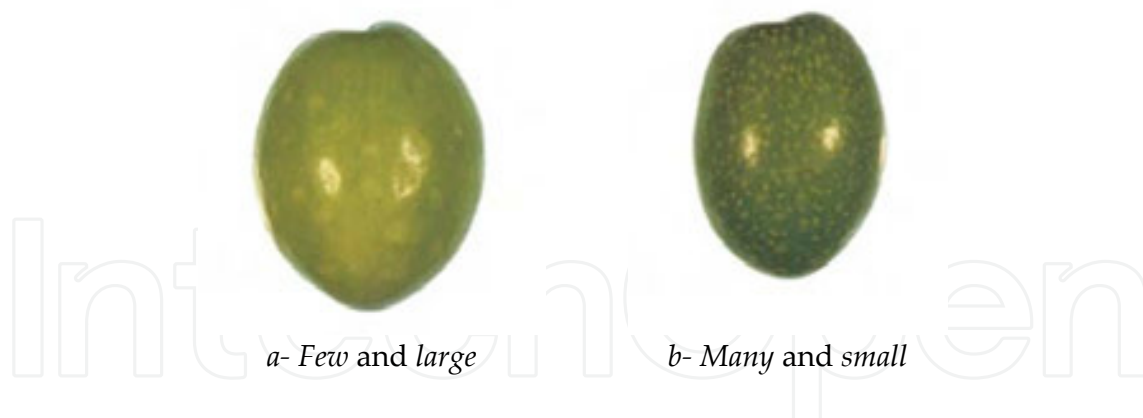
b- Tenuous

c- Obvious

2.1.4.8. Lenticelles

When the fruit is still green. Determined in a sample of 100 fruits taken from the middle section of fruiting shoots chosen from the most representative shoots on the south facing side of the tree. It is classified into the following categories:

- a. *few or many*
- b. *small or large*



a- Few and large

b- Many and small

2.1.5. Characters of the endocarp (stone)

The endocarp is the internal, woody part of the fruit that encloses the seed. Three quantitative characters (weight, shape, and number of grooves) and five qualitative characters (symmetry, position of maximum transverse diameter, apex, base, and surface) are considered. These are evaluated in the afore-mentioned sample of 100 fruits. As in the case of the fruit, some characters also refer to two positions. *Position A* is normally the position of maximum asymmetry and is that in which the carpel suture faces the observer. *Position B* is reached by turning 90° from *position A*.

2.1.5.1. Weight

The weight is evaluated on the afore-mentioned sample of 100 fruits. It is classified into four categories:

- a. *Low* (< at 0.3 g)
- b. *Medium* (from 0.3 to 0.45 g)
- c. *High* (from 0.45 to 0.7 g)
- d. *Very high* (> at 0.7)

2.1.5.2. Shape

Ratio between the length and width of endocarps. Shape is classified into four categories:



a- Spherical



b- Ovoid



c- Elliptic



d- Elongated

2.1.5.3. Symmetry (position A)

Extent to which the two longitudinal halves match. It is classified into three categories:



a- Symmetric



b- Slightly asymmetric



c- Asymmetric

2.1.5.4. Position of maximum transverse diameter (position B)

According to its location. It is classified into three categories:



a- Towards base



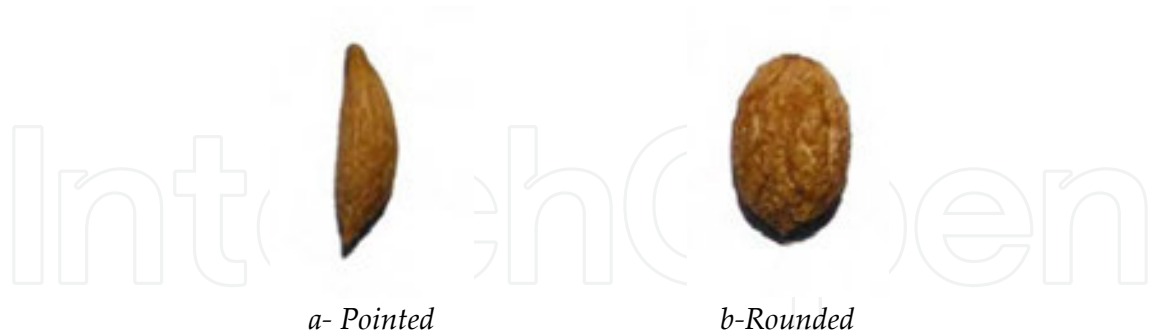
b- Central apex



c- Towards apex

2.1.5.5. Apex (position A)

The apex is classified into two categories:



2.1.5.6. Base (position A)

The base is classified into three categories:



2.1.5.7. Surface (position A)

Based on depth and abundance of fibrovascular bundles. It is classified into three categories:



2.1.5.8. Number of grooves

Number of grooves that can be seen from the stalk insertion point. It is classified into three categories:

- a. *Low* (< at 7)
- b. *Medium* (from 7 at 10)
- c. *High* (> at 10)

2.2. Pomological characterization and oil quality

To complete the description of the varieties recovered a methodology has also been adopted for the secondary characterization (pomological and oil quality) of the varieties held in the CRA-OLI collections; this characterization had the aim of providing reliable data on the pomological value of the varieties identified and a common method has been used, the object being to unify the criteria for evaluating these parameters. This will help to minimize the differences that the use of different methods of study could cause in the characterization of world germplasm.

2.2.1. Average fresh weight of fruit

This parameter is calculated from 100 olives harvested at the black stage of maturation. The following categories have been established.

- a. *Very low* (< at 2 g)
- b. *Low* (from 2 at 4 g)
- c. *Medium* (from 4 at 6 g)
- d. *High* (from 6 at 8 g)
- e. *Very high* (> at 8 g)

2.2.2. Average fresh weight of stone

This parameter is calculated from 100 stones obtained from the fruit and after removing the flesh. The following categories have been established.

- a. *Very low* (< at 0.2 g)
- b. *Low* (from 0.2 at 0.4 g)
- c. *Medium* (from 0.4 at 0.6 g)
- d. *High* (from 0.6 at 0.8 g)
- e. *Very high* (> at 0.8 g)

2.2.3. Flesh/Stone ratio of the fruit

This parameter is calculated from the fruit and stone weight data obtained from samples. The following categories have been established.

- a. *Low* (< at 5.0)
- b. *Medium* (from 5.0 at 7.5)
- c. *High* (from 7.5 at 10.0)
- d. *Very high* (> at 10.0)

2.2.4. Percentage of oil in the fruit

This parameter is calculated from 0.3 kg paste olive samples that was milled for 1 min (standardized time to obtain a homogeneous sample and to minimize heating of the olive

paste) in a small hammer mill. For oil content determination, the sample was analyzed using a Fourier Transform Near-InfraRed instrument (MPA Multi Purpose AnalyzerFT-NIR spectrometer system (Bruker Optics, Milan,Italy), according to Bendini *et al.*, 2007. The following categories have been established.

- a. *Very low* (< at 30 %)
- b. *Low* (from 30 at 40 %)
- c. *Medium* (from 40 at 50 %)
- d. *High* (from 50 at 60 %)
- e. *Very high* (> at 60%)

2.2.5. Olive oil extraction

For each sample 5 kg of olives were picked from five trees grown in the CRA-OLI germplasm collection, and then milled in a laboratory scale hammer mill (Oliomio, Toscana Enologica Mori, Tavernelle Val di Pesa, Italy). After 30 minutes of malaxation at room temperature the oil was separated by centrifugation in the same operative conditions (Figure 3). Then the oil was filtered and stored in the dark at 8 °C until analysis.



Figure 3. Decanter and disc stack centrifuges

2.2.6. Oil determinations

The quality of the oil has been determined according to its fatty acid composition (Muzzalupo *et al.*, 2011). Expressed as a percentage and determined according to the official method of European Community (Commission Regulation No 61/2011).

2.2.7. Sensory analysis

Quantitative descriptive analysis was carried out by a total of 9 assessors, members of staff of the CRA-OLI of Rende (CS), using the procedure reported in a later chapter ("*sensory*

properties of virgin olive oils”). The assessors had experience in Qualitative Data Analysis - QDA (Stone and Sidel, 2004) and virgin olive oil sensory evaluation in accordance with the current UE Regulation (N. 61/2011).

Virgin olive oil samples (15 g) were served to the assessors in clear glass tumblers (100 mL), covered with watch glasses at room temperature (approximately 28 °C). The samples were presented in duplicate, in balanced order to each assessor.

For a description of the virgin olive oils, the following terms were used: yellow, yellow-green, intense green, musk-green to describe the virgin olive oil colour; fruity, cut-grass, floral, hay-like, almond, apple, and artichoke for the virgin olive oil olfactory profile; pungent, bitter, greasy, and sweet to define the virgin olive oil taste notes.

The intensity of those sensations was graded using a line scale and thus converted into a numerical score by measuring the position of the placed mark along a 10 cm line. The results were calculated as the median among assessor sensory scores.

2.3. Molecular markers

The total genomic DNA was isolated from fresh, young leaves following a CTAB protocol originally developed by Murry and Tompson (1980) and further modified by Muzzalupo and Perri (2002). The olive trees were genotyped at 11 nuclear microsatellite loci, selected among those available in literature and proved to be suitable for the characterization and

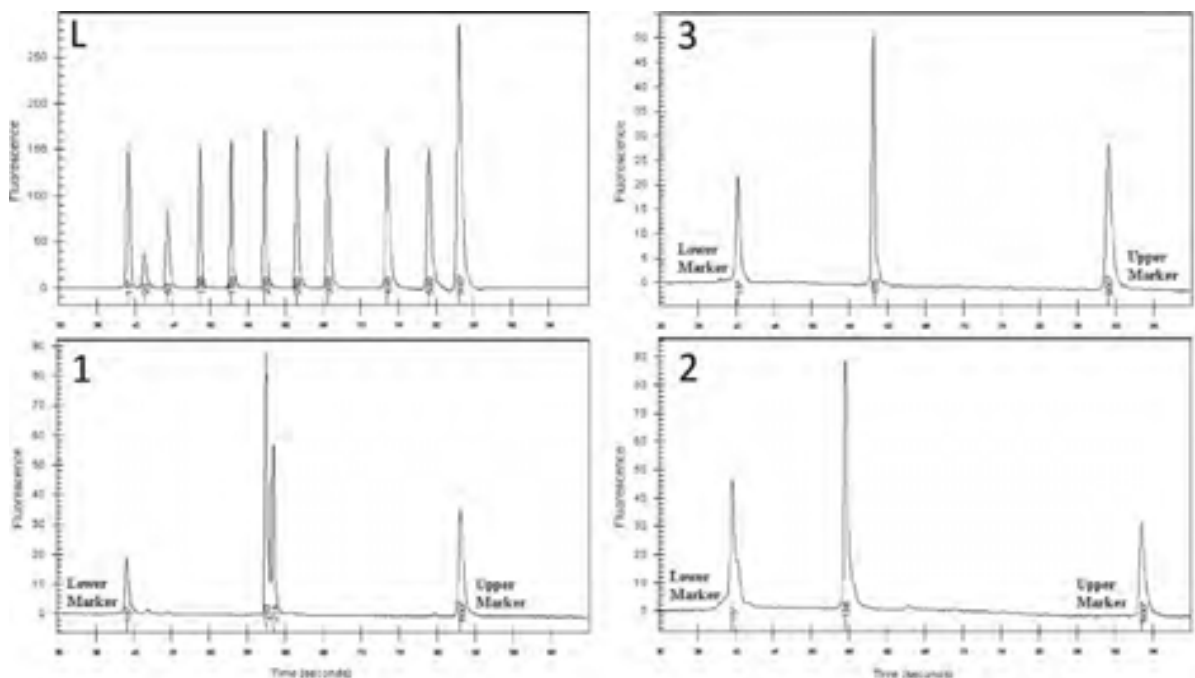


Figure 4. SSR profile of olive cultivar. The electropherograms were obtained using the 2100 Bioanalyzer running DNA 500 LabChips. DNA extracted from leaf. GAPU71A (1), UDO03 (2), UDO 39 (3), and Ladder (L). The horizontal axis represents migration time of DNA fragments in seconds, and the vertical axis represents fluorescence. Upper and lower peaks in the electropherogram represent the internal DNA markers at 15 and 600 bp, which were used to size and quantify the PCR products

identification of olive varieties in previous papers (Baldoni *et al.*, 2009; Muzzalupo *et al.*, 2009). The loci used were four (GAPU59, GAPU71A, GAPU71B and GAPU103A) among those described by Carriero *et al.* (2002) five (UDO01, UDO03, UDO12, UDO28 and UDO39) among those described by Cipriani *et al.* (2002) and two (DCA9 and DCA18) among those described by Sefc *et al.* (2000). Four loci of the selected markers (GAPU71B, GAPU103A, DCA9 and DCA18) were chosen from the common list reported by Baldoni *et al.* (2009) for use in a future comparison of data, while others (Gapu59, GAPU71A, UDO01, UDO03, UDO12, UDO28 and UDO39) were chosen as in other recent studies they were found to be very suitable for Italian intra-cultivars characterization and for characterization of olive germplasm collections (Muzzalupo *et al.*, 2009; Muzzalupo *et al.*, 2010). Electrophoresis and detection of PCR products were carried out according to Muzzalupo *et al.* (2007).

3. Conclusion

The morphological and molecular characterizations (elaiographic cards) are efficient for olive germplasm management, including the characterisation of varieties and the establishment of relationships between cultivars in the CRA-OLI olive collection. Beyond this identification, we constructed a data base that can be used to make a reference collection of Italian olive germplasm by comparing the morphological and molecular pattern of each identified varieties with samples from different areas.

Introducing new accessions by prospecting in different Mediterranean areas is currently in progress. The choice of which new varieties enter into the CRA-OLI collection can now take into account our results, both by avoiding duplicates and also by maximising genetic diversity.

Author details

Innocenzo Muzzalupo

Agricultural Research Council - Olive Growing and Oil Industry Research Centre, Rende (CS), Italy

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Annex - Elaiographic Cards

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- Alessandrino Maria, Gianluca Godino, and Muzzalupo Innocenzo who provided photos of the olive varieties.

List of olive varieties

1.	Abunara	51.	Feglina	101.	Nocellara etnea	151.	Razzo
2.	Arnasca	52.	Fosco	102.	Nocellara messinese	152.	Razzola
3.	Ascolana dura	53.	Frangivento	103.	Nociara	153.	Riminino
4.	Ascolana semitenera	54.	Frantoio	104.	Nolca	154.	Ritonnella
5.	Ascolana tenera	55.	Gaggiolo	105.	Nostrale di Fiano Romano	155.	Rizzitella
6.	Augellina	56.	Gentile di Chieti	106.	Nostrale di Rigali	156.	Romanella molisana
7.	Aurina	57.	Gentile di Larino	107.	Nostrana di Brisighella	157.	Rosciola Coltodino
8.	Bianchera	58.	Gentile nera di Colletorto	108.	Ogliara	158.	Rosciola di Rotello
9.	Borgese	59.	Geracese	109.	Ogliarola barese	159.	Rosciola di Venafro
10.	Borgiona	60.	Giarfara	110.	Ogliarola del Vulture	160.	Rosciola
11.	Bosana	61.	Giarraffa	111.	Ogliarola messinese	161.	Rotondella di Sanza
12.	Brandofino	62.	Giusta	112.	Ogliastro grande	162.	Salvia
13.	Buscionetto	63.	Gnagnaro	113.	Olivago	163.	Sammartinara
14.	Cacaredda	64.	Grappolo	114.	Oliustra seggianese	164.	Sammartinenga
15.	Calatina	65.	Grignan	115.	Olivastro di Bucchianico	165.	San Benedetto
16.	Canino	66.	Grossa di Cassano	116.	Olivastro frentano	166.	San Francesco
17.	Carboncella	67.	Grossa di Spagna	117.	Olivo da olio	167.	Santa Caterina
18.	Carbonchia	68.	Grossa di Venafro	118.	Olivo da salare	168.	Santa Maria
19.	Cariasina	69.	Grossale	119.	Olivo della Madonna	169.	Sant'Agatese
20.	Carmelitana	70.	I 77	120.	Orbetana	170.	Sant'Agostino
21.	Carolea	71.	Imperiale	121.	Ortice	171.	Santomauro
22.	Carpinetana	72.	Intosso	122.	Ortolana	172.	Sargano di Fermo
23.	Castiglione	73.	Itrana	123.	Ottobratica	173.	Sargano di San Benedetto
24.	Castricianella rapparina	74.	Laurina	124.	Ottobrina	174.	Scarpetta
25.	Cavaliere	75.	Lavagnina	125.	Paesana bianca	175.	Semidana
26.	Cazzinicchio	76.	Leccino	126.	Paesana nera	176.	Sessana
27.	Cellina di Nardò	77.	Lezze	127.	Palmarola	177.	Simona
28.	Cellina di Rotello	78.	Lumiaru	128.	Pasola	178.	Sinopolese
29.	Cerasuola	79.	Maiatica di Ferrandina	129.	Passulunara	179.	Sirole
30.	Ciciariello	80.	Marina	130.	Pennulara	180.	Sperone di gallo
31.	Cima di Melfi	81.	Marzio	131.	Peranzana	181.	Termite di Bitetto
32.	Colombina	82.	Mignola	132.	Perciasacchi	182.	Terza grande
33.	Coratina	83.	Mignolo	133.	Piangente	183.	Tombarello
34.	Corneglia	84.	Minna di vacca	134.	Piantone di Falerone	184.	Tonda di Alife
35.	Cornia	85.	Monaca	135.	Piantone di Mogliano	185.	Tonda di Filadelfia
36.	Corniola	86.	Mora	136.	Pidicuddara	186.	Tonda di Filogaso
37.	Corniolo	87.	Moraiolo "T. Corsini"	137.	Pignola	187.	Tonda di Strongoli
38.	Coroncina	88.	Moraiolo	138.	Pisciottana	188.	Tonda dolce di Partanna
39.	Corsicana da olio	89.	Morchiaio	139.	Pizzè' carroga	189.	Tonda iblea
40.	Crognalegna	90.	Moresca	140.	Pizzutella	190.	Tondina
41.	Cucca	91.	Morinello	141.	Posola	191.	Tortiglione
42.	Dolce Agogia	92.	Nasitana frutto grosso	142.	Posolella	192.	Toscanina
43.	Dolce d'Andria	93.	Nebba	143.	Provenzale	193.	Tunnulidda
44.	Dolce di Cassano	94.	Nebbia	144.	Puntella	194.	Vaddara
45.	Dolce di Rossano	95.	Nebbio di Chieti	145.	Racioppa	195.	Vallanella
46.	Dritta	96.	Nebbio di Pescara	146.	Racioppella	196.	Verdello
47.	Erbano	97.	Negrera	147.	Raggiola	197.	Vocio
48.	Faresana	98.	Nera di Cantinella	148.	Raja sabina	198.	Zaituna
49.	Favarol	99.	Nera di Gonnos	149.	Ravece	199.	Zimbimbo
50.	Fecciaro	100.	Nocellara del Belice	150.	Raza	200.	Zinzifarica

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their characterization in Italian and Iberian olive trees. *Molecular Ecology*, Vol.9, pp. 1171-1173, ISSN 0962-1083.

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IntechOpen

IntechOpen

“ Abunara ”

(synonymy: Marsalesa, Marsalese, Marsalisa, Nuciddara, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** (7,18 ± 0,85)
 Oil content (%): **medium** (44,06 ± 3,11)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **spreading-erect**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** (6,36 ± 0,54)
 Blade width (cm): **medium** (1,46 ± 0,12)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** (2,62 ± 0,88)
 Number of flowers: **low** (16,31 ± 1,66)

Fruit characters

Fresh weight of 100 fruits (g): **very high** (6,28 ± 0,45)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **very high** (0,77 ± 0,03)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % ± standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 ± 0,00	Linoleic acid (ω6)	8,42 ± 0,14	Lignoceric acid	0,03 ± 0,01
Palmitic acid	13,26 ± 0,25	Linolenic acid (ω3)	0,75 ± 0,03		
Palmitoleic acid	1,30 ± 1,13	Arachic acid	0,26 ± 0,05	Unsat./saturated	5,55 ± 0,14
Stearic acid	1,62 ± 0,10	Eicosenoic acid	0,02 ± 0,00	ω6/ω3	11,23 ± 0,67
Oleic acid	73,13 ± 0,47	Behenic acid	0,07 ± 0,01		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium-light, with taste of almond. Balanced taste sensation with medium-light bitter and spicy. Medium-light fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 162	179 - 181	208 - 212	210 - 210	124 - 124	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 177	182 - 182	108 - 108	

References:

- 1 - Bottari V., Spina P. In: *Le varietà di olivo coltivate in Sicilia*, Ann. Sper. Agr. (1953), 7: pp. 937-1004.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience*, (2009), 44: pp. 582-588.

“ Arnasca ”

(synonymy: *Pignola di Arnasco*)

Areal distribution or origin area: **Liguria**
 Flesh/pit weight ratio: **medium (5,12 ± 1,13)**
 Oil content (%): **medium (41,79 ± 1,16)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **drooping**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium (6,38 ± 0,56)**
 Blade width (cm): **medium (1,42 ± 0,11)**
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **short (2,20 ± 1,35)**
 Number of flowers: **medium (19,76 ± 2,96)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,09 ± 0,52)**
 Shape (length/width): **ovoid**
 Symmetry: **slightly**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **medium (0,34 ± 0,05)**
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % ± standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 ± 0,01	Linoleic acid (ω6)	7,28 ± 0,01	Lignoceric acid	0,06 ± 0,03
Palmitic acid	13,08 ± 0,17	Linolenic acid (ω3)	0,50 ± 0,04		
Palmitoleic acid	1,47 ± 0,00	Arachic acid	0,31 ± 0,16	Unsat./saturated	5,39 ± 0,03
Stearic acid	2,04 ± 0,11	Eicosenoic acid	0,33 ± 0,05	ω6/ω3	14,59 ± 1,24
Oleic acid	73,52 ± 0,52	Behenic acid	0,11 ± 0,01		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 176	177 - 179	212 - 212	214 - 218	130 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 135	164 - 177	161 - 205	213 - 232	

References:

- 1 - Cimato A., Cantini C., Sani G. In: *Atti 4° Convegno Nazionale sulla Biodiversità*, Alghero (2000), pp. 497-500.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Ascolana dura ”

(synonymy: *Ascolana semidura*, *Gentile*, *Oliva di San Francesco*, etc.)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** ($6,79 \pm 0,24$)
 Oil content (%): **medium** ($46,31 \pm 0,13$)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($6,19 \pm 0,37$)
 Blade width (cm): **medium** ($1,18 \pm 0,10$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,87 \pm 0,50$)
 Number of flowers: **low** ($14,72 \pm 0,52$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,15 \pm 0,60$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,67 \pm 0,09$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

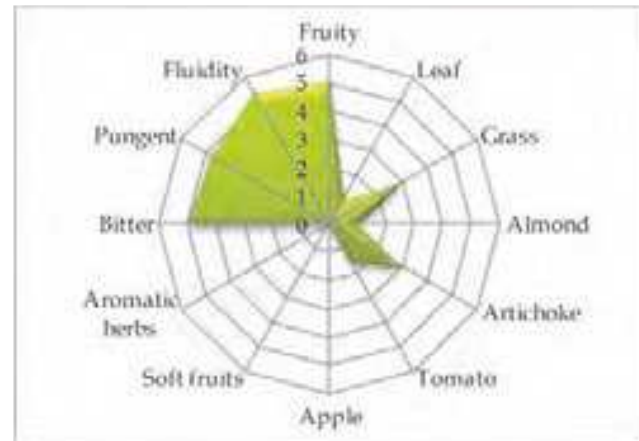
Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	10,92 \pm 0,04	Lignoceric acid	0,05 \pm 0,01
Palmitic acid	15,05 \pm 0,02	Linolenic acid (ω 3)	0,78 \pm 0,01		
Palmitoleic acid	3,07 \pm 0,04	Arachic acid	0,19 \pm 0,01	Unsat./saturated	4,76 \pm 0,03
Stearic acid	1,64 \pm 0,04	Eicosenoic acid	0,02 \pm 0,00	ω 6/ ω 3	14,00 \pm 0,30
Oleic acid	65,48 \pm 0,52	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with good sensation of grass, artichoke and tomato. Balanced in flavours, with hints of bitter and spicy medium-high intensity. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 181	214 - 222	214 - 224	124 - 130	136 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 166	182 - 210	200 - 200	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*, ASSAM (2001), pp. 13-16.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Ascolana semitenera ”

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** ($5,91 \pm 0,21$)
 Oil content (%): **medium** ($45,27 \pm 1,48$)
 Purpose: **table**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,20 \pm 0,34$)
 Blade width (cm): **medium** ($1,20 \pm 0,01$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **long** ($3,54 \pm 2,20$)
 Number of flowers: **medium** ($18,81 \pm 0,53$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,74 \pm 0,33$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,68 \pm 0,08$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	9,77 \pm 0,09	Lignoceric acid	0,04 \pm 0,01
Palmitic acid	12,13 \pm 0,24	Linolenic acid ($\omega 3$)	0,79 \pm 0,02		
Palmitoleic acid	3,52 \pm 0,22	Arachic acid	0,22 \pm 0,06	Unsat./saturated	5,93 \pm 0,09
Stearic acid	1,61 \pm 0,11	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	12,35 \pm 0,50
Oleic acid	68,59 \pm 0,10	Behenic acid	0,08 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with good sensation of grass, artichoke and tomato. Balanced in flavors, with hints of bitter and spicy medium-high intensity. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 181	214 - 222	214 - 224	124 - 130	136 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 135	166 - 166	182 - 210	200 - 232	

References:

- 1 - Jacoboni N., Fontanazza G. In: *Le Cultivar*, Ed. Reda l'Olivo (1981), pp. 9-52.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Ascolana tenera ”

(synonymy: *Noce, Oliva noce, Oliva grossa, etc.*)

Areal distribution or origin area: **Marche**

Flesh/pit weight ratio: **high** ($9,30 \pm 0,16$)

Oil content (%): **medium** ($43,22 \pm 1,96$)

Purpose: **table**

Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading-erect**

Canopy-density: **medium-dense**



Leaf characters

Blade length (cm): **medium** ($5,79 \pm 0,53$)

Blade width (cm): **medium** ($1,42 \pm 0,19$)

Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** ($2,49 \pm 1,86$)

Number of flowers: **low** ($16,76 \pm 1,01$)

Fruit characters

Fresh weight of 100 fruits (g): **very high** ($7,04 \pm 1,27$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **few and small**

Pit characters

Weight of 100 pits (g): **high** ($0,66 \pm 0,14$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **symmetric**

Position of maximum transverse diameter:

towards apex

Apex: **pointed**

Base: **pointed**

Surface: **rugose**

Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	4,98 \pm 0,64	Lignoceric acid	0,07 \pm 0,01
Palmitic acid	10,65 \pm 1,00	Linolenic acid (ω 3)	0,66 \pm 0,04		
Palmitoleic acid	1,51 \pm 0,16	Arachic acid	0,03 \pm 0,01	Unsat./saturated	6,81 \pm 0,82
Stearic acid	1,79 \pm 0,16	Eicosenoic acid	0,02 \pm 0,00	ω 6/ ω 3	7,55 \pm 0,15
Oleic acid	78,94 \pm 1,06	Behenic acid	0,06 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of grass, less almond and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 179	214 - 222	214 - 224	126 - 144	136 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 166	150 - 161	200 - 200	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*, ASSAM (2001), pp. 17-20.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Augellina ”

(synonymy: *Agnellina*, *Cellina*, etc.)

Areal distribution or origin area: **Basilicata**

Flesh/pit weight ratio: **high** ($7,82 \pm 0,82$)

Oil content (%): **medium** ($41,14 \pm 2,43$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($6,84 \pm 0,55$)

Blade width (cm): **broad** ($1,55 \pm 0,16$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($3,65 \pm 1,76$)

Number of flowers: **medium** ($20,83 \pm 4,39$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,64 \pm 0,29$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,64 \pm 0,05$)

Shape (length/width): **elliptic**

Mucron: **absent**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **pointed**

Surface: **rugose**

Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	8,79 \pm 0,70	Lignoceric acid	0,07 \pm 0,02
Palmitic acid	15,17 \pm 0,61	Linolenic acid (ω 3)	0,81 \pm 0,08		
Palmitoleic acid	1,25 \pm 0,06	Arachic acid	0,24 \pm 0,04	Unsat./saturated	4,93 \pm 0,18
Stearic acid	1,46 \pm 0,04	Eicosenoic acid	0,24 \pm 0,15	ω 6/ ω 3	10,85 \pm 0,10
Oleic acid	71,66 \pm 0,69	Behenic acid	0,10 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of soft fruits and read sensations of almond and grass. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 198	177 - 181	208 - 208	210 - 210	124 - 126	157 - 203
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	164 - 166	150 - 150	205 - 205	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita-Potenza (2002), pp. 53-65.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Aurina ”

(synonymy: *Aurina di Venafro, Liciniana, Oliva di Venafro, etc.*)

Areal distribution or origin area: **Molise**

Flesh/pit weight ratio: **low (3,92 ± 0,49)**

Oil content (%): **medium (42,50 ± 1,69)**

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **erect**

Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium (6,02 ± 0,61)**

Blade width (cm): **broad (1,62 ± 0,26)**

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium (2,69 ± 1,11)**

Number of flowers: **medium (21,28 ± 2,72)**

Fruit characters

Fresh weight of 100 fruits (g): **low (1,28 ± 0,15)**

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low (0,26 ± 0,01)**

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	7,92 \pm 0,62	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	16,03 \pm 1,22	Linolenic acid (ω 3)	0,80 \pm 0,05		
Palmitoleic acid	1,90 \pm 0,24	Arachic acid	0,28 \pm 0,21	Unsat./saturated	4,41 \pm 0,39
Stearic acid	2,00 \pm 0,21	Eicosenoic acid	0,02 \pm 0,00	ω 6/ ω 3	9,98 \pm 1,45
Oleic acid	69,27 \pm 1,16	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: **fruity medium, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 206	173 - 175	222 - 222	210 - 214	124 - 144	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 177	154 - 205	213 - 213	

References:

- 1 - Macrì T., Picone G., La Porta G. In : *Olivo e Olio*, (1988), 5: pp. 34-41.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Bianchera ”

(synonymy: *Belica, Bellica, Bianca istriana, Biancara, etc.*)

Areal distribution or origin area: **Friuli**
 Flesh/pit weight ratio: **very high (8,10 ± 1,00)**
 Oil content (%): **medium (50,21 ± 0,84)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **short (4,58 ± 0,49)**
 Blade width (cm): **medium (1,25 ± 0,17)**
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **short (2,47 ± 0,26)**
 Number of flowers: **low (14,83 ± 0,98)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (3,37 ± 0,08)**
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium (0,41 ± 0,07)**
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	8,26 \pm 0,01	Lignoceric acid	0,05 \pm 0,02
Palmitic acid	11,47 \pm 0,73	Linolenic acid ($\omega 3$)	0,96 \pm 0,03		
Palmitoleic acid	1,18 \pm 0,43	Arachic acid	0,30 \pm 0,00	Unsat./saturated	6,13 \pm 0,11
Stearic acid	2,14 \pm 0,84	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	8,61 \pm 0,24
Oleic acid	74,60 \pm 0,66	Behenic acid	0,10 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with good sensation of grass, artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium-high intensity. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 182	177 - 185	214 - 214	214 - 224	130 - 130	136 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	166 - 193	182 - 205	213 - 232	

References:

- 1 - Consiglio Oleicolo Internazionale. In: *Catalogo Mondiale delle Varietà di Olivo*, COI (2003).
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Borgese ”

Areal distribution or origin area: **Calabria**
 Flesh/pit weight ratio: **medium** ($6,90 \pm 1,07$)
 Oil content (%): **medium** ($49,13 \pm 2,04$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **long** ($7,53 \pm 0,71$)
 Blade width (cm): **broad** ($1,68 \pm 0,09$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** ($2,19 \pm 3,20$)
 Number of flowers: **medium** ($6,90 \pm 1,07$)

Fruit characters

Fresh weight of 100 fruits (g): **very high** ($6,13 \pm 1,69$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,61 \pm 0,10$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % ± standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

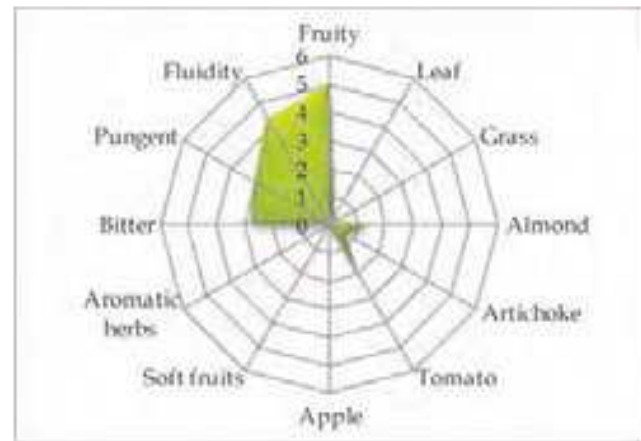
Myristic acid	0,01 ± 0,01	Linoleic acid (ω6)	7,81 ± 0,93	Lignoceric acid	0,05 ± 0,04
Palmitic acid	8,57 ± 0,15	Linolenic acid (ω3)	0,80 ± 0,31		
Palmitoleic acid	0,45 ± 0,03	Arachic acid	0,35 ± 0,07	Unsat./saturated	7,93 ± 0,30
Stearic acid	2,33 ± 0,21	Eicosenoic acid	0,14 ± 0,21	ω6/ω3	11,58 ± 7,00
Oleic acid	79,28 ± 0,84	Behenic acid	0,10 ± 0,04		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: **fruity medium-high, with hints of almond and tomato, read sensations of grass and leaves. Balanced taste sensation with a light bitter and spicy. Medium fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	179 - 179	212 - 222	214 - 214	130 - 144	150 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	143 - 205	200 - 220	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp. 19.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività, CO.R.ASS.OL.* (2003).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Borgiona ”

(synonymy: *Basciona, Borgiana, Borsciona, Morcona, etc.*)

Areal distribution or origin area: **Umbria**
 Flesh/pit weight ratio: **medium** ($6,41 \pm 0,68$)
 Oil content (%): **medium** ($45,46 \pm 0,73$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,25 \pm 0,53$)
 Blade width (cm): **medium** ($1,18 \pm 0,14$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($3,74 \pm 1,65$)
 Number of flowers: **medium** ($18,04 \pm 2,69$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,52 \pm 0,35$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,48 \pm 0,05$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	7,56 \pm 0,05	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	11,05 \pm 0,07	Linolenic acid (ω 3)	0,94 \pm 0,06		
Palmitoleic acid	1,01 \pm 0,32	Arachic acid	0,28 \pm 0,06	Unsat./saturated	6,27 \pm 0,17
Stearic acid	2,36 \pm 0,39	Eicosenoic acid	0,03 \pm 0,02	ω 6/ ω 3	8,10 \pm 0,50
Oleic acid	75,57 \pm 0,76	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and artichoke. Balanced taste sensation with a medium-light bitter and spicy. Medium-light fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

DCA09	DCA18	GAPU59	GAPU71A	GUPA71B	GAPU103A
166 - 198	177 - 181	214 - 222	214 - 224	130 - 144	157 - 157
UDO01	UDO03	UDO12	UDO28	UDO39	
140 - 140	143 - 143	166 - 193	150 - 210	200 - 200	

References:

- 1 - Pannelli G., Alfei B., D' Ambrosio A., et al. In: *Varietà di olivo in Umbria*, Ed. Pliniana (2000), pp. 1-6.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Bosana ”

(synonymy: *Bosana a scopa*, *Bosana pendula*, *Olia de ozzu*, etc.)

Areal distribution or origin area: **Sardegna**
 Flesh/pit weight ratio: **medium** ($5,29 \pm 0,23$)
 Oil content (%): **medium** ($40,99 \pm 1,96$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,38 \pm 0,29$)
 Blade width (cm): **broad** ($1,61 \pm 0,15$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,81 \pm 1,51$)
 Number of flowers: **medium** ($20,32 \pm 1,26$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,19 \pm 0,25$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **high** ($5,29 \pm 0,23$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,00	Linoleic acid (ω 6)	6,34 \pm 1,94	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	9,71 \pm 1,46	Linolenic acid (ω 3)	0,89 \pm 0,03		
Palmitoleic acid	0,43 \pm 0,07	Arachic acid	0,26 \pm 0,02	Unsat./saturated	7,14 \pm 0,99
Stearic acid	2,45 \pm 0,13	Eicosenoic acid	0,08 \pm 0,04	ω 6/ ω 3	7,07 \pm 1,94
Oleic acid	79,43 \pm 0,18	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of grass, less almond and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium fluidity.



Molecular Markers

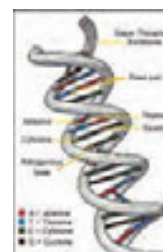


Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 198	181 - 185	214 - 222	214 - 218	130 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	135 - 135	177 - 193	161 - 205	205 - 205	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Brandofino ”

(synonymy: *Mantonica, Nostrale, Randazzese, Randazzisa, etc.*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **very high** (14,33 ± 0,60)
 Oil content (%): **medium** (49,24 ± 2,49)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **spreading-erect**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** (5,71 ± 0,46)
 Blade width (cm): **medium** (1,42 ± 0,19)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **short** (2,37 ± 0,87)
 Number of flowers: **low** (12,47 ± 2,37)

Fruit characters

Fresh weight of 100 fruits (g): **very high** (7,92 ± 1,40)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **high** (0,60 ± 0,03)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % ± standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 ± 0,00	Linoleic acid (ω6)	10,47 ± 0,05	Lignoceric acid	0,03 ± 0,00
Palmitic acid	12,71 ± 1,00	Linolenic acid (ω3)	0,91 ± 0,03		
Palmitoleic acid	1,33 ± 0,65	Arachic acid	0,21 ± 0,05	Unsat./saturated	5,87 ± 0,67
Stearic acid	1,54 ± 0,32	Eicosenoic acid	0,03 ± 0,01	ω6/ω3	11,51 ± 0,42
Oleic acid	71,32 ± 2,67	Behenic acid	0,06 ± 0,01		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium-light, with taste of almond, read sensations of tomato and aromatic herbs. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	179 - 179	208 - 212	210 - 214	126 - 144	136 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	143 - 143	213 - 232	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 82-86.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Buscionetto ”

(synonymy: *Biancolilla, Caltabellottese, Ianculidda, Oliva di Caltabellotta, etc.*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($7,03 \pm 0,74$)
 Oil content (%): **medium** ($49,66 \pm 2,79$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **short** ($3,44 \pm 0,38$)
 Blade width (cm): **medium** ($1,38 \pm 0,20$)
 Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** ($2,06 \pm 0,68$)
 Number of flowers: **low** ($12,90 \pm 2,93$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,91 \pm 1,23$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **high** ($7,03 \pm 0,74$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	6,65 \pm 0,63	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	12,93 \pm 0,08	Linolenic acid ($\omega 3$)	0,82 \pm 0,04		
Palmitoleic acid	1,07 \pm 0,49	Arachic acid	0,21 \pm 0,03	Unsat./saturated	5,64 \pm 0,24
Stearic acid	1,80 \pm 0,53	Eicosenoic acid	0,04 \pm 0,01	$\omega 6/\omega 3$	8,25 \pm 6,05
Oleic acid	75,46 \pm 1,20	Behenic acid	0,06 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and tomato, read sensations of grass and leaves. Balanced taste sensation with a light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 198	181 - 181	212 - 212	210 - 214	124 - 126	136 - 150
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	166 - 193	154 - 154	213 - 213	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., *et al.* In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 29-34.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“Cacaredda”

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** ($6,57 \pm 0,50$)
 Oil content (%): **medium** ($48,89 \pm 1,18$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,48 \pm 0,39$)
 Blade width (cm): **medium** ($1,35 \pm 0,12$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,73 \pm 1,01$)
 Number of flowers: **low** ($14,09 \pm 0,39$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,74 \pm 0,11$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and small**

Pit characters

Weight of 100 pits (g): **high** ($0,50 \pm 0,05$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	10,01 \pm 1,21	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	7,58 \pm 0,03	Linolenic acid ($\omega 3$)	0,89 \pm 0,06		
Palmitoleic acid	0,59 \pm 0,24	Arachic acid	0,21 \pm 0,00	Unsat./saturated	9,80 \pm 0,09
Stearic acid	1,44 \pm 0,08	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	11,27 \pm 0,62
Oleic acid	78,99 \pm 1,55	Behenic acid	0,06 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of grass, read sensations of almond, artichoke and leaves. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	181 - 181	208 - 212	210 - 210	124 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	182 - 182	205 - 205	

References:

- 1 - Tucci A., Mule' R., Fodale A. S. In: *Indagini sul germoplasma olivicolo in Sicilia*, Sviluppo Agricolo (1995), 1/2: pp. 55-64.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* 2008, 22(2): pp. 142-148.

“ Calatina ”

(synonymy: *Galatina, Montagna, Montagna Calatina, etc.*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** (5,35 ± 0,42)
 Oil content (%): **medium** (45,39 ± 2,10)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** (5,26 ± 0,16)
 Blade width (cm): **medium** (1,27 ± 0,14)
 Shape (length/width): **elliptic - lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** (3,12 ± 0,02)
 Number of flowers: **medium** (23,25 ± 2,52)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (2,54 ± 0,82)
 Shape (length/width): **elongated**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** (0,40 ± 0,11)
 Shape (length/width): **elongated**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	8,40 \pm 0,01	Lignoceric acid	0,07 \pm 0,01
Palmitic acid	9,27 \pm 0,02	Linolenic acid (ω 3)	0,71 \pm 0,03		
Palmitoleic acid	0,41 \pm 0,00	Arachic acid	0,20 \pm 0,03	Unsat./saturated	7,56 \pm 0,03
Stearic acid	2,14 \pm 0,01	Eicosenoic acid	0,36 \pm 0,02	ω 6/ ω 3	11,85 \pm 0,44
Oleic acid	77,91 \pm 0,07	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of almond and tomato, read sensations of aromatic herbs, grass and leaves. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 182	175 - 179	212 - 222	210 - 214	124 - 126	136 - 136
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 177	143 - 182	205 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 88-92.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Canino ”

(synonymy: *Caninese, Canino blasi, Cornino, Montignoso, etc.*)

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **low (4,22 ± 0,07)**
 Oil content (%): **medium (45,75 ± 2,77)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect-spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium (5,77 ± 0,44)**
 Blade width (cm): **medium (1,21 ± 0,13)**
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium (2,70 ± 1,00)**
 Number of flowers: **low (15,81 ± 3,01)**

Fruit characters

Fresh weight of 100 fruits (g): **low (1,26 ± 0,13)**
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low (0,25 ± 0,02)**
 Shape (length/width): **ovoid**
 Mucron: **tenuous**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	7,81 \pm 0,89	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	13,52 \pm 1,75	Linolenic acid (ω 3)	0,84 \pm 0,08		
Palmitoleic acid	1,18 \pm 0,31	Arachic acid	0,37 \pm 0,13	Unsat./saturated	5,26 \pm 0,60
Stearic acid	2,10 \pm 0,38	Eicosenoic acid	0,84 \pm 0,08	ω 6/ ω 3	9,38 \pm 1,40
Oleic acid	72,94 \pm 1,71	Behenic acid	0,11 \pm 0,04		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	173 - 189	212 - 222	214 - 221	126 - 144	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	135 - 135	166 - 182	143 - 154	213 - 232	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., *et al.* *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Carboncella ”

(synonymy: *Carboncella Pianacce A*, *Carboncella Pianacce B*, *Carboncella Sabina*, etc.)

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **medium** (5,30 ± 1,26)
 Oil content (%): **medium** (48,19 ± 2,81)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** (5,23 ± 0,31)
 Blade width (cm): **medium** (1,45 ± 0,15)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** (2,71 ± 5,02)
 Number of flowers: **medium** (1,60 ± 2,84)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (2,05 ± 0,40)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** (0,34 ± 0,13)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	10,11 \pm 0,93	Lignoceric acid	0,06 \pm 0,01
Palmitic acid	13,02 \pm 1,23	Linolenic acid ($\omega 3$)	0,84 \pm 0,05		
Palmitoleic acid	1,38 \pm 0,02	Arachic acid	0,49 \pm 0,04	Unsat./saturated	5,36 \pm 0,53
Stearic acid	2,16 \pm 0,03	Eicosenoic acid	0,40 \pm 0,01	$\omega 6/\omega 3$	12,16 \pm 1,84
Oleic acid	70,12 \pm 0,38	Behenic acid	0,14 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
166 - 194	177 - 181	208 - 212	214 - 224	124 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	182 - 210	213 - 213	

References:

- 1 - Parlati M.V., Pandolfi S. In: *Catalogo delle principali varietà di olivo del Lazio*, Ist. Sper. Olivico. (2003), pp. 25-26.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Carbonchia ”

(synonymy: *Carboncella*, *Carbonella*, etc.)

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **medium** ($6,08 \pm 0,38$)
 Oil content (%): **medium** ($44,63 \pm 1,50$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **erect-spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** $5,28 \pm 0,59$
 Blade width (cm): **medium** ($1,42 \pm 0,22$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **short** ($2,42 \pm 0,80$)
 Number of flowers: **low** ($12,25 \pm 1,00$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,02 \pm 0,17$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,29 \pm 0,04$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	15,88 \pm 0,25	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	16,00 \pm 0,35	Linolenic acid ($\omega 3$)	0,84 \pm 0,05		
Palmitoleic acid	2,65 \pm 0,05	Arachic acid	0,29 \pm 0,03	Unsat./saturated	4,40 \pm 0,10
Stearic acid	1,85 \pm 0,08	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	19,04 \pm 1,44
Oleic acid	59,86 \pm 0,13	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond, read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 210	181 - 185	212 - 218	214 - 214	124 - 124	150 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	177 - 193	154 - 205	213 - 213	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 28-29.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Cariasina ”

(synonymy: *Cariascinu*, *Cariasina di Dorgali*, *Cerasina*, *Ciriegia*, etc.)

Areal distribution or origin area: **Sardegna**
 Flesh/pit weight ratio: **medium** ($6,46 \pm 1,11$)
 Oil content (%): **low** ($41,48 \pm 0,08$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **long** ($7,18 \pm 0,72$)
 Blade width (cm): **broad** ($1,57 \pm 0,21$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,96 \pm 0,24$)
 Number of flowers: **low** ($15,62 \pm 1,02$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,87 \pm 1,60$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **high** ($0,51 \pm 0,17$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **truncate**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	7,81 \pm 0,85	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	12,32 \pm 0,47	Linolenic acid ($\omega 3$)	0,80 \pm 0,07		
Palmitoleic acid	0,92 \pm 0,10	Arachic acid	0,25 \pm 0,06	Unsat./saturated	5,94 \pm 0,29
Stearic acid	1,83 \pm 0,05	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	9,74 \pm 0,18
Oleic acid	75,28 \pm 1,53	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of grass, almond and artichoke. Balanced taste sensation with a medium-light bitter and spicy. Medium-light fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 172	179 - 181	214 - 214	214 - 218	130 - 144	136 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	143 - 143	166 - 193	150 - 161	205 - 205	

References:

- 1 - Bandino G., Sedda P., Moro C., et al. In: *Atti 4° Convegno Nazionale sulla Biodiversità*, Alghero (2000), pp 243-246.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Carmelitana ”

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($5,47 \pm 0,01$)
 Oil content (%): **medium** ($47,94 \pm 2,47$)
 Purpose: **table**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,23 \pm 0,52$)
 Blade width (cm): **broad** ($1,54 \pm 0,16$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **long** ($3,56 \pm 0,74$)
 Number of flowers: **medium** ($15,90 \pm 1,36$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,60 \pm 0,82$)
 Shape (length/width): **elongated**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **very high** ($0,71 \pm 0,08$)
 Shape (length/width): **elongated**
 Mucron: **obvious**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	11,55 \pm 0,10	Lignoceric acid	0,07 \pm 0,01
Palmitic acid	14,87 \pm 1,29	Linolenic acid (ω 3)	0,46 \pm 0,08		
Palmitoleic acid	1,72 \pm 0,34	Arachic acid	0,52 \pm 0,05	Unsat./saturated	4,74 \pm 0,35
Stearic acid	1,91 \pm 0,03	Eicosenoic acid	0,41 \pm 0,02	ω 6/ ω 3	25,21 \pm 4,05
Oleic acid	66,83 \pm 0,38	Behenic acid	0,14 \pm 0,06		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond, read sensations of grass, soft fruits, and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 198	179 - 181	208 - 208	214 - 224	124 - 126	136 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	182 - 182	185 - 185	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 29-32.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Carolea ”

(synonymy: *Becco di Corvo, Borgese, Catanzarese, Cumignana, Olivona, etc.*)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **high** ($7,66 \pm 1,16$)

Oil content (%): **high** ($51,44 \pm 1,52$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **erect**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,46 \pm 0,83$)

Blade width (cm): **medium** ($1,34 \pm 0,14$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,56 \pm 3,63$)

Number of flowers: **low** ($13,20 \pm 4,30$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($5,41 \pm 1,51$)

Shape (length/width): **ovoid**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **obvious**

Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **high** ($0,62 \pm 0,15$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **pointed**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	6,04 \pm 0,35	Lignoceric acid	0,08 \pm 0,03
Palmitic acid	14,83 \pm 0,91	Linolenic acid (ω 3)	0,46 \pm 0,16		
Palmitoleic acid	1,70 \pm 0,22	Arachic acid	0,40 \pm 0,08	Unsat./saturated	4,59 \pm 0,26
Stearic acid	2,81 \pm 0,46	Eicosenoic acid	0,20 \pm 0,12	ω 6/ ω 3	14.09 \pm 3,85
Oleic acid	72,85 \pm 0,70	Behenic acid	0,12 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium-high fruity, with good sensation of grass, less almond and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	179 - 185	212 - 222	214 - 214	121 - 130	136 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	154 - 205	200 - 200	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 3-4.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al. *Sci Horti-Amsterdam*, (2010), 126: pp. 324-329.

“ Carpinetana ”

(synonymy: *Femminina, Nebbio di montagna, Pizzutella, Posolella, etc.*)

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **medium** (5,50 ± 0,27)
 Oil content (%): **medium** (46,26 ± 1,37)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** (6,02 ± 0,30)
 Blade width (cm): **medium** (1,46 ± 0,12)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** (2,95 ± 0,18)
 Number of flowers: **medium** (20,09 ± 1,82)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (3,57 ± 0,37)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and small**

Pit characters

Weight of 100 pits (g): **medium** (0,55 ± 0,04)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	11,75 \pm 1,04	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	11,64 \pm 1,91	Linolenic acid (ω 3)	0,93 \pm 0,02		
Palmitoleic acid	0,74 \pm 0,42	Arachic acid	0,32 \pm 0,13	Unsat./saturated	6,26 \pm 0,87
Stearic acid	1,94 \pm 0,21	Eicosenoic acid	0,02 \pm 0,00	ω 6/ ω 3	12,57 \pm 0,82
Oleic acid	72,14 \pm 0,26	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with good sensation of grass, artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium-high intensity. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
166 - 206	177 - 181	212 - 222	214 - 214	126 - 144	184 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 193	154 - 210	205 - 205	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 30-31.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Castiglione ”

(synonymy: *Dritta, Oliva di San Francesco*)

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **medium (5,88 ± 0,30)**
 Oil content (%): **medium (40,21 ± 1,21)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium (5,54 ± 0,54)**
 Blade width (cm): **medium (1,30 ± 0,16)**
 Shape (length/width): **elliptic - lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium (2,57 ± 0,58)**
 Number of flowers: **medium (18,86 ± 3,38)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,09 ± 0,09)**
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium (0,31 ± 0,03)**
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	11,25 \pm 0,38	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	0,02 \pm 0,01	Linolenic acid ($\omega 3$)	0,80 \pm 0,09		
Palmitoleic acid	1,51 \pm 0,64	Arachic acid	0,30 \pm 0,14	Unsat./saturated	5,20 \pm 0,01
Stearic acid	1,62 \pm 0,04	Eicosenoic acid	0,44 \pm 0,06	$\omega 6/\omega 3$	14,27 \pm 2,13
Oleic acid	69,03 \pm 0,24	Behenic acid	0,10 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of grass and artichoke, read sensations of almond. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	163 - 181	208 - 212	210 - 214	126 - 126	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	154 - 210	205 - 232	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 32-33.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Castricianella Rapparina ”

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** ($6,66 \pm 3,76$)
 Oil content (%): **medium** ($46,10 \pm 1,80$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect-spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($6,30 \pm 0,55$)
 Blade width (cm): **medium** ($1,27 \pm 0,12$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,94 \pm 0,90$)
 Number of flowers: **medium** ($21,32 \pm 1,63$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,20 \pm 0,90$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,30 \pm 0,03$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid ($\omega 6$)	10,14 \pm 0,15	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	13,44 \pm 0,77	Linolenic acid ($\omega 3$)	0,62 \pm 0,07		
Palmitoleic acid	1,45 \pm 0,02	Arachic acid	0,24 \pm 0,03	Unsat./saturated	4,74 \pm 0,10
Stearic acid	3,53 \pm 0,51	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	16,46 \pm 2,16
Oleic acid	68,87 \pm 0,35	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	179 - 179	208 - 222	210 - 214	124 - 130	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 177	154 - 205	170 - 213	

References:

- 1 - Lombardo N. In: *Le risorse genetiche vegetali presso gli IRSA*, MIPAF (2001), 1: pp. 361-405.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: 582-588.

“ Cavalieri ”

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** ($7,06 \pm 1,59$)
 Oil content (%): **medium** ($48,12 \pm 1,37$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading-drooping**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,66 \pm 0,44$)
 Blade width (cm): **narrow** ($0,99 \pm 0,12$)
 Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,72 \pm 1,33$)
 Number of flowers: **medium** ($18,04 \pm 2,69$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,71 \pm 0,26$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,34 \pm 0,03$)
 Shape (length/width): **elliptic**
 Mucron: **tenuous**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	8,65 \pm 0,71	Lignoceric acid	0,04 \pm 0,01
Palmitic acid	12,60 \pm 0,86	Linolenic acid (ω 3)	0,89 \pm 0,10		
Palmitoleic acid	1,78 \pm 0,22	Arachic acid	0,30 \pm 0,01	Unsat./saturated	5,71 \pm 0,41
Stearic acid	1,91 \pm 0,07	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	9,76 \pm 0,33
Oleic acid	72,13 \pm 0,22	Behenic acid	0,05 \pm 0,05		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of almond. Balanced taste sensation with medium-light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 162	177 - 185	212 - 222	210 - 210	124 - 144	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 193	154 - 154	108 - 108	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 146-150.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Cazzinicchio ”

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($5,69 \pm 0,05$)
 Oil content (%): **medium** ($43,83 \pm 0,88$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **dense**



Leaf characters

Blade length (cm): **medium** ($6,22 \pm 1,66$)
 Blade width (cm): **broad** ($1,66 \pm 0,18$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,36 \pm 0,67$)
 Number of flowers: **medium** ($18,69 \pm 3,71$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,34 \pm 0,55$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **medium** ($0,42 \pm 0,05$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	11,87 \pm 1,25	Lignoceric acid	0,06 \pm 0,00
Palmitic acid	12,50 \pm 1,97	Linolenic acid (ω 3)	0,93 \pm 0,06		
Palmitoleic acid	3,14 \pm 0,30	Arachic acid	0,52 \pm 0,45	Unsat./saturated	5,89 \pm 0,86
Stearic acid	1,40 \pm 0,03	Eicosenoic acid	0,35 \pm 0,08	ω 6/ ω 3	12,75 \pm 0,57
Oleic acid	66,35 \pm 1,98	Behenic acid	0,11 \pm 0,02		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 198	181 - 181	212 - 212	210 - 214	124 - 126	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 193	143 - 205	108 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Istituto Sperimentale per l'Olivicoltura (2004), pp. 33-36.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Cellina di Nardo’ ”

(synonymy: *Cafarella, Leccese, Oliva di Nardo', Saracena, Vosciola, etc.*)

Areal distribution or origin area: **Puglia**

Flesh/pit weight ratio: **low** ($3,34 \pm 0,01$)

Oil content (%): **low** ($36,23 \pm 1,55$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **strong**

Growth habit: **erect-spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,36 \pm 0,56$)

Blade width (cm): **broad** ($1,60 \pm 0,25$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,40 \pm 0,72$)

Number of flowers: **medium** ($17,83 \pm 2,52$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,39 \pm 0,35$)

Shape (length/width): **ovoid**

Symmetry: **symmetric**

Position of maximum transverse diameter:

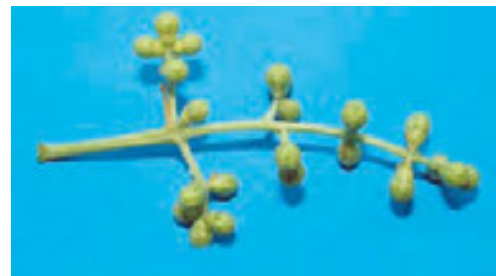
central

Apex: **rounded**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,32 \pm 0,06$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **pointed**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	10,36 \pm 1,04	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	12,96 \pm 1,22	Linolenic acid (ω 3)	0,91 \pm 0,09		
Palmitoleic acid	1,53 \pm 0,13	Arachic acid	0,30 \pm 0,06	Unsat./saturated	5,49 \pm 0,40
Stearic acid	2,04 \pm 0,32	Eicosenoic acid	0,14 \pm 0,14	ω 6/ ω 3	11,41 \pm 0,23
Oleic acid	70,22 \pm 2,01	Behenic acid	0,07 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of soft fruits and read sensations of almond, grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 198	177 - 177	208 - 222	214 - 228	124 - 126	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 166	182 - 205	108 - 213	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasmaolivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 41-44.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Cellina di Rotello ”

Areal distribution or origin area: **Molise**

Flesh/pit weight ratio: **low (3,05 ± 0,18)**

Oil content (%): **low (37,04 ± 1,32)**

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-sparse**



Leaf characters

Blade length (cm): **medium (5,59 ± 0,45)**

Blade width (cm): **broad (1,58 ± 0,11)**

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **long (3,76 ± 0,99)**

Number of flowers: **medium (18,49 ± 1,85)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,49 ± 0,11)**

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high (0,61 ± 0,01)**

Shape (length/width): **ovoid**

Mucron: **tenuous**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **pointed**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	13,89 \pm 1,06	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	15,94 \pm 1,15	Linolenic acid (ω 3)	0,97 \pm 0,05		
Palmitoleic acid	1,61 \pm 0,03	Arachic acid	0,26 \pm 0,04	Unsat./saturated	4,50 \pm 0,33
Stearic acid	1,77 \pm 0,01	Eicosenoic acid	0,03 \pm 0,02	ω 6/ ω 3	14,25 \pm 0,40
Oleic acid	63,82 \pm 0,63	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of soft fruits and read sensations of almond and tomato. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 206	177 - 181	222 - 222	210 - 214	124 - 126	150 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	202 - 202	177 - 193	154 - 210	170 - 213	

References:

- 1 - Ente regionale di sviluppo agricolo per il Molise. In: *Il germoplasma dell'olivo nel Molise*, Quaderno divulgativo dell'ERSA (2000), n° 5.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Cerasuola ”

(synonymy: Allora, Cerasara, Grappusa, Nocellara, Ogliarola, Ugghiara, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($8,27 \pm 0,20$)
 Oil content (%): **medium** ($47,89 \pm 1,15$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,13 \pm 0,64$)
 Blade width (cm): **medium** ($1,48 \pm 0,16$)
 Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **short** ($2,26 \pm 0,57$)
 Number of flowers: **low** ($16,28 \pm 1,45$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,10 \pm 0,16$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,35 \pm 0,00$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	10,83 \pm 0,31	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	10,60 \pm 2,01	Linolenic acid ($\omega 3$)	0,99 \pm 0,12		
Palmitoleic acid	0,54 \pm 0,30	Arachic acid	0,28 \pm 0,01	Unsat./saturated	6,77 \pm 1,24
Stearic acid	2,13 \pm 0,03	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	10,99 \pm 1,63
Oleic acid	73,92 \pm 2,76	Behenic acid	0,08 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity high, with taste of artichoke and tomato, read sensations of grass and leaves. Balanced taste sensation with a intense bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	177 - 181	208 - 212	210 - 214	124 - 144	150 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 166	154 - 154	213 - 213	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università di Palermo (2007), pp. 36–40.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Ciciariello ”

Areal distribution or origin area: **Calabria**
 Flesh/pit weight ratio: **low** ($4,18 \pm 0,52$)
 Oil content (%): **medium** ($44,94 \pm 3,51$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,16 \pm 0,46$)
 Blade width (cm): **medium** ($1,16 \pm 0,17$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **long** ($3,64 \pm 0,26$)
 Number of flowers: **medium** ($20,39 \pm 2,77$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,86 \pm 0,46$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,36 \pm 0,07$)
 Shape (length/width): **ovoid**
 Mucron: **tenuous**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	5,61 \pm 0,66	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	11,99 \pm 0,64	Linolenic acid (ω 3)	0,70 \pm 0,05		
Palmitoleic acid	1,00 \pm 0,20	Arachic acid	0,41 \pm 0,05	Unsat./saturated	5,74 \pm 0,29
Stearic acid	2,40 \pm 0,13	Eicosenoic acid	0,15 \pm 0,16	ω 6/ ω 3	7,91 \pm 0,98
Oleic acid	76,84 \pm 1,39	Behenic acid	0,12 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of almond, grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 198	177 - 177	212 - 212	212 - 212	124 - 124	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 193	143 - 143	205 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., *et al.* In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 20.
- 2 - Perri E., Mazzotti F., Muzzalupo I., *et al.* In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Cima di Melfi ”

Areal distribution or origin area: **Basilicata**
 Flesh/pit weight ratio: **medium** ($5,55 \pm 1,14$)
 Oil content (%): **medium** ($42,84 \pm 2,01$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($6,08 \pm 0,59$)
 Blade width (cm): **medium** ($1,49 \pm 0,17$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,24 \pm 0,53$)
 Number of flowers: **low** ($14,53 \pm 2,35$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,60 \pm 0,33$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,42 \pm 0,08$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid ($\omega 6$)	7,06 \pm 0,01	Lignoceric acid	0,06 \pm 0,02
Palmitic acid	12,25 \pm 1,19	Linolenic acid ($\omega 3$)	0,76 \pm 0,00		
Palmitoleic acid	0,53 \pm 0,46	Arachic acid	0,35 \pm 0,14	Unsat./saturated	5,70 \pm 0,36
Stearic acid	2,17 \pm 0,46	Eicosenoic acid	0,28 \pm 0,15	$\omega 6/\omega 3$	9,29 \pm 1,20
Oleic acid	76,15 \pm 0,82	Behenic acid	0,09 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium - light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 194	181 - 181	212 - 222	210 - 224	124 - 144	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	154 - 210	170 - 213	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita-Potenza (2002), pp. 99-102.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“Colombina”

(synonymy: *Colombina 17*, *Colombina lunga*.)

Areal distribution or origin area: **Emilia**
 Flesh/pit weight ratio: **medium** ($5,60 \pm 0,43$)
 Oil content (%): **low** ($35,63 \pm 0,99$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,78 \pm 0,46$)
 Blade width (cm): **medium** ($1,40 \pm 0,17$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,12 \pm 1,13$)
 Number of flowers: **medium** ($18,97 \pm 1,19$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,05 \pm 0,25$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,31 \pm 0,02$)
 Shape (length/width): **elongated**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	10,38 \pm 0,13	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	10,73 \pm 0,35	Linolenic acid ($\omega 3$)	0,96 \pm 0,02		
Palmitoleic acid	0,39 \pm 0,09	Arachic acid	0,26 \pm 0,04	Unsat./saturated	6,84 \pm 0,18
Stearic acid	1,76 \pm 0,17	Eicosenoic acid	0,28 \pm 0,22	$\omega 6/\omega 3$	10,81 \pm 0,15
Oleic acid	74,85 \pm 0,68	Behenic acid	0,09 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and artichoke, read sensations of grass. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 206	179 - 179	212 - 222	218 - 224	144 - 144	184 - 203
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	166 - 193	182 - 182	213 - 213	

References:

- 1 - Cristoferi G., Rotondi A., Magli M. In: *Il germoplasma dell'olivo in Emilia Romagna*, ISTEA CNR (1997).
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Coratina ”

(synonymy: *Cima di Corato, Olivo a grappoli, Racemo, Racioppa, etc.*)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** (3,95 ± 0,05)
 Oil content (%): **high** (50,48 ± 2,81)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** (6,24 ± 0,59)
 Blade width (cm): **medium** (1,33 ± 0,20)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** (3,04 ± 0,59)
 Number of flowers: **medium** (17,19 ± 1,75)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (3,05 ± 0,60)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** (0,63 ± 0,08)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

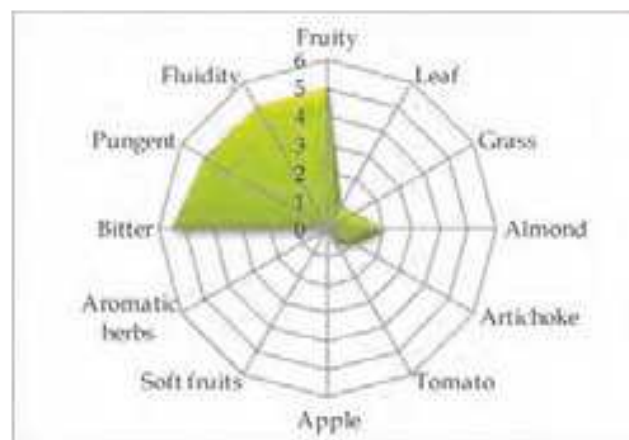
Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	7,72 \pm 1,60	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	10,88 \pm 2,26	Linolenic acid (ω 3)	0,81 \pm 0,11		
Palmitoleic acid	0,55 \pm 0,29	Arachic acid	0,34 \pm 0,10	Unsat./saturated	6,72 \pm 1,32
Stearic acid	2,08 \pm 0,33	Eicosenoic acid	0,21 \pm 0,18	ω 6/ ω 3	9,67 \pm 1,15
Oleic acid	77,14 \pm 0,08	Behenic acid	0,11 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	181 - 181	212 - 212	210 - 224	124 - 144	136 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 166	166 - 193	143 - 210	170 - 170	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Istituto Sperimentale per l'Olivicoltura, (2004), pp. 45-48.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Corneglia ”

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **low** ($4,83 \pm 0,65$)
 Oil content (%): **medium** ($42,95 \pm 0,29$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,72 \pm 0,43$)
 Blade width (cm): **medium** ($1,47 \pm 0,13$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,12 \pm 1,56$)
 Number of flowers: **low** ($16,31 \pm 1,54$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,27 \pm 0,12$)
 Shape (length/width): **elongated**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,57 \pm 0,05$)
 Shape (length/width): **elongated**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	8,83 \pm 0,55	Lignoceric acid	0,07 \pm 0,03
Palmitic acid	14,42 \pm 0,25	Linolenic acid (ω 3)	0,77 \pm 0,05		
Palmitoleic acid	1,45 \pm 0,17	Arachic acid	0,49 \pm 0,06	Unsat./saturated	4,45 \pm 0,01
Stearic acid	3,29 \pm 0,21	Eicosenoic acid	0,11 \pm 0,14	ω 6/ ω 3	11,50 \pm 0,04
Oleic acid	69,09 \pm 0,52	Behenic acid	0,13 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of almond and leaves. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 198	181 - 181	218 - 222	214 - 224	126 - 126	136 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 177	154 - 182	213 - 220	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Cornia ”

(synonymy: Corniola)

Areal distribution or origin area: **Campania**

Flesh/pit weight ratio: **low** ($3,06 \pm 0,05$)

Oil content (%): **medium** ($42,70 \pm 0,13$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($6,48 \pm 0,56$)

Blade width (cm): **medium** ($1,42 \pm 0,17$)

Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,80 \pm 2,50$)

Number of flowers: **low** ($10,34 \pm 1,32$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,19 \pm 0,38$)

Shape (length/width): **elongated**

Symmetry: **symmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Nipple: **basente**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,41 \pm 0,09$)

Shape (length/width): **elliptic**

Mucron: **tenuous**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % ± standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 ± 0,01	Linoleic acid (ω6)	3,81 ± 0,40	Lignoceric acid	0,05 ± 0,02
Palmitic acid	11,89 ± 0,56	Linolenic acid (ω3)	0,89 ± 0,06		
Palmitoleic acid	1,54 ± 0,22	Arachic acid	0,35 ± 0,19	Unsat./saturated	6,24 ± 0,29
Stearic acid	1,50 ± 0,19	Eicosenoic acid	0,25 ± 0,20	ω6/ω3	4,29 ± 0,27
Oleic acid	78,32 ± 1,26	Behenic acid	0,08 ± 0,02		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 198	181 - 181	214 - 218	218 - 218	130 - 134	184 - 197
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	164 - 177	143 - 154	164 - 213	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Corniola ”

(synonymy: *Cornale, Corniola Villapiana, Farisana, etc.*)

Areal distribution or origin area: **Calabria**
 Flesh/pit weight ratio: **medium** ($5,65 \pm 0,50$)
 Oil content (%): **medium** ($44,12 \pm 1,25$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,25 \pm 0,43$)
 Blade width (cm): **medium** ($1,28 \pm 0,09$)
 Shape (blade length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,52 \pm 1,22$)
 Number of flowers: **medium** ($18,24 \pm 1,96$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,83 \pm 0,28$)
 Shape (length/width): **elongated**
 Position of maximum transverse diameter:
towards apex
 Symmetry: **asymmetric**
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **medium** ($0,42 \pm 0,07$)
 Shape (length/width): **elongated**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **pointed**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,00 \pm 0,00	Linoleic acid (ω 6)	18,40 \pm 1,46	Lignoceric acid	0,08 \pm 0,01
Palmitic acid	20,52 \pm 1,14	Linolenic acid (ω 3)	0,80 \pm 0,07		
Palmitoleic acid	2,79 \pm 0,48	Arachic acid	0,37 \pm 0,06	Unsat./saturated	3,34 \pm 0,19
Stearic acid	2,25 \pm 0,13	Eicosenoic acid	0,23 \pm 0,05	ω 6/ ω 3	23,26 \pm 3,85
Oleic acid	55,65 \pm 2,79	Behenic acid	0,11 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond. Balanced taste sensation with a medium-light bitter and medium-high spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	177 - 179	208 - 212	212 - 212	124 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 193	143 - 205	200 - 200	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 20.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: 582-588.

“ Corniolo ”

(synonymy: *Corgniola, Corgnolo, Coriola, Cornigliola, etc.*)

Areal distribution or origin area: **Umbria**
 Flesh/pit weight ratio: **medium (5,33 ± 1,17)**
 Oil content (%): **medium (43,61 ± 0,88)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium (6,04 ± 0,46)**
 Blade width (cm): **medium (1,42 ± 0,16)**
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long (4,05 ± 1,08)**
 Number of flowers: **high (30,24 ± 1,44)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,23 ± 0,35)**
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium (0,36 ± 0,05)**
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	10,19 \pm 0,29	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	14,85 \pm 0,85	Linolenic acid (ω 3)	0,37 \pm 0,02		
Palmitoleic acid	1,09 \pm 0,26	Arachic acid	0,43 \pm 0,28	Unsat./saturated	4,87 \pm 0,15
Stearic acid	1,78 \pm 0,32	Eicosenoic acid	0,19 \pm 0,25	ω 6/ ω 3	27,95 \pm 0,82
Oleic acid	70,09 \pm 0,90	Behenic acid	0,08 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond, leaf, and artichoke. Balanced taste sensation with a medium bitter and medium-high spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	179 - 181	214 - 222	214 - 214	130 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 143	177 - 193	161 - 205	205 - 205	

References:

- 1 - Lombardo N. In: *Le risorse genetiche vegetali presso gli IRSA*, MIPAF (2001), 1: pp. 361-405.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“Coroncina”

(synonymy: *Corallina, Corona, Coronella, ect.*)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** ($5,57 \pm 0,33$)
 Oil content (%): **medium** ($44,34 \pm 1,96$)
 Purpose: **oil**



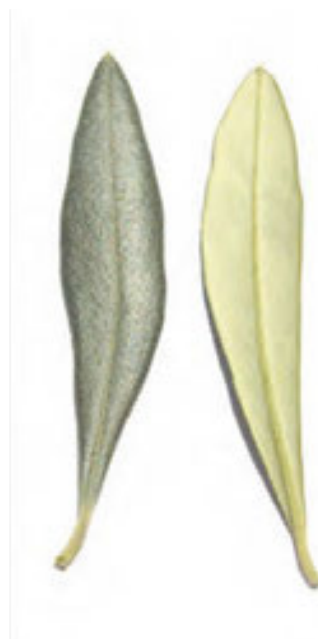
Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,88 \pm 0,47$)
 Blade width (cm): **medium** ($1,44 \pm 0,12$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,23 \pm 1,41$)
 Number of flowers: **medium** ($24,79 \pm 0,88$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,01 \pm 0,19$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **high** ($0,52 \pm 0,06$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % ± standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,00 ± 0,00	Linoleic acid (ω6)	9,89 ± 0,10	Lignoceric acid	0,06 ± 0,05
Palmitic acid	14,09 ± 0,17	Linolenic acid (ω3)	0,91 ± 0,03		
Palmitoleic acid	0,92 ± 0,02	Arachic acid	0,40 ± 0,23	Unsat./saturated	4,93 ± 0,12
Stearic acid	2,25 ± 0,30	Eicosenoic acid	0,21 ± 0,26	ω6/ω3	10,84 ± 0,49
Oleic acid	70,06 ± 0,71	Behenic acid	0,12 ± 0,08		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: **fruity medium, with hints of grass, almond and artichoke. Balanced taste sensation with a medium-light bitter and spicy. Medium-light fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	181 - 185	212 - 222	212 - 214	130 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	135 - 135	177 - 193	161 - 182	200 - 200	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*. ASSAM (2001), pp. 37-40.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Corsicana da olio ”

Areal distribution or origin area: **Sardegna**
 Flesh/pit weight ratio: **low** ($4,29 \pm 0,08$)
 Oil content (%): **medium** ($44,35 \pm 3,34$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreadinf-erect**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,02 \pm 0,46$)
 Blade width (cm): **medium** ($1,44 \pm 0,20$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **long** ($3,55 \pm 0,43$)
 Number of flowers: **low** ($17,55 \pm 1,72$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,65 \pm 0,06$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and large**

Pit characters

Weight of 100 pits (g): **high** ($0,51 \pm 0,01$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	9,58 \pm 0,36	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	12,92 \pm 0,15	Linolenic acid ($\omega 3$)	0,56 \pm 0,23		
Palmitoleic acid	0,70 \pm 0,03	Arachic acid	0,25 \pm 0,06	Unsat./saturated	5,26 \pm 0,05
Stearic acid	2,83 \pm 0,09	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	12,76 \pm 0,21
Oleic acid	72,38 \pm 0,33	Behenic acid	0,06 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: **fruity medium, with taste of almond, read sensations of artichoke and aromatic herbs. Balanced taste sensation with medium bitter and spicy. Medium fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 198	181 - 185	212 - 222	214 - 224	126 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	143 - 143	177 - 182	182 - 210	185 - 185	

References:

- 1 - Bandino G., Sedda P., Moro C., et al. In: *Atti Convegno Nazionale Biodiversità*, Ed. Delfino (2000), pp. 243-246.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Crognalegna ”

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **low** ($4,84 \pm 0,09$)
 Oil content (%): **medium** ($44,16 \pm 2,09$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **short** ($4,45 \pm 0,38$)
 Blade width (cm): **medium** ($1,16 \pm 0,14$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,06 \pm 0,97$)
 Number of flowers: **medium** ($16,54 \pm 2,23$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,37 \pm 0,61$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,42 \pm 0,13$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

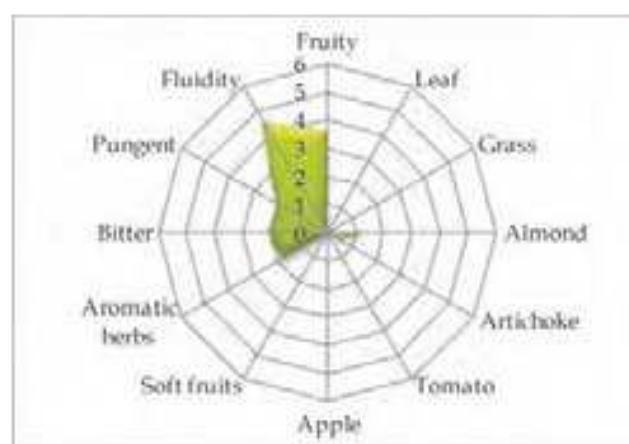
Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	12,38 \pm 0,42	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	12,46 \pm 0,23	Linolenic acid ($\omega 3$)	0,63 \pm 0,04		
Palmitoleic acid	1,12 \pm 0,17	Arachic acid	0,10 \pm 0,03	Unsat./saturated	5,89 \pm 0,09
Stearic acid	1,85 \pm 0,09	Eicosenoic acid	0,04 \pm 0,01	$\omega 6/\omega 3$	19,65 \pm 0,59
Oleic acid	70,60 \pm 0,35	Behenic acid	0,02 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: **fruity medium-light, with taste of artichoke and aromatic herbs, read sensations of almond. Balanced taste sensation with medium-light bitter and spicy. Medium-high.**



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 198	179 - 181	214 - 222	218 - 224	124 - 144	157 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	150 - 150	177 - 182	182 - 210	164 - 164	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 32-33.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., *et al. Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“Cucca”

(synonymy: *Cucco, Oliva da indolcire, Olivone etc.*)

Areal distribution or origin area: **Toscana**

Flesh/pit weight ratio: **low (4,22 ± 0,40)**

Oil content (%): **low (37,51± 0,08)**

Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium (6,13 ± 0,82)**

Blade width (cm): **medium (1,23 ± 0,17)**

Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium (2,93 ± 2,81)**

Number of flowers: **medium (17,95 ± 2,10)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,51± 0,29)**

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium (0,45 ± 0,13)**

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	4,16 \pm 0,26	Lignoceric acid	0,05 \pm 0,01
Palmitic acid	11,73 \pm 0,34	Linolenic acid ($\omega 3$)	0,99 \pm 0,01		
Palmitoleic acid	1,67 \pm 0,07	Arachic acid	0,32 \pm 0,00	Unsat./saturated	6,32 \pm 0,16
Stearic acid	1,66 \pm 0,06	Eicosenoic acid	0,03 \pm 0,00	$\omega 6/\omega 3$	4,18 \pm 0,23
Oleic acid	80,15 \pm 0,04	Behenic acid	0,09 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of artichoke and read sensations of grass and almond. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	179 - 181	208 - 212	214 - 214	124 - 144	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 193	182 - 182	213 - 213	

References:

- 1 - Cimato A., Cantini C., Sani G. In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Dolce Agogia ”

(synonymy: *Agogia, Dolce, Nerello, Olivella.*)

Areal distribution or origin area: **Umbria**

Flesh/pit weight ratio: **low** ($4,98 \pm 0,06$)

Oil content (%): **medium** ($44,30 \pm 1,80$)

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **erect**

Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium** ($5,95 \pm 0,55$)

Blade width (cm): **medium** ($1,21 \pm 0,10$)

Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,90 \pm 1,50$)

Number of flowers: **low** ($15,36 \pm 1,30$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,12 \pm 0,28$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,32 \pm 0,01$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,00 \pm 0,00	Linoleic acid (ω 6)	7,26 \pm 0,26	Lignoceric acid	0,05 \pm 0,02
Palmitic acid	12,33 \pm 0,33	Linolenic acid (ω 3)	0,77 \pm 0,03		
Palmitoleic acid	1,84 \pm 0,27	Arachic acid	0,27 \pm 0,02	Unsat./satured	5,82 \pm 0,09
Stearic acid	1,82 \pm 0,39	Eicosenoic acid	0,10 \pm 0,12	ω 6/ ω 3	9,43 \pm 0,02
Oleic acid	73,55 \pm 1,31	Behenic acid	0,08 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and leaves. Balanced taste sensation with a medium bitter and medium-light spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	179 - 181	212 - 218	218 - 218	124 - 124	184 - 197
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	177 - 193	143 - 143	185 - 213	

References:

- 1 - Pannelli G., Alfei B., Rosati S., et al. In: *Varietà di olivo in Umbria*. Ed. Pliniana (2000), pp.13-18.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Dolce d’Andria ”

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($6,62 \pm 1,29$)
 Oil content (%): **low** ($36,97 \pm 0,08$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,76 \pm 0,73$)
 Blade width (cm): **medium** ($1,49 \pm 0,32$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **long** ($3,60 \pm 2,40$)
 Number of flowers: **low** ($15,20 \pm 0,78$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,86 \pm 0,33$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,52 \pm 0,13$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	10,69 \pm 0,57	Lignoceric acid	0,08 \pm 0,08
Palmitic acid	17,92 \pm 1,15	Linolenic acid ($\omega 3$)	0,93 \pm 0,07		
Palmitoleic acid	5,44 \pm 0,08	Arachic acid	0,21 \pm 0,11	Unsat./saturated	3,87 \pm 0,38
Stearic acid	1,24 \pm 0,10	Eicosenoic acid	0,18 \pm 0,22	$\omega 6/\omega 3$	11,52 \pm 0,23
Oleic acid	57,70 \pm 2,24	Behenic acid	0,10 \pm 0,06		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and leaves. Balanced taste sensation with a medium bitter and medium-light spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	177 - 177	208 - 218	214 - 214	124 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 182	143 - 205	108 - 170	

References:

- 1 - Russo G. In: *Atti Convegno Nazionale di Olivicoltura*, Ist. Sper. Oliv. Spoleto (2002), pp. 423-426.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Dolce di Cassano ”

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($5,18 \pm 0,03$)
 Oil content (%): **medium** ($42,33 \pm 1,71$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,63 \pm 0,55$)
 Blade width (cm): **broad** ($1,87 \pm 0,25$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **short** ($1,98 \pm 0,34$)
 Number of flowers: **low** ($11,86 \pm 0,91$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,50 \pm 0,63$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **very high** ($0,73 \pm 0,08$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	14,35 \pm 1,15	Lignoceric acid	0,01 \pm 0,00
Palmitic acid	9,47 \pm 1,69	Linolenic acid ($\omega 3$)	0,67 \pm 0,03		
Palmitoleic acid	0,60 \pm 0,05	Arachic acid	0,08 \pm 0,09	Unsat./saturated	8,54 \pm 1,32
Stearic acid	0,95 \pm 0,23	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	21,47 \pm 2,63
Oleic acid	73,13 \pm 2,46	Behenic acid	0,03 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of almond and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers

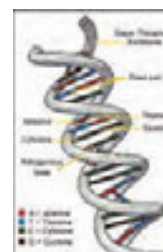


Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	181 - 181	208 - 208	214 - 224	130 - 130	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 177	182 - 205	108 - 170	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 49-52.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Dolce di Rossano ”

(synonymy: *Dolce*, *Rossanese*, etc.)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **high** ($5,20 \pm 0,29$)

Oil content (%): **medium** ($48,50 \pm 0,53$)

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading-erect**

Canopy-density: **medium-dense**



Leaf characters

Blade length (cm): **medium** ($5,41 \pm 0,54$)

Blade width (cm): **medium** ($1,37 \pm 0,17$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,98 \pm 1,78$)

Number of flowers: **medium** ($22,11 \pm 5,65$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,93 \pm 0,33$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **tenuous**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,30 \pm 0,04$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	8,32 \pm 1,66	Lignoceric acid	0,06 \pm 0,03
Palmitic acid	15,33 \pm 1,77	Linolenic acid (ω 3)	0,69 \pm 0,18		
Palmitoleic acid	1,50 \pm 0,44	Arachic acid	0,32 \pm 0,08	Unsat./saturated	4,69 \pm 0,86
Stearic acid	2,08 \pm 0,32	Eicosenoic acid	0,15 \pm 0,12	ω 6/ ω 3	12,99 \pm 3,92
Oleic acid	71,20 \pm 3,06	Behenic acid	0,09 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	177 - 179	212 - 212	214 - 214	130 - 144	150 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 177	154 - 182	205 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliv. (2003), pp. 5-6.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività, CO.R.ASS.OL.* (2003).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Dritta ”

(*synonymy: Dolce San Felice, Dritta di Loreto, Dritta di Moscufo, San Felice, etc.*)

Areal distribution or origin area: **Abruzzo**

Flesh/pit weight ratio: **high** ($7,77 \pm 0,44$)

Oil content (%): **medium** ($47,49 \pm 3,03$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,60 \pm 0,63$)

Blade width (cm): **medium** ($1,35 \pm 0,13$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,95 \pm 0,73$)

Number of flowers: **low** ($16,14 \pm 1,18$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,27 \pm 0,04$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,31 \pm 0,07$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **symmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **pointed**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	9,26 \pm 0,06	Lignoceric acid	0,07 \pm 0,08
Palmitic acid	13,88 \pm 1,19	Linolenic acid ($\omega 3$)	0,64 \pm 0,02		
Palmitoleic acid	1,12 \pm 0,03	Arachic acid	0,03 \pm 0,03	Unsat./saturated	5,13 \pm 0,26
Stearic acid	2,61 \pm 0,03	Eicosenoic acid	0,08 \pm 0,09	$\omega 6/\omega 3$	14,17 \pm 0,59
Oleic acid	71,61 \pm 0,03	Behenic acid	0,09 \pm 0,11		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of grass and artichoke, read sensations of almond. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 176	169 - 179	208 - 212	214 - 214	124 - 130	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 193	182 - 182	220 - 220	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 38-39.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Erbano ”

(synonymy: *Ebanu, Erbanu.*)

Areal distribution or origin area: **Sicilia**

Flesh/pit weight ratio: **low (3,73 ± 0,10)**

Oil content (%): **low (41,36 ± 0,04)**

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium (5,72 ± 0,64)**

Blade width (cm): **medium (1,31 ± 0,20)**

Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium (2,57 ± 1,83)**

Number of flowers: **low (17,66 ± 2,40)**

Fruit characters

Fresh weight of 100 fruits (g): **low (1,97 ± 0,22)**

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **pointed**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium (0,40 ± 0,01)**

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	73,04 \pm 0,08	Lignoceric acid	0,06 \pm 0,02
Palmitic acid	11,67 \pm 0,45	Linolenic acid (ω 3)	9,15 \pm 0,25		
Palmitoleic acid	1,25 \pm 0,01	Arachic acid	0,82 \pm 0,08	Unsat./saturated	6,08 \pm 0,23
Stearic acid	1,95 \pm 0,08	Eicosenoic acid	0,31 \pm 0,08	ω 6/ ω 3	11,23 \pm 1,47
Oleic acid	\pm	Behenic acid	0,37 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of almond and artichoke, with read sensations of aromatic herbs. Balanced taste sensation with medium bitter and spicy. Medium-high.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	173 - 177	212 - 212	210 - 212	124 - 144	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	177 - 193	182 - 182	108 - 108	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 152-156.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Faresana ”

(synonymy: Baresana, Cellara, Farasano, Pierasana, Varesana etc.)

Areal distribution or origin area: **Basilicata**
 Flesh/pit weight ratio: **medium** ($5,59 \pm 0,28$)
 Oil content (%): **medium** ($40,87 \pm 1,49$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($6,44 \pm 0,50$)
 Blade width (cm): **medium** ($1,45 \pm 0,17$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($4,41 \pm 1,70$)
 Number of flowers: **medium** ($21,79 \pm 1,64$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,64 \pm 1,04$)
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **large and few**



Pit characters

Weight of 100 pits (g): **high** ($0,59 \pm 0,05$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	8,86 \pm 2,58	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	10,40 \pm 0,30	Linolenic acid ($\omega 3$)	0,96 \pm 0,09		
Palmitoleic acid	0,63 \pm 0,05	Arachic acid	0,07 \pm 0,02	Unsat./saturated	6,98 \pm 0,06
Stearic acid	1,78 \pm 0,20	Eicosenoic acid	0,17 \pm 0,22	$\omega 6/\omega 3$	9,38 \pm 3,53
Oleic acid	75,68 \pm 2,35	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 182	179 - 181	212 - 212	214 - 214	124 - 126	159 - 1184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	166 - 177	150 - 150	205 - 205	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita-Potenza (2002), pp. 81-84.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Favarol ”

(synonymy: *Favar*, *Favera*, *Perlarol*, etc.)

Areal distribution or origin area: **Veneto**

Flesh/pit weight ratio: **low** ($4,95 \pm 0,75$)

Oil content (%): **medium** ($49,05 \pm 1,07$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **erect-spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **short** ($4,71 \pm 0,25$)

Blade width (cm): **medium** ($1,40 \pm 0,11$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,39 \pm 0,41$)

Number of flowers: **medium** ($23,17 \pm 1,45$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,20 \pm 0,33$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,37 \pm 0,03$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	9,36 \pm 0,99	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	13,02 \pm 0,89	Linolenic acid ($\omega 3$)	0,76 \pm 0,05		
Palmitoleic acid	0,94 \pm 0,20	Arachic acid	0,29 \pm 0,05	Unsat./saturated	5,40 \pm 0,53
Stearic acid	2,30 \pm 0,45	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	12,42 \pm 2,18
Oleic acid	72,30 \pm 1,73	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of artichoke and almond. Balanced in flavors, with hints of bitter and spicy medium intensity. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	177 - 177	208 - 208	214 - 214	126 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	166 - 177	154 - 210	185 - 185	

References:

- 1 - Carocci Buzi C. In: *Annali Istituto Sperimentale per l'Olivicoltura e l'Oleificio*, Ed. Bracco Imperia (1965), pp. 1-31.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Fecciaro ”

(synonymy: *Palottona*, *Raggio bastardo*, etc.)

Areal distribution or origin area: **Umbria**
 Flesh/pit weight ratio: **medium** ($5,62 \pm 0,63$)
 Oil content (%): **low** ($31,95 \pm 0,08$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,18 \pm 0,45$)
 Blade width (cm): **broad** ($1,62 \pm 0,16$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **long** ($5,04 \pm 1,72$)
 Number of flowers: **high** ($32,78 \pm 1,55$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,19 \pm 0,59$)
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,64 \pm 0,12$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	11,33 \pm 0,10	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	14,15 \pm 0,07	Linolenic acid (ω 3)	0,85 \pm 0,03		
Palmitoleic acid	0,97 \pm 0,00	Arachic acid	0,21 \pm 0,03	Unsat./saturated	5,12 \pm 0,03
Stearic acid	1,94 \pm 0,04	Eicosenoic acid	0,03 \pm 0,00	ω 6/ ω 3	13,33 \pm 0,55
Oleic acid	69,84 \pm 0,37	Behenic acid	0,04 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 198	179 - 181	214 - 222	214 - 221	124 - 130	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 177	143 - 182	205 - 205	

References:

- 1 - Pannelli G., Alfei B., D' Ambrosio A., et al. In: *Varietà di olivo in Umbria*, Ed. Pliniana (2000), pp.79-84.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Fosco ”

(synonymy: *Carbonella, Morellino, Morello, Nostrale, Oliva Tonda, etc.*)

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **medium** ($5,00 \pm 0,15$)
 Oil content (%): **medium** ($48,31 \pm 1,23$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium** ($5,74 \pm 0,49$)
 Blade width (cm): **medium** ($1,37 \pm 0,11$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($3,86 \pm 0,71$)
 Number of flowers: **medium** ($24,59 \pm 2,31$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,62 \pm 0,03$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,29 \pm 0,01$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,83 \pm 1,70	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	14,98 \pm 0,17	Linolenic acid (ω 3)	0,83 \pm 0,12		
Palmitoleic acid	1,40 \pm 0,10	Arachic acid	0,22 \pm 0,01	Unsat./saturated	4,90 \pm 0,12
Stearic acid	1,60 \pm 0,13	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	11,87 \pm 0,37
Oleic acid	69,82 \pm 1,43	Behenic acid	0,06 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	179 - 181	208 - 212	214 - 224	124 - 144	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 177	182 - 210	205 - 205	

References:

- 1 - Consiglio Oleicolo Internazionale. In: *Catalogo Mondiale delle Varietà di Olivo*, COI (2003).
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Frangivento ”

(synonymy: *Cipressino, Franjivento, Olivo Cipressino, Olivo di Pietrafitta, etc.*)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($5,80 \pm 0,81$)
 Oil content (%): **medium** ($42,19 \pm 1,23$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **erect**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($6,32 \pm 0,56$)
 Blade width (cm): **medium** ($1,22 \pm 0,13$)
 Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($4,36 \pm 0,76$)
 Number of flowers: **high** ($32,90 \pm 5,01$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,12 \pm 0,42$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,34 \pm 0,05$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	12,22 \pm 0,02	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	0,01 \pm 0,01	Linolenic acid ($\omega 3$)	0,31 \pm 0,04		
Palmitoleic acid	15,00 \pm 0,15	Arachic acid	0,27 \pm 0,02	Unsat./saturated	4,71 \pm 0,49
Stearic acid	2,06 \pm 0,04	Eicosenoic acid	0,01 \pm 0,00	$\omega 6/\omega 3$	39,42 \pm 0,08
Oleic acid	66,37 \pm 0,09	Behenic acid	0,05 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 176	179 - 185	208 - 208	214 - 214	124 - 130	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 166	177 - 177	154 - 205	205 - 232	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Istituto Sperimentale per l'Olivicoltura (2004), pp. 53-56.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Frangivento ”

(synonymy: *Cipressino, Franjivento, Olivo Cipressino, Olivo di Pietrafitta, etc.*)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($5,80 \pm 0,81$)
 Oil content (%): **medium** ($42,19 \pm 1,23$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **erect**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($6,32 \pm 0,56$)
 Blade width (cm): **medium** ($1,22 \pm 0,13$)
 Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($4,36 \pm 0,76$)
 Number of flowers: **high** ($32,90 \pm 5,01$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,12 \pm 0,42$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,34 \pm 0,05$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	12,22 \pm 0,02	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	0,01 \pm 0,01	Linolenic acid (ω 3)	0,31 \pm 0,04		
Palmitoleic acid	15,00 \pm 0,15	Arachic acid	0,27 \pm 0,02	Unsat./saturated	4,71 \pm 0,49
Stearic acid	2,06 \pm 0,04	Eicosenoic acid	0,01 \pm 0,00	ω 6/ ω 3	39,42 \pm 0,08
Oleic acid	66,37 \pm 0,09	Behenic acid	0,05 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 176	179 - 185	208 - 208	214 - 214	124 - 130	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 166	177 - 177	154 - 205	205 - 232	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Istituto Sperimentale per l'Olivicoltura (2004), pp. 53-56.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Frantoio ”

(synonymy: *Comune, Correggiolo, Gentile, Larcianese, Razzo, etc.*)

Areal distribution or origin area: **Toscana**
 Flesh/pit weight ratio: **medium** ($5,92 \pm 1,12$)
 Oil content (%): **medium** ($44,87 \pm 2,89$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($6,15 \pm 0,54$)
 Blade width (cm): **broad** ($1,58 \pm 0,22$)
 Shape (length/width): **elliptic**

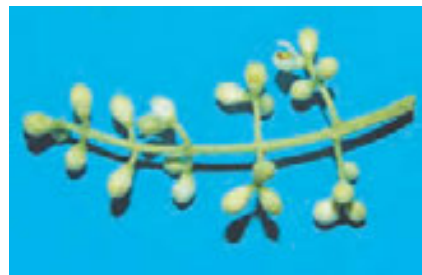


Inflorescence characters

Inflorescence length (cm): **long** ($3,67 \pm 0,70$)
 Number of flowers: **medium** ($19,16 \pm 2,80$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,56 \pm 0,40$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,42 \pm 0,05$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	6,70 \pm 1,58	Lignoceric acid	0,03 \pm 0,02
Palmitic acid	13,39 \pm 1,67	Linolenic acid ($\omega 3$)	0,79 \pm 0,05		
Palmitoleic acid	1,03 \pm 0,30	Arachic acid	0,33 \pm 0,12	Unsat./saturated	5,42 \pm 0,58
Stearic acid	1,90 \pm 0,11	Eicosenoic acid	0,11 \pm 0,17	$\omega 6/\omega 3$	8,49 \pm 1,96
Oleic acid	74,83 \pm 2,28	Behenic acid	0,08 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	179 - 181	208 - 212	214 - 224	124 - 144	159 - 179
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 182	182 - 205	205 - 205	

References:

- 1 - Pannelli G., Alfei B., D' Ambrosio A., et al. In: *Varietà di olivo in Umbria*, Ed. Pliniana (2000), pp. 19-24.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Gaggiolo ”

(synonymy: *Cornella, Corno, Crignola, Giaggiola, Lunga, etc.*)

Areal distribution or origin area: **Lombardia**

Flesh/pit weight ratio: **low (4,32 ± 0,08)**

Oil content (%): **medium (44,50 ± 0,43)**

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **strong**

Growth habit: **spreading-erect**

Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium (6,05 ± 0,47)**

Blade width (cm): **broad (1,52 ± 0,20)**

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium (3,40 ± 0,78)**

Number of flowers: **medium (18,51 ± 1,82)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,43 ± 0,17)**

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **high (0,48 ± 0,06)**

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **symmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **pointed**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	6,93 \pm 0,92	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	12,03 \pm 0,53	Linolenic acid ($\omega 3$)	0,63 \pm 0,09		
Palmitoleic acid	1,22 \pm 0,02	Arachic acid	0,28 \pm 0,05	Unsat./satured	5,90 \pm 0,42
Stearic acid	2,15 \pm 0,24	Eicosenoic acid	0,01 \pm 0,00	$\omega 6/\omega 3$	11,08 \pm 0,14
Oleic acid	75,80 \pm 0,23	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	179 - 179	214 - 222	214 - 224	126 - 144	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	177 - 182	182 - 205	185 - 185	

References:

- 1 - Carocci Buzi C. In: *Annali Istituto Sperimentale per l'Olivicoltura e l'Oleificio*, Ed. Bracco (1965), pp. 1-31.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Gentile di Chieti ”

(synonymy: *Gentile, Nostrana, Olivoastro.*)

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **medium** (5,30 ± 0,25)
 Oil content (%): **medium** (41,98 ± 2,15)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **erect-spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** (5,53 ± 0,57)
 Blade width (cm): **medium** (1,48 ± 0,23)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **long** (3,93 ± 2,88)
 Number of flowers: **medium** (19,16 ± 2,07)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (2,61 ± 0,44)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **high** (0,9 ± 0,00)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	$0,01 \pm 0,00$	Linoleic acid ($\omega 6$)	$16,01 \pm 0,11$	Lignoceric acid	$0,03 \pm 0,01$
Palmitic acid	$15,61 \pm 0,49$	Linolenic acid ($\omega 3$)	$0,83 \pm 0,04$		
Palmitoleic acid	$1,42 \pm 0,04$	Arachic acid	$0,32 \pm 0,03$	Unsat./saturated	$4,47 \pm 0,16$
Stearic acid	$2,21 \pm 0,04$	Eicosenoic acid	$0,02 \pm 0,00$	$\omega 6/\omega 3$	$19,35 \pm 1,17$
Oleic acid	$62,20 \pm 0,57$	Behenic acid	$0,07 \pm 0,01$		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium - light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 172	169 - 179	208 - 212	210 - 214	124 - 130	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 193	154 - 205	213 - 213	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 42-43.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Gentile di Larino ”

(synonymy: *Gentile di Trivento, Olivacchione, etc.*)

Areal distribution or origin area: **Molise**
 Flesh/pit weight ratio: **medium** ($6,45 \pm 0,36$)
 Oil content (%): **medium** ($44,75 \pm 0,77$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,49 \pm 0,56$)
 Blade width (cm): **medium** ($1,17 \pm 0,16$)
 Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,21 \pm 2,49$)
 Number of flowers: **low** ($17,16 \pm 0,73$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,31 \pm 0,10$)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,31 \pm 0,03$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,46 \pm 2,14	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	12,30 \pm 1,49	Linolenic acid (ω 3)	1,03 \pm 0,36		
Palmitoleic acid	0,63 \pm 0,41	Arachic acid	0,33 \pm 0,09	Unsat./saturated	5,77 \pm 0,93
Stearic acid	2,35 \pm 0,53	Eicosenoic acid	0,02 \pm 0,00	ω 6/ ω 3	9,44 \pm 1,25
Oleic acid	73,59 \pm 0,07	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	169 - 179	208 - 212	214 - 214	124 - 130	150 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	166 - 193	182 - 182	213 - 213	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Gentile nera di Colletorto ”

(synonymy: *Colletortese, Gentile di Colletorto, Noccioluta, Oliva nera di Colletorto, etc.*)

Areal distribution or origin area: **Molise**

Flesh/pit weight ratio: **low** ($4,35 \pm 0,11$)

Oil content (%): **medium** ($43,56 \pm 1,26$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,35 \pm 0,45$)

Blade width (cm): **medium** ($1,10 \pm 0,12$)

Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** ($2,34 \pm 0,75$)

Number of flowers: **low** ($13,08 \pm 0,00$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,66 \pm 0,08$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **tenuous**

Lenticels: **few and small**

Pit characters

Weight of 100 pits (g): **high** ($0,50 \pm 0,01$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,00	Linoleic acid ($\omega 6$)	10,36 \pm 0,39	Lignoceric acid	0,04 \pm 0,01
Palmitic acid	15,20 \pm 1,33	Linolenic acid ($\omega 3$)	0,86 \pm 0,07		
Palmitoleic acid	2,48 \pm 0,30	Arachic acid	0,28 \pm 0,07	Unsat./satured	4,37 \pm 0,52
Stearic acid	2,83 \pm 0,52	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	12,04 \pm 0,57
Oleic acid	65,34 \pm 0,66	Behenic acid	0,05 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 210	177 - 179	208 - 212	214 - 214	124 - 126	136 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 135	177 - 193	154 - 205	213 - 213	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Geracese ”

(*synonymy: Dolce di Gerace, Mammolese, Oliva grossa, Oliva di Bianco, Paesana, etc.*)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **high** ($8,35 \pm 0,60$)

Oil content (%): **medium** ($47,02 \pm 0,28$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,62 \pm 0,57$)

Blade width (cm): **medium** ($1,28 \pm 0,01$)

Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **short** ($2,21 \pm 1,78$)

Number of flowers: **low** ($12,58 \pm 1,38$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,74 \pm 0,33$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **obvious**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,43 \pm 0,15$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	8,63 \pm 0,02	Lignoceric acid	0,05 \pm 0,05
Palmitic acid	14,09 \pm 0,01	Linolenic acid ($\omega 3$)	0,75 \pm 0,11		
Palmitoleic acid	1,26 \pm 0,12	Arachic acid	0,36 \pm 0,14	Unsat./saturated	5,01 \pm 0,13
Stearic acid	2,04 \pm 0,15	Eicosenoic acid	0,19 \pm 0,23	$\omega 6/\omega 3$	11,69 \pm 1,76
Oleic acid	71,33 \pm 0,74	Behenic acid	0,11 \pm 0,06		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of leaves and grass, pleasant sensations of artichoke and tomato. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 198	179 - 181	212 - 212	212 - 212	126 - 144	150 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 150	143 - 143	166 - 177	143 - 182	200 - 200	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo Calabrese*, Ist. Sper. Olivico. (2003), pp: 9.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività CO.R.ASS.OL.* (2003).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Giarfara ”

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($8,43 \pm 1,42$)
 Oil content (%): **high** ($53,48 \pm 0,70$)
 Purpose: **table**



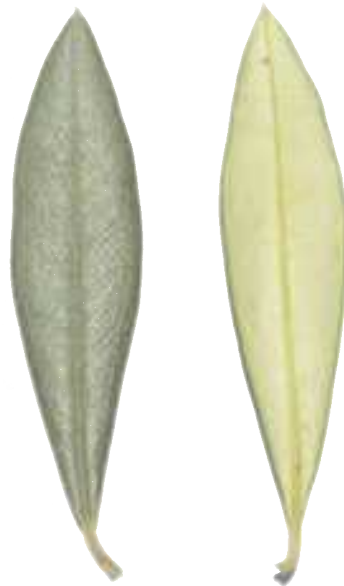
Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,97 \pm 0,48$)
 Blade width (cm): **broad** ($1,67 \pm 0,17$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,00 \pm 0,24$)
 Number of flowers: **low** ($14,04 \pm 0,89$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,37 \pm 0,44$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **high** ($0,57 \pm 0,05$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	6,34 \pm 1,28	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	11,11 \pm 1,54	Linolenic acid ($\omega 3$)	0,82 \pm 0,05		
Palmitoleic acid	0,80 \pm 0,23	Arachic acid	0,26 \pm 0,04	Unsat./saturated	6,37 \pm 0,60
Stearic acid	2,23 \pm 0,45	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	7,68 \pm 1,09
Oleic acid	77,71 \pm 0,51	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of grass and tomato, read sensations of almond and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 182	179 - 179	212 - 212	214 - 214	144 - 144	157 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	166 - 193	182 - 182	108 - 108	

References:

- 1 - Bottari V., Spina P. In: *Le varietà di olivo coltivate in Sicilia*, Ann. Sper. Agr. (1953), 7: pp. 937-1004.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Giarraffa ”

(synonymy: *Becco di Corvo*, *Cefalutana*, *Giarrafara*, *Giarraffedda*, *Mammona*, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($9,28 \pm 1,65$)
 Oil content (%): **medium** ($46,69 \pm 1,44$)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($6,38 \pm 0,59$)
 Blade width (cm): **medium** ($1,34 \pm 0,26$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,56 \pm 1,19$)
 Number of flowers: **low** ($15,28 \pm 1,57$)

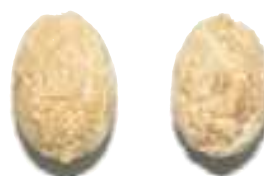
Fruit characters

Fresh weight of 100 fruits (g): **very high** ($8,25 \pm 1,66$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **very high** ($0,82 \pm 0,20$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

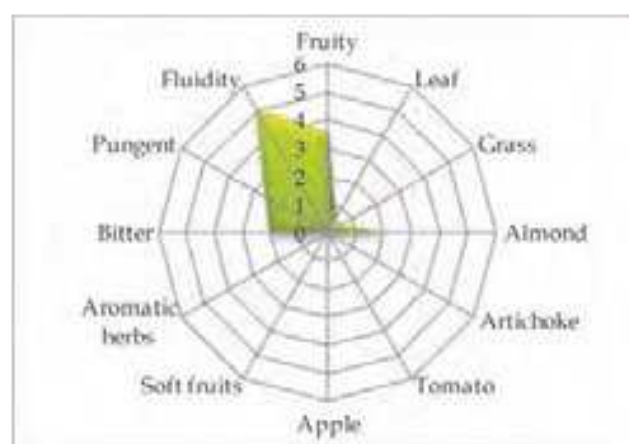
Myristic acid	0,00 \pm 0,00	Linoleic acid ($\omega 6$)	19,05 \pm 0,21	Lignoceric acid	0,06 \pm 0,02
Palmitic acid	12,90 \pm 0,44	Linolenic acid ($\omega 3$)	0,87 \pm 0,04		
Palmitoleic acid	1,09 \pm 0,05	Arachic acid	1,12 \pm 0,05	Unsat./saturated	5,54 \pm 0,26
Stearic acid	1,86 \pm 0,10	Eicosenoic acid	0,36 \pm 0,06	$\omega 6/\omega 3$	22,05 \pm 1,15
Oleic acid	61,61 \pm 0,76	Behenic acid	0,08 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-light, with taste of almond, read sensations of grass and leaves. Balanced taste sensation with medium-light bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	181 - 185	212 - 212	210 - 214	124 - 144	136 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 166	143 - 182	213 - 213	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., *et al.* In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 100-104.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“Giusta”

(synonymy: *Justa*, *Mezza oliva*, *Oliva tonda*, *Rizza*, etc.)

Areal distribution or origin area: **Basilicata**
 Flesh/pit weight ratio: **medium** ($6,94 \pm 1,61$)
 Oil content (%): **low** ($41,59 \pm 2,66$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect-spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,98 \pm 0,45$)
 Blade width (cm): **broad** ($1,54 \pm 0,15$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,04 \pm 1,23$)
 Number of flowers: **low** ($14,34 \pm 1,86$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,72 \pm 0,06$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **obvious**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,48 \pm ,011$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	18,04 \pm 0,25	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	13,86 \pm 0,44	Linolenic acid ($\omega 3$)	0,94 \pm 0,02		
Palmitoleic acid	0,85 \pm 0,02	Arachic acid	0,06 \pm 0,34	Unsat./saturated	4,86 \pm 0,08
Stearic acid	2,75 \pm 0,19	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	19,16 \pm 0,24
Oleic acid	61,86 \pm 0,45	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	177 - 179	214 - 222	214 - 214	126 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 177	182 - 182	205 - 205	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita-Potenza (2002), pp. 57-60.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Gnagnaro ”

(synonymy: *Gragnaro*)

Areal distribution or origin area: **Molise**

Flesh/pit weight ratio: **low (1,71 ± 0,06)**

Oil content (%): **low (36,14 ± 1,56)**

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **spreading-erect**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **short (4,98 ± 0,43)**

Blade width (cm): **medium (1,34 ± 0,18)**

Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium (3,21 ± 1,85)**

Number of flowers: **low (19,47 ± 1,42)**

Fruit characters

Fresh weight of 100 fruits (g): **low (0,59 ± 0,01)**

Shape (length/width): **elongated**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **low (0,22 ± 0,01)**

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Surface: **smooth**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid (ω 6)	16,40 \pm 2,45	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	13,78 \pm 1,53	Linolenic acid (ω 3)	0,95 \pm 0,07		
Palmitoleic acid	1,10 \pm 0,03	Arachic acid	0,24 \pm 0,05	Unsat./saturated	5,14 \pm 0,62
Stearic acid	2,20 \pm 0,14	Eicosenoic acid	0,15 \pm 0,22	ω 6/ ω 3	17,40 \pm 3,01
Oleic acid	63,94 \pm 1,90	Behenic acid	0,08 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 206	175 - 175	214 - 214	210 - 214	124 - 144	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 182	166 - 166	154 - 182	220 - 243	

References:

- 1 - Macrì T., Picone G., La Porta G. In : *Olivo e Olio*, (1988), 5: pp. 34-41.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Grappolo ”

(synonymy: *Frantoio a grappoli*)

Areal distribution or origin area: **Toscana**
 Flesh/pit weight ratio: **medium** ($6,01 \pm 0,47$)
 Oil content (%): **medium** ($47,30 \pm 1,64$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,60 \pm 0,46$)
 Blade width (cm): **broad** ($1,59 \pm 0,12$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,95 \pm 0,35$)
 Number of flowers: **low** ($17,73 \pm 1,82$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,59 \pm 0,06$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,37 \pm 0,02$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	6,40 \pm 0,72	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	10,48 \pm 0,31	Linolenic acid (ω 3)	0,97 \pm 0,02		
Palmitoleic acid	0,47 \pm 0,15	Arachic acid	0,37 \pm 0,17	Unsat./saturated	6,77 \pm 0,15
Stearic acid	2,14 \pm 0,03	Eicosenoic acid	0,15 \pm 0,19	ω 6/ ω 3	6,59 \pm 0,84
Oleic acid	78,71 \pm 0,85	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	181 - 181	208 - 218	210 - 218	124 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	150 - 150	156 - 182	182 - 182	220 - 220	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Grignan ”

(synonymy: *Brescian, Gargnano, Gregnara, etc.*)

Areal distribution or origin area: **Veneto**

Flesh/pit weight ratio: **low** ($4,90 \pm 1,25$)

Oil content (%): **medium** ($40,00 \pm 0,62$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **erect-spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,66 \pm 0,59$)

Blade width (cm): **medium** ($1,41 \pm 0,19$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,77 \pm 0,21$)

Number of flowers: **low** ($14,58 \pm 0,67$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,31 \pm 0,06$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **tenuous**

Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **high** ($0,60 \pm 0,15$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **scabrous**

Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,00	Linoleic acid ($\omega 6$)	7,18 \pm 1,07	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	11,54 \pm 0,44	Linolenic acid ($\omega 3$)	0,90 \pm 0,02		
Palmitoleic acid	0,95 \pm 0,09	Arachic acid	0,28 \pm 0,01	Unsat./saturated	6,14 \pm 0,15
Stearic acid	2,19 \pm 0,05	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	7,97 \pm 1,03
Oleic acid	76,21 \pm 1,49	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 198	177 - 185	212 - 212	212 - 221	124 - 130	157 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	166 - 166	182 - 210	213 - 220	

References:

- 1 - Consiglio Oleicolo Internazionale. In: *Catalogo Mondiale delle Varietà di Olivo*, COI (2003).
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Grossa di Cassano ”

(synonymy: *Cassanese, Precoce di Cassano.*)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **high (7,62 ± 0,98)**

Oil content (%): **low (36,56 ± 3,14)**

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium (6,37 ± 0,51)**

Blade width (cm): **broad (1,79 ± 0,20)**

Shape (blade length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium (3,27 ± 1,27)**

Number of flowers: **medium (22,07 ± 4,54)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (3,86 ± 0,26)**

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetrical**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **obvious**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high (0,52 ± 0,01)**

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetrical**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	9,80 \pm 1,77	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	12,92 \pm 2,18	Linolenic acid (ω 3)	0,94 \pm 0,09		
Palmitoleic acid	0,72 \pm 0,14	Arachic acid	0,07 \pm 0,02	Unsat./saturated	5,67 \pm 0,92
Stearic acid	1,99 \pm 0,21	Eicosenoic acid	0,10 \pm 0,12	ω 6/ ω 3	10,69 \pm 3,09
Oleic acid	72,48 \pm 3,09	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond, and read sensations of artichoke and grass. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 182	179 - 179	208 - 218	210 - 214	124 - 144	136 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 177	182 - 182	205 - 232	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo Calabrese*, Ist. Sper. Olivico. (2003), pp: 7-8.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività CO.R.ASS.OL.* (2003).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Grossa di Spanga ”

(synonymy: *Bella della Daunia, Bella di Cerignola, Manna, Oliva a prugna, etc.*)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **high** ($8,40 \pm 0,21$)
 Oil content (%): **medium** ($45,63 \pm 1,75$)
 Purpose: **table**



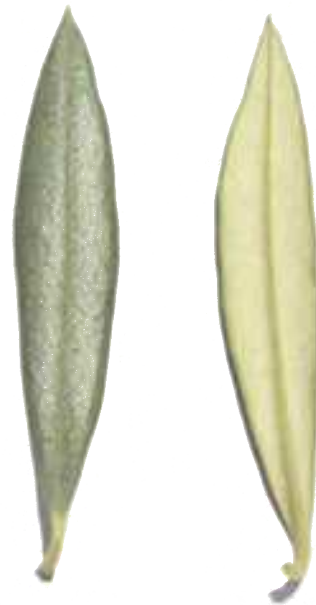
Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **long** ($7,07 \pm 0,56$)
 Blade width (cm): **medium** ($1,45 \pm 0,20$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,93 \pm 0,53$)
 Number of flowers: **low** ($13,91 \pm 1,79$)

Fruit characters

Fresh weight of 100 fruits (g): **very high** ($9,07 \pm 1,83$)
 Shape (length/width): **elongated**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **very high** ($0,98 \pm 0,15$)
 Shape (length/width): **elongated**
 Mucron: **absent**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	8,61 \pm 0,12	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	14,29 \pm 0,67	Linolenic acid ($\omega 3$)	0,83 \pm 0,23		
Palmitoleic acid	0,86 \pm 0,05	Arachic acid	0,30 \pm 0,14	Unsat./saturated	4,79 \pm 0,68
Stearic acid	2,71 \pm 1,28	Eicosenoic acid	0,12 \pm 0,14	$\omega 6/\omega 3$	10,76 \pm 2,79
Oleic acid	71,31 \pm 1,68	Behenic acid	0,08 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium-high fruity, with good sensation of grass, less almond and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
166 - 172	177 - 177	208 - 208	210 - 214	124 - 144	136 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 166	143 - 245	108 - 108	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 25-28.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Grossa di Venafro ”

Areal distribution or origin area: **Molise**
 Flesh/pit weight ratio: **medium** ($6,40 \pm 0,33$)
 Oil content (%): **medium** ($46,92 \pm 1,03$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,41 \pm 0,48$)
 Blade width (cm): **medium** ($1,31 \pm 0,17$)
 Shape (length/width): **elliptic - lanceolate**

Inflorescence characters

Inflorescence length (cm): **long** ($3,69 \pm 0,54$)
 Number of flowers: **high** ($2,78 \pm 2,27$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,10 \pm 0,02$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **low** ($0,28 \pm 0,01$)
 Shape (length/width): **ovoid**
 Mucron: **tenuous**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	8,82 \pm 0,67	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	15,24 \pm 0,36	Linolenic acid ($\omega 3$)	0,87 \pm 0,04		
Palmitoleic acid	1,35 \pm 0,02	Arachic acid	0,24 \pm 0,00	Unsat./saturated	4,80 \pm 0,07
Stearic acid	1,64 \pm 0,14	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	10,08 \pm 0,35
Oleic acid	70,63 \pm 0,48	Behenic acid	0,06 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of grass, less almond and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 204	177 - 177	212 - 222	214 - 214	124 - 130	150 - 150
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 193	154 - 205	213 - 213	

References:

- 1 - Consiglio Oleicolo Internazionale. In: *Catalogo Mondiale delle Varietà di Olivo*, COI (2003).
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Grossale ”

(synonymy: *Provenzale, Provenzana, Ursale, etc.*)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium (6,82 ± 0,49)**
 Oil content (%): **medium (42,43 ± 0,72)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium (5,26 ± 0,44)**
 Blade width (cm): **medium (1,06 ± 0,09)**
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium (2,87 ± 1,46)**
 Number of flowers: **medium (18,22 ± 1,54)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,73 ± 0,01)**
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium (0,35 ± 0,02)**
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	12,03 \pm 1,10	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	16,20 \pm 0,70	Linolenic acid ($\omega 3$)	0,95 \pm 0,04		
Palmitoleic acid	1,36 \pm 0,01	Arachic acid	0,16 \pm 0,03	Unsat./saturated	4,52 \pm 0,23
Stearic acid	1,60 \pm 0,06	Eicosenoic acid	0,06 \pm 0,00	$\omega 6/\omega 3$	12,72 \pm 1,74
Oleic acid	66,47 \pm 0,32	Behenic acid	0,03 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of grass, less almond and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 198	179 - 181	214 - 214	214 - 214	126 - 144	157 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 150	166 - 166	143 - 143	205 - 239	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ I 77 ”

Areal distribution or origin area: **Umbria**
 Flesh/pit weight ratio: **medium** ($5,02 \pm 0,02$)
 Oil content (%): **medium** ($48,36 \pm 0,10$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,82 \pm 0,64$)
 Blade width (cm): **medium** ($1,38 \pm 0,18$)
 Shape (length/width): **elliptic lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,62 \pm 0,68$)
 Number of flowers: **medium** ($20,89 \pm 2,38$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,73 \pm 0,23$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,62 \pm 0,04$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	9,28 \pm 0,04	Lignoceric acid	0,05 \pm 0,02
Palmitic acid	10,09 \pm 0,83	Linolenic acid ($\omega 3$)	0,92 \pm 0,04		
Palmitoleic acid	0,86 \pm 0,43	Arachic acid	0,28 \pm 0,07	Unsat./saturated	7,32 \pm 0,53
Stearic acid	1,63 \pm 0,03	Eicosenoic acid	0,04 \pm 0,01	$\omega 6/\omega 3$	10,14 \pm 0,44
Oleic acid	76,10 \pm 0,26	Behenic acid	0,09 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	179 - 179	218 - 222	218 - 218	124 - 130	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 135	166 - 177	154 - 205	205 - 205	

References:

- 1 - Lombardo N. In: *Le risorse genetiche vegetali presso gli IRSA*, MIPAF (2001), 1: pp. 361-405.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Imperiale ”

Areal distribution or origin area: **Calabria**
 Flesh/pit weight ratio: **very high (12,82 ± 1,14)**
 Oil content (%): **high (50,65 ± 0,50)**
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect-spreading**
 Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium (5,51 ± 0,69)**
 Blade width (cm): **medium (1,19 ± 0,19)**
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **short (2,43 ± 0,90)**
 Number of flowers: **low (16,43 ± 2,43)**

Fruit characters

Fresh weight of 100 fruits (g): **very high (9,38 ± 0,63)**
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **many and large**

Pit characters

Weight of 100 pits (g): **high (0,68 ± 0,08)**
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **scabrous**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	10,63 \pm 1,53	Lignoceric acid	0,07 \pm 0,03
Palmitic acid	10,93 \pm 1,75	Linolenic acid (ω 3)	0,92 \pm 0,04		
Palmitoleic acid	0,95 \pm 0,31	Arachic acid	0,40 \pm 0,11	Unsat./saturated	6,16 \pm 0,75
Stearic acid	2,67 \pm 0,21	Eicosenoic acid	0,21 \pm 0,21	ω 6/ ω 3	11,49 \pm 1,26
Oleic acid	72,07 \pm 1,53	Behenic acid	0,12 \pm 0,06		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with good sensation of grass, artichoke and tomato. Balanced in flavours, with hints of bitter and spicy medium-high intensity. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 198	177 - 185	208 - 212	210 - 250	130 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	143 - 143	213 - 232	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo Calabrese*, Ist. Sper. Oliv. (2003), pp: 21.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività CO.R.ASS.OL.* (2003).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Intosso ”

(synonymy: *Grossa, Indossa, Olivo da cuccare, etc.*)

Areal distribution or origin area: **Abruzzo**

Flesh/pit weight ratio: **high** ($9,18 \pm 0,26$)

Oil content (%): **medium** ($42,80 \pm 0,25$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,62 \pm 0,63$)

Blade width (cm): **medium** ($1,46 \pm 0,17$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,93 \pm 0,43$)

Number of flowers: **medium** ($19,37 \pm 3,71$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($4,36 \pm 0,37$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **tenuous**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,44 \pm 0,01$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **pointed**

Base: **pointed**

Surface: **rugose**

Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

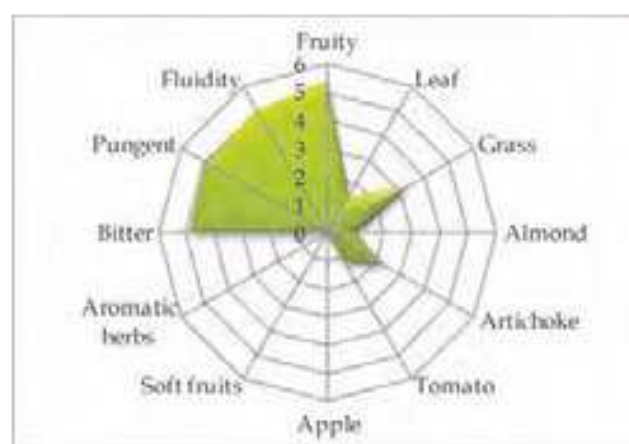
Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	9,62 \pm 1,65	Lignoceric acid	0,04 \pm 0,01
Palmitic acid	10,12 \pm 0,16	Linolenic acid ($\omega 3$)	0,86 \pm 0,04		
Palmitoleic acid	0,51 \pm 0,08	Arachic acid	0,49 \pm 0,21	Unsat./saturated	6,64 \pm 0,39
Stearic acid	2,66 \pm 0,33	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	11,15 \pm 1,37
Oleic acid	75,18 \pm 0,49	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with good sensation of grass, artichoke and tomato. Balanced in flavours, with hints of bitter and spicy medium-high intensity. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 210	179 - 181	212 - 222	210 - 214	124 - 130	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	166 - 166	166 - 166	154 - 205	205 - 205	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 44-45.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Itrana ”

(synonymy: *Aitana, Cicerone, Gaetana, Olivo di Gaeta, Olivo di Itri, Trana, etc.*)

Areal distribution or origin area: **Lazio**

Flesh/pit weight ratio: **low** ($4,59 \pm 1,17$)

Oil content (%): **medium** ($44,93 \pm 2,43$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,80 \pm 0,93$)

Blade width (cm): **medium** ($1,40 \pm 0,22$)

Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,98 \pm 0,97$)

Number of flowers: **low** ($16,79 \pm 0,93$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,03 \pm 1,12$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,51 \pm 0,18$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **pointed**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	6,20 \pm 0,72	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	13,48 \pm 1,87	Linolenic acid (ω 3)	0,84 \pm 0,01		
Palmitoleic acid	1,19 \pm 0,06	Arachic acid	0,22 \pm 0,00	Unsat./saturated	5,57 \pm 0,77
Stearic acid	1,55 \pm 0,05	Eicosenoic acid	0,03 \pm 0,01	ω 6/ ω 3	7,40 \pm 0,72
Oleic acid	75,41 \pm 0,77	Behenic acid	0,05 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of grass and tomato, read sensations of almond and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 198	179 - 181	214 - 218	214 - 224	130 - 144	150 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	166 - 177	150 - 161	220 - 220	

References:

- 1 - Parlato M.V., Pandolfi S. In: *Catalogo delle principali varietà di olivo del Lazio*, Ist. Sper. Olivico. (2003), pp. 15-16.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Laurina ”

(synonymy: Carbonella, Laura, Mignola, etc.)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** (7,24 ± 1,20)
 Oil content (%): **medium** (40,51 ± 0,09)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** (6,15 ± 0,71)
 Blade width (cm): **medium** (1,31 ± 0,15)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** (4,45 ± 0,01)
 Number of flowers: **high** (25,43 ± 0,27)

Fruit characters

Fresh weight of 100 fruits (g): **low** (1,28 ± 0,02)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **low** (0,18 ± 0,02)
 Shape (length/width): **elliptic**
 Mucron: **tenuous**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,00 \pm 0,00	Linoleic acid ($\omega 6$)	10,54 \pm 0,41	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	13,95 \pm 0,93	Linolenic acid ($\omega 3$)	0,84 \pm 0,07		
Palmitoleic acid	2,59 \pm 0,28	Arachic acid	0,24 \pm 0,04	Unsat./saturated	5,21 \pm 0,30
Stearic acid	1,60 \pm 0,08	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	12,64 \pm 1,59
Oleic acid	67,76 \pm 0,48	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 172	177 - 185	214 - 214	214 - 224	124 - 144	157 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 193	154 - 205	200 - 200	

References:

1 - Alfei B. In: *olivo e Olio*, (2003), 1: pp. 18-20.

2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Lavagnina ”

(synonymy: *Olivastro*, *Olivo di Taggia*, *Olivo taggiasco*, *Pignola di Oneglia*, etc.)

Areal distribution or origin area: **Liguria**
 Flesh/pit weight ratio: **low (3,41 ± 0,08)**
 Oil content (%): **medium (45,50 ± 1,50)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium (5,88 ± 0,59)**
 Blade width (cm): **medium (1,43 ± 0,14)**
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long (3,78 ± 1,99)**
 Number of flowers: **medium (20,14 ± 1,18)**

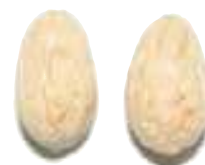
Fruit characters

Fresh weight of 100 fruits (g): **medium (2,28 ± 0,21)**
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high (0,48 ± 0,05)**
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,82 \pm 0,53	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	13,68 \pm 0,25	Linolenic acid (ω 3)	0,84 \pm 0,07		
Palmitoleic acid	1,57 \pm 0,01	Arachic acid	0,22 \pm 0,02	Unsat./saturated	5,27 \pm 0,11
Stearic acid	1,92 \pm 0,04	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	11,65 \pm 0,26
Oleic acid	70,61 \pm 0,46	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 176	179 - 181	212 - 212	123 - 123	210 - 214	130 - 144
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 182	166 - 193	143 - 205	213 - 232	

References:

- 1 - Cimato A., Cantini C., Sani G. In: *Atti 4° Convegno Nazionale sulla Biodiversità*, Alghero (2000), pp. 497-500.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Leccino ”

(synonymy: *Colombina, Leccino di Belmonte, Toscano, Verolana, etc.*)

Areal distribution or origin area: **Toscana**

Flesh/pit weight ratio: **low** ($4,03 \pm 0,17$)

Oil content (%): **medium** ($46,20 \pm 0,71$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,10 \pm 0,39$)

Blade width (cm): **broad** ($1,53 \pm 0,13$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,90 \pm 1,67$)

Number of flowers: **low** ($12,83 \pm 1,91$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,41 \pm 0,19$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,52 \pm 0,06$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	4,96 \pm 0,74	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	12,98 \pm 0,73	Linolenic acid (ω 3)	0,82 \pm 0,08		
Palmitoleic acid	1,22 \pm 0,19	Arachic acid	0,27 \pm 0,02	Unsat./saturated	5,56 \pm 0,24
Stearic acid	1,89 \pm 0,24	Eicosenoic acid	0,06 \pm 0,12	ω 6/ ω 3	6,09 \pm 1,21
Oleic acid	76,47 \pm 1,24	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 206	177 - 177	212 - 222	214 - 214	124 - 130	150 - 150
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	143 - 143	166 - 193	154 - 205	213 - 213	

References:

- 1 - Pannelli G., Alfei B., Rosati S., et al. In: *Varietà di olivo in Umbria*. Ed. Pliniana (2000), pp.25-30.
- 2 - Muzzalupo I., Stefanizzi F., Salimonti A., et al. *Sci. Agric.* (2009), 66 (5): pp. 685-690.

“ Lezze ”

(synonymy: *Oliastro, Olivastro di Conversano.*)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **low (4,46 ± 0,64)**
 Oil content (%): **medium (40,01 ± 0,59)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium (5,96 ± 0,40)**
 Blade width (cm): **medium (1,38 ± 0,12)**
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium (2,99 ± 0,56)**
 Number of flowers: **high (22,84 ± 1,97)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,05 ± 0,34)**
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium (0,41 ± 0,05)**
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	14,00 \pm 3,42	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	14,66 \pm 0,47	Linolenic acid (ω 3)	0,82 \pm 0,20		
Palmitoleic acid	1,54 \pm 0,05	Arachic acid	0,26 \pm 0,06	Unsat./saturated	4,88 \pm 0,25
Stearic acid	1,91 \pm 0,30	Eicosenoic acid	0,18 \pm 0,20	ω 6/ ω 3	17,12 \pm 0,10
Oleic acid	65,20 \pm 2,79	Behenic acid	0,07 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium-light intensity. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	181 - 181	208 - 218	210 - 210	124 - 144	136 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 135	177 - 182	143 - 161	164 - 185	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Istituto Sperimentale per l'Olivicoltura (2004), pp. 73-76.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Lumiaru ”

(synonymy: *Leminara*, *Luriaro*, *Luriara*, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high (10,00 ± 1,22)**
 Oil content (%): **high (50,10 ± 0,88)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium (6,35 ± 0,70)**
 Blade width (cm): **medium (1,44 ± 0,20)**
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium (3,07 ± 1,72)**
 Number of flowers: **medium (18,22 ± 0,95)**

Fruit characters

Fresh weight of 100 fruits (g): **high (4,58 ± 0,39)**
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **high (0,42 ± 0,08)**
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **pointed**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid (ω 6)	10,28 \pm 0,01	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	15,10 \pm 0,42	Linolenic acid (ω 3)	1,09 \pm 0,02		
Palmitoleic acid	1,43 \pm 0,00	Arachic acid	0,25 \pm 0,01	Unsat./saturated	4,83 \pm 0,18
Stearic acid	1,63 \pm 0,09	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	9,46 \pm 0,23
Oleic acid	68,76 \pm 0,55	Behenic acid	0,06 \pm 0,00		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium-high, with taste of almond. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	177 - 181	208 - 212	214 - 214	124 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	133 - 182	205 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 158-162.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Maiatica di Ferrandina ”

(synonymy: *Gentile di Ferrandina, Gentile, Maggiatica, Paesana, Oliva dolce, etc.*)

Areal distribution or origin area: **Basilicata**

Flesh/pit weight ratio: **high** ($9,07 \pm 0,83$)

Oil content (%): **high** ($52,24 \pm 1,03$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading-erect**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,26 \pm 0,55$)

Blade width (cm): **medium** ($1,15 \pm 0,10$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,50 \pm 0,15$)

Number of flowers: **low** ($13,57 \pm 0,81$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,72 \pm 0,87$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,37 \pm 0,08$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **pointed**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	6,72 \pm 1,59	Lignoceric acid	0,05 \pm 0,02
Palmitic acid	10,53 \pm 1,96	Linolenic acid ($\omega 3$)	0,80 \pm 0,06		
Palmitoleic acid	0,88 \pm 0,12	Arachic acid	0,39 \pm 0,13	Unsat./saturated	6,07 \pm 0,63
Stearic acid	3,23 \pm 0,67	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	8,47 \pm 2,10
Oleic acid	76,15 \pm 2,84	Behenic acid	0,10 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with good sensation of grass, artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 179	208 - 208	214 - 214	124 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	182 - 182	205 - 205	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita - Potenza (2002), pp. 61-64.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Marina ”

(synonymy: *Marina Valcomino*)

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **medium** ($5,02 \pm 1,20$)
 Oil content (%): **medium** ($46,63 \pm 0,74$)
 Purpose: **olio**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium** ($6,26 \pm 0,42$)
 Blade width (cm): **medium** ($1,29 \pm 0,12$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,65 \pm 0,26$)
 Number of flowers: **low** ($14,85 \pm 2,77$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,64 \pm 0,42$)
 Shape (length/width): **elongated**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **high** ($0,49 \pm 0,08$)
 Shape (length/width): **elongated**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

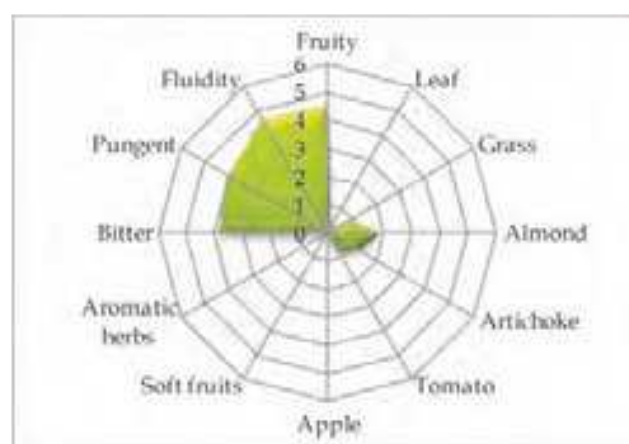
Myristic acid	0,02 \pm 0,01	Linoleic acid (ω 6)	6,95 \pm 0,29	Lignoceric acid	0,08 \pm 0,02
Palmitic acid	12,53 \pm 0,76	Linolenic acid (ω 3)	0,76 \pm 0,05		
Palmitoleic acid	2,08 \pm 0,04	Arachic acid	0,54 \pm 0,04	Unsat./saturated	5,20 \pm 0,20
Stearic acid	2,79 \pm 0,27	Eicosenoic acid	0,28 \pm 0,01	ω 6/ ω 3	9,21 \pm 0,22
Oleic acid	77,02 \pm 0,84	Behenic acid	0,19 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond, read sensations of grass, tomato and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	179 - 181	212 - 222	214 - 214	126 - 126	184 - 197
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 135	166 - 193	154 - 154	213 - 232	

References:

- 1 - Parlati M.V., Pandolfi S. In: *Catalogo delle principali varietà di olivo del Lazio*, Ist. Sper. Oliviv. (2003), pp. 39-40.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Marzio ”

Areal distribution or origin area: **Toscana**
 Flesh/pit weight ratio: **medium** ($6,67 \pm 0,31$)
 Oil content (%): **medium** ($45,62 \pm 0,69$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,34 \pm 0,39$)
 Blade width (cm): **medium** ($1,31 \pm 0,13$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,57 \pm 0,53$)
 Number of flowers: **low** ($16,95 \pm 1,70$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,11 \pm 0,15$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **low** ($0,28 \pm 0,03$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	10,33 \pm 0,51	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	12,00 \pm 1,20	Linolenic acid ($\omega 3$)	0,74 \pm 0,05		
Palmitoleic acid	0,98 \pm 0,13	Arachic acid	0,48 \pm 0,05	Unsat./saturated	5,77 \pm 0,21
Stearic acid	2,39 \pm 0,77	Eicosenoic acid	0,21 \pm 0,02	$\omega 6/\omega 3$	13,90 \pm 1,67
Oleic acid	71,76 \pm 0,25	Behenic acid	0,08 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of almond and aromatic herbs, less grass and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	181 - 181	208 - 218	210 - 218	130 - 130	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
159 - 159	150 - 150	166 - 182	182 - 205	200 - 220	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Mignola ”

(synonymy: *Carbonella, Laurina, Sargana, Sarganella, Suricina, etc.*)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** ($5,48 \pm 0,24$)
 Oil content (%): **medium** ($45,29 \pm 0,70$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($6,60 \pm 0,58$)
 Blade width (cm): **broad** ($1,55 \pm 0,15$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **long** ($4,04 \pm 1,39$)
 Number of flowers: **medium** ($20,94 \pm 3,07$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,35 \pm 0,05$)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **low** ($0,21 \pm 0,02$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	8,94 \pm 0,47	Lignoceric acid	0,05 \pm 0,01
Palmitic acid	13,33 \pm 0,46	Linolenic acid ($\omega 3$)	0,46 \pm 0,04		
Palmitoleic acid	1,93 \pm 0,26	Arachic acid	0,37 \pm 0,16	Unsat./saturated	5,46 \pm 0,39
Stearic acid	1,70 \pm 0,24	Eicosenoic acid	0,27 \pm 0,08	$\omega 6/\omega 3$	19,66 \pm 0,49
Oleic acid	71,23 \pm 2,33	Behenic acid	0,06 \pm 0,06		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of soft fruits and read sensations of almond, grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 172	177 - 185	214 - 218	214 - 221	126 - 144	157 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 193	154 - 205	200 - 200	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*. ASSAM (2001), pp. 65-68.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Mignolo ”

(synonymy: *Gremignolo, Mignola, Minuto, Prugnolo, etc.*)

Areal distribution or origin area: **Toscana**

Flesh/pit weight ratio: **low** ($2,67 \pm 0,98$)

Oil content (%): **medium** ($44,17 \pm 0,71$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **strong**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,69 \pm 0,75$)

Blade width (cm): **medium** ($1,41 \pm 0,21$)

Shape (length/width): **elliptic lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($3,98 \pm 0,68$)

Number of flowers: **medium** ($19,04 \pm 1,19$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,06 \pm 0,85$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **high** ($0,55 \pm 0,09$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	10,46 \pm 0,65	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	10,18 \pm 0,08	Linolenic acid ($\omega 3$)	0,91 \pm 0,02		
Palmitoleic acid	1,21 \pm 0,68	Arachic acid	0,34 \pm 0,03	Unsat./satured	6,84 \pm 0,49
Stearic acid	2,34 \pm 1,32	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	11,54 \pm 0,45
Oleic acid	73,40 \pm 0,63	Behenic acid	0,09 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	181 - 181	208 - 210	210 - 218	124 - 144	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	150 - 150	156 - 177	182 - 205	200 - 200	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Minna di vacca ”

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($9,24 \pm 0,86$)
 Oil content (%): **high** ($53,48 \pm 0,70$)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,08 \pm 0,36$)
 Blade width (cm): **medium** ($1,47 \pm 0,15$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,56 \pm 1,68$)
 Number of flowers: **low** ($13,41 \pm 1,04$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,59 \pm 0,54$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **obvious**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,55 \pm 0,01$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

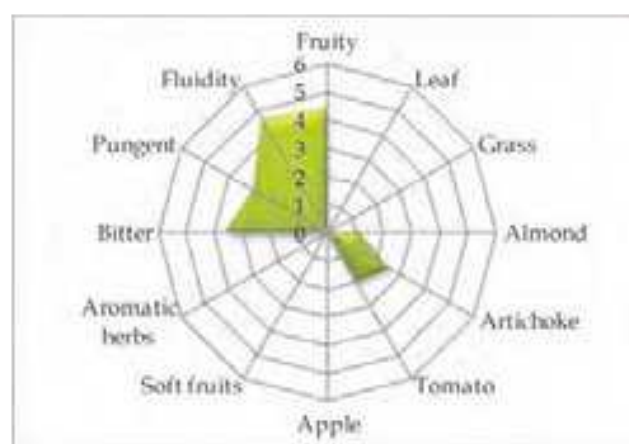
Myristic acid	0,02 \pm 0,01	Linoleic acid (ω 6)	9,69 \pm 0,72	Lignoceric acid	0,04 \pm 0,01
Palmitic acid	11,24 \pm 0,37	Linolenic acid (ω 3)	0,97 \pm 0,01		
Palmitoleic acid	0,41 \pm 0,04	Arachic acid	0,22 \pm 0,09	Unsat./saturated	6,57 \pm 0,22
Stearic acid	1,77 \pm 0,02	Eicosenoic acid	0,03 \pm 0,02	ω 6/ ω 3	9,99 \pm 0,59
Oleic acid	75,35 \pm 1,08	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of artichoke and tomato, read sensations of almond. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	181 - 185	208 - 212	214 - 214	124 - 130	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	166 - 193	182 - 182	108 - 108	

References:

- 1 - Bottari V., Spina P. In: *Le varietà di olivo coltivate in Sicilia*, Ann. Sper. Agr. (1953), 7: pp. 937-1004.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Monaca ”

(synonymy: *Calabrese, Monaca, etc.*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium (5,20 ± 1,09)**
 Oil content (%): **medium (40,74 ± 0,93)**
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium (5,06 ± 0,42)**
 Blade width (cm): **medium (1,38 ± 0,13)**
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium (2,95 ± 2,30)**
 Number of flowers: **high (25,08 ± 1,76)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (3,38 ± 0,02)**
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **high (0,55 ± 0,06)**
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	13,94 \pm 1,02	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	14,66 \pm 0,67	Linolenic acid ($\omega 3$)	0,76 \pm 0,03		
Palmitoleic acid	3,03 \pm 0,10	Arachic acid	0,30 \pm 0,04	Unsat./saturated	4,73 \pm 0,23
Stearic acid	1,96 \pm 0,05	Eicosenoic acid	0,09 \pm 0,13	$\omega 6/\omega 3$	18,35 \pm 0,81
Oleic acid	61,84 \pm 1,80	Behenic acid	0,09 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: **fruity medium-light, with taste of aromatic herbs, read sensations of almond, grass and leaves. Balanced taste sensation with medium bitter and spicy. Medium fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	181 - 181	208 - 212	210 - 214	124 - 144	157 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 193	154 - 182	164 - 205	

References:

- 1 - Lombardo N. In: *Le risorse genetiche vegetali presso gli IRSA*, Ed. MIPAF (2001), 1:pp. 361-405.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Mora ”

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **high (8,63 ± 1,73)**
 Oil content (%): **low (37,70 ± 1,46)**
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium (6,64 ± 0,54)**
 Blade width (cm): **broad (1,83 ± 0,27)**
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium (2,34 ± 1,71)**
 Number of flowers: **low (13,07 ± 1,17)**

Fruit characters

Fresh weight of 100 fruits (g): **low (4,75 0,76)**
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high (0,51 ± 0,15)**
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apice
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	16,02 \pm 1,77	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	14,05 \pm 0,08	Linolenic acid (ω 3)	1,29 \pm 0,03		
Palmitoleic acid	2,34 \pm 0,55	Arachic acid	0,23 \pm 0,02	Unsat./saturated	5,30 \pm 0,06
Stearic acid	1,27 \pm 0,04	Eicosenoic acid	0,03 \pm 0,00	ω 6/ ω 3	12,41 \pm 1,05
Oleic acid	62,51 \pm 2,93	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond, read sensations of grass, tomato, and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 182	179 - 181	208 - 212	210 - 224	124 - 126	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	143 - 210	108 - 164	

References:

- 1 - Ferrara E., Lamparelli F. In: *Atti Convegno l'Olivicoltura mediterranea*, Ist, Sper, Oliv. (1995), pp. 133-141.
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Moraiolo T. Corsini ”

Areal distribution or origin area: **Toscana**

Flesh/pit weight ratio: **low** ($4,43 \pm 0,88$)

Oil content (%): **medium** ($39,07 \pm 1,70$)

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **spreading-erect**

Canopy-density: **medium-sparse**



Leaf characters

Blade length (cm): **medium** ($5,89 \pm 0,36$)

Blade width (cm): **medium** ($1,43 \pm 0,10$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($3,56 \pm 0,88$)

Number of flowers: **medium** ($24,80 \pm 0,97$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,90 \pm 0,23$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:
central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,36 \pm 0,04$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:
central

Apex: **pointed**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	6,84 \pm 0,73	Lignoceric acid	0,09 \pm 0,12
Palmitic acid	12,81 \pm 0,50	Linolenic acid (ω 3)	0,85 \pm 0,10		
Palmitoleic acid	0,88 \pm 0,28	Arachic acid	0,23 \pm 0,10	Unsat./saturated	5,71 \pm 0,31
Stearic acid	1,77 \pm 0,24	Eicosenoic acid	0,04 \pm 0,02	ω 6/ ω 3	8,05 \pm 0,48
Oleic acid	75,79 \pm 0,83	Behenic acid	0,06 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond, grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
184 - 206	179 - 185	212 - 222	214 - 214	124 - 130	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	166 - 182	177 - 193	154 - 205	213 - 220	

References:

- 1 - Lombardo N. In: *Le risorse genetiche vegetali presso gli IRSA*, MIPAF (2001), 1: pp. 361-405.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Moraiolo ”

(synonymy: *Carboncella, Marinello, Morellino, Ogliolo, Oliva tonda, etc.*)

Areal distribution or origin area: **Toscana**
 Flesh/pit weight ratio: **medium** ($7,00 \pm 1,36$)
 Oil content (%): **medium** ($44,13 \pm 1,44$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,29 \pm 0,64$)
 Blade width (cm): **medium** ($1,26 \pm 0,16$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($3,51 \pm 0,70$)
 Number of flowers: **high** ($26,49 \pm 1,58$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,36 \pm 0,34$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,31 \pm 0,01$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,55 \pm 0,17	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	14,47 \pm 1,31	Linolenic acid (ω 3)	0,97 \pm 0,01		
Palmitoleic acid	0,64 \pm 0,35	Arachic acid	0,27 \pm 0,06	Unsat./saturated	4,90 \pm 0,13
Stearic acid	2,15 \pm 0,99	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	9,90 \pm 0,26
Oleic acid	70,74 \pm 1,09	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
184 - 216	179 - 185	212 - 222	214 - 214	124 - 124	150 - 150
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	182 - 182	177 - 193	154 - 205	213 - 213	

References:

- 1 - Pannelli G., Alfei B., D' Ambrosio A., et al. In: *Varietà di olivo in Umbria*, Ed. Pliniana (2000), pp. 37-42.
- 2 - Muzzalupo I., Stefanizzi F., Salimonti A., et al. *Sci. Agric.* (2009), 66 (5): pp. 685-690.

“ Morchiaio ”

(synonymy: *Fecciaio, Maschio, Mezzolano, Morchiolo, Olivastro, etc.*)

Areal distribution or origin area: **Toscana**

Flesh/pit weight ratio: **high** ($9,59 \pm 0,39$)

Oil content (%): **medium** ($47,90 \pm 2,12$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **weak**

Growth habit: **erect-spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,98 \pm 0,40$)

Blade width (cm): **medium** ($1,21 \pm 0,12$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,72 \pm 0,82$)

Number of flowers: **medium** ($18,14 \pm 1,44$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,87 \pm 0,05$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Nipple: **absent**

Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,37 \pm 0,01$)

Shape (length/width): **elongated**

Mucron: **absent**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **pointed**

Surface: **rugose**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	6,10 \pm 0,17	Lignoceric acid	0,06 \pm 0,02
Palmitic acid	13,82 \pm 0,24	Linolenic acid ($\omega 3$)	0,95 \pm 0,03		
Palmitoleic acid	0,81 \pm 0,01	Arachic acid	0,31 \pm 0,07	Unsat./saturated	5,16 \pm 0,09
Stearic acid	2,03 \pm 0,04	Eicosenoic acid	0,06 \pm 0,01	$\omega 6/\omega 3$	6,42 \pm 0,00
Oleic acid	75,25 \pm 0,70	Behenic acid	0,11 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 194	177 - 181	218 - 212	212 - 212	124 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	156 - 177	150 - 182	108 - 108	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Moresca ”

(synonymy: *Aliva riali*, *Bianculidda*, *Catanisa*, *Marsalisa*, *Nucidda grossa*, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** ($6,58 \pm 1,71$)
 Oil content (%): **medium** ($47,54 \pm 0,79$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,56 \pm 0,63$)
 Blade width (cm): **medium** ($1,46 \pm 0,22$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **short** ($2,34 \pm 0,93$)
 Number of flowers: **low** ($16,24 \pm 2,39$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,87 \pm 0,05$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,66 \pm 0,10$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

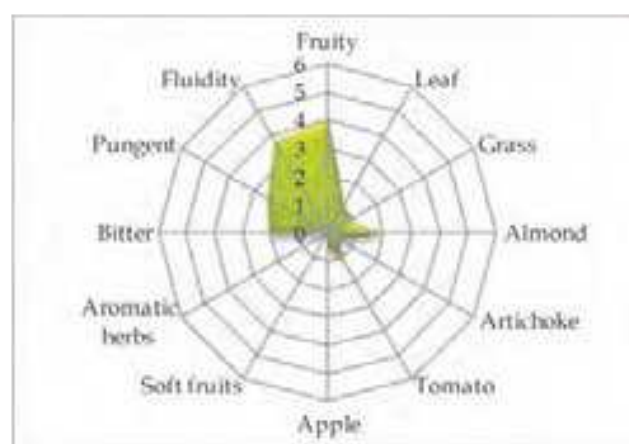
Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	12,50 \pm 0,23	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	13,40 \pm 0,35	Linolenic acid ($\omega 3$)	0,87 \pm 0,13		
Palmitoleic acid	2,22 \pm 0,06	Arachic acid	0,22 \pm 0,02	Unsat./saturated	5,38 \pm 0,13
Stearic acid	1,78 \pm 0,06	Eicosenoic acid	0,01 \pm 0,00	$\omega 6/\omega 3$	14,56 \pm 1,95
Oleic acid	66,71 \pm 0,25	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of artichoke, read sensations of tomato, grass and leaves. Balanced taste sensation with a medium-light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 198	177 - 179	208 - 212	214 - 214	124 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	166 - 202	166 - 193	143 - 182	108 - 213	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 42-46.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Morinello ”

(synonymy: *Aurina, Arancino, Carbogna, More, Oriolo, etc.*)

Areal distribution or origin area: **Toscana**

Flesh/pit weight ratio: **low** ($4,92 \pm 0,29$)

Oil content (%): **medium** ($42,42 \pm 1,86$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading-erect**

Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,84 \pm 0,38$)

Blade width (cm): **medium** ($1,31 \pm 0,16$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,44 \pm 0,44$)

Number of flowers: **high** ($25,55 \pm 2,94$)



Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,84 \pm 0,01$)

Shape (length/width): **spherical**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,32 \pm 0,02$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **medium**

Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	10,60 \pm 1,10	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	14,47 \pm 1,14	Linolenic acid (ω 3)	0,93 \pm 0,03		
Palmitoleic acid	1,30 \pm 0,15	Arachic acid	0,33 \pm 0,13	Unsat./saturated	5,06 \pm 0,45
Stearic acid	1,63 \pm 0,14	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	11,38 \pm 1,18
Oleic acid	69,44 \pm 1,57	Behenic acid	0,09 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of almond, grass and leaves, read sensations of soft fruits and aromatic herb. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	179 - 181	212 - 214	218 - 218	130 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	177 - 193	154 - 182	200 - 200	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Nasitana Frutto Grosso ”

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** ($6,62 \pm 0,68$)
 Oil content (%): **low** ($35,53 \pm 0,40$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **sparse**

Leaf characters

Blade length (cm): **medium** ($6,28 \pm 0,47$)
 Blade width (cm): **medium** ($1,18 \pm 0,13$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,84 \pm 1,48$)
 Number of flowers: **low** ($15,99 \pm 1,60$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,44 \pm 0,41$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium-high** ($0,45 \pm 0,06$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	11,50 \pm 1,71	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	14,59 \pm 0,27	Linolenic acid ($\omega 3$)	0,76 \pm 0,08		
Palmitoleic acid	3,15 \pm 0,53	Arachic acid	0,21 \pm 0,03	Unsat./saturated	4,84 \pm 0,08
Stearic acid	1,76 \pm 0,09	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	15,38 \pm 3,97
Oleic acid	64,56 \pm 0,85	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of almond, grass and leaves, read sensations of soft fruits. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	177 - 185	208 - 212	214 - 214	124 - 130	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	210 - 210	205 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 164-168.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“Nebba”

(synonymy: *Anerba*, *Prunara*, *Tortella*, *Ugghiara*, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** (9,89 ± 0,55)
 Oil content (%): **high** (50,82 ± 1,88)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading-drooping**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **long** (7,01 ± 0,44)
 Blade width (cm): **broad** (1,54 ± 0,16)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** (3,12 ± 1,96)
 Number of flowers: **low** (15,79 ± 1,76)

Fruit characters

Fresh weight of 100 fruits (g): **high** (5,62 ± 1,03)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **medium** (0,37 ± 0,15)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	6,43 \pm 1,07	Lignoceric acid	0,06 \pm 0,04
Palmitic acid	11,47 \pm 0,72	Linolenic acid (ω 3)	0,83 \pm 0,14		
Palmitoleic acid	0,95 \pm 0,40	Arachic acid	0,37 \pm 0,07	Unsat./saturated	6,09 \pm 0,16
Stearic acid	2,25 \pm 0,29	Eicosenoic acid	0,17 \pm 0,21	ω 6/ ω 3	8,02 \pm 2,67
Oleic acid	76,61 \pm 1,35	Behenic acid	0,09 \pm 0,03		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium, with taste of tomato. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	181 - 185	208 - 208	214 - 214	144 - 144	150 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	166 - 193	182 - 182	205 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., *et al.* In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 169-174.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“Nebbia”

(synonymy: *Maglianesa*, *Nebbia del Menocchia*, *Oliva cocia*, etc.)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** ($6,79 \pm 0,31$)
 Oil content (%): **medium** ($44,91 \pm 1,34$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **short** ($4,62 \pm 0,26$)
 Blade width (cm): **medium** ($1,21 \pm 0,10$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,85 \pm 1,67$)
 Number of flowers: **low** ($16,68 \pm 1,63$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,44 \pm 0,26$)
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,33 \pm 0,04$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	11,82 \pm 0,15	Lignoceric acid	x0,04x \pm 0,01
Palmitic acid	12,20 \pm 0,06	Linolenic acid ($\omega 3$)	0,80 \pm 0,05		
Palmitoleic acid	1,24 \pm 0,99	Arachic acid	0,40 \pm 0,02	Unsat./saturated	4,94 \pm 0,35
Stearic acid	4,24 \pm 1,25	Eicosenoic acid	0,04 \pm 0,01	$\omega 6/\omega 3$	14,74 \pm 0,78
Oleic acid	68,03 \pm 1,30	Behenic acid	0,08 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium - light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 206	177 - 181	208 - 212	210 - 214	124 - 130	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 135	177 - 177	154 - 210	205 - 205	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*, (2001), ASSAM pp. 73-76.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Nebbio di Chieti ”

(synonymy: *Comune, Gentile, Nebbia, Nebbio di Vasto, etc.*)

Areal distribution or origin area: **Abruzzo**

Flesh/pit weight ratio: **low** ($4,25 \pm 0,13$)

Oil content (%): **medium** ($40,73 \pm 2,28$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **erect- spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,20 \pm 0,23$)

Blade width (cm): **medium** ($1,30 \pm 0,11$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,40 \pm 2,05$)

Number of flowers: **high** ($25,06 \pm 1,80$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,03 \pm 0,26$)

Shape (length/width): **pherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,22 \pm 0,07$)

Shape (length/width): **ovoid**

Mucron: **absent**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	16,11 \pm 1,29	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	16,07 \pm 1,37	Linolenic acid (ω 3)	0,74 \pm 0,06		
Palmitoleic acid	1,18 \pm 0,02	Arachic acid	0,24 \pm 0,04	Unsat./saturated	4,53 \pm 0,46
Stearic acid	1,63 \pm 0,09	Eicosenoic acid	0,28 \pm 0,09	ω 6/ ω 3	21,92 \pm 0,15
Oleic acid	62,47 \pm 0,24	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass, leaves, and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

DCA09	DCA18	GAPU59	GAPU71A	GUPA71B	GAPU103A
172 - 210	175 - 179	212 - 222	214 - 214	124 - 130	159 - 159
UDO01	UDO03	UDO12	UDO28	UDO39	
144 - 144	135 - 135	177 - 193	154 - 205	213 - 213	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 46-47.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“Nebbio di Pescara”

(synonymy: *Nebbio, Neja.*)

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **medium** ($5,12 \pm 0,54$)
 Oil content (%): **medium** ($44,66 \pm 0,19$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **erect**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **short** ($4,92 \pm 0,42$)
 Blade width (cm): **medium** ($1,22 \pm 0,17$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($4,03 \pm 0,16$)
 Number of flowers: **medium** ($20,69 \pm 2,38$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,13 \pm 0,02$)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **obvious**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,35 \pm 0,03$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	11,36 \pm 0,07	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	13,97 \pm 0,02	Linolenic acid (ω 3)	0,76 \pm 0,03		
Palmitoleic acid	2,04 \pm 0,07	Arachic acid	0,23 \pm 0,03	Unsat./saturated	5,15 \pm 0,04
Stearic acid	1,83 \pm 0,03	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	15,01 \pm 0,72
Oleic acid	67,78 \pm 0,28	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: **fruity medium - light, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium - light bitter and spicy. Medium fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	169 - 179	208 - 208	210 - 214	124 - 130	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	166 - 166	166 - 193	154 - 210	213 - 232	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 48-49.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., *et al. Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Negrera ”

Areal distribution or origin area: **Liguria**
 Flesh/pit weight ratio: **medium (6,54 ± 0,23)**
 Oil content (%): **low (38,04 ± 0,08)**
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium (5,18 ± 0,43)**
 Blade width (cm): **medium (1,00 ± 0,09)**
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

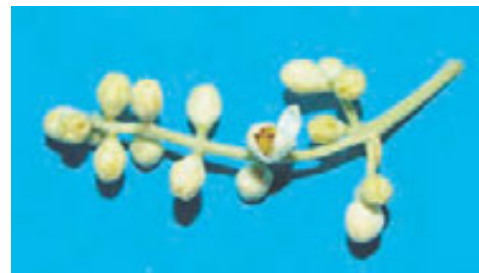
Inflorescence length (cm): **medium (3,27 ± 0,76)**
 Number of flowers: **medium (22,83 ± 0,33)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,35 ± 0,42)**
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium (0,37 ± 0,04)**
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	7,65 \pm 0,47	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	14,86 \pm 0,18	Linolenic acid ($\omega 3$)	0,92 \pm 0,02		
Palmitoleic acid	1,18 \pm 0,02	Arachic acid	0,24 \pm 0,02	Unsat./satured	5,03 \pm 0,05
Stearic acid	1,41 \pm 0,07	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	8,02 \pm 0,67
Oleic acid	72,80 \pm 0,22	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	179 - 179	214 - 214	214 - 224	126 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	166 - 193	182 - 182	200 - 200	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *Atti Convegno Nazionale sulla Biodiversità*, Ed Delfino (2000), pp. 497-500.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Nera di Cantinella ”

Areal distribution or origin area: **Calabria**
 Flesh/pit weight ratio: **low** ($4,05 \pm 0,36$)
 Oil content (%): **medium** ($14,12 \pm 1,26$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,24 \pm 0,60$)
 Blade width (cm): **broad** ($1,69 \pm 0,29$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,12 \pm 0,57$)
 Number of flowers: **medium** ($20,55 \pm 3,64$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,12 \pm 0,24$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,48 \pm 0,11$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	7,01 \pm 0,63	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	11,40 \pm 0,89	Linolenic acid ($\omega 3$)	0,76 \pm 0,06		
Palmitoleic acid	0,87 \pm 0,15	Arachic acid	0,29 \pm 0,03	Unsat./saturated	6,21 \pm 0,54
Stearic acid	2,16 \pm 2,24	Eicosenoic acid	0,09 \pm 0,11	$\omega 6/\omega 3$	9,18 \pm 0,61
Oleic acid	76,33 \pm 1,59	Behenic acid	0,08 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: **fruity medium, with hints of almond and tomato, read sensations of artichoke. Balanced taste sensation with a medium-light bitter and spicy. Medium fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	177 - 179	212 - 222	212 - 212	126 - 174	136 - 150
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	143 - 143	200 - 200	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo Calabrese*, Ist. Sper. Oliv. (2003), pp: 22.
- 2 - Lombardo N., Alessandrino M., Belfiore T., et al. In: *Germoplasma olivicolo e tipicit  dell'olio* (2004), pp: 64-70.
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Nera di Gonnos ”

(*synonymy: Majorca di Dorgali, Niedda di Gonnos, Olia tonda, Tonda di Cagliari, etc.*)

Areal distribution or origin area: **Sardegna**
 Flesh/pit weight ratio: **medium** ($6,17 \pm 1,36$)
 Oil content (%): **medium** ($45,98 \pm 0,35$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,38 \pm 0,59$)
 Blade width (cm): **medium** ($1,34 \pm 0,13$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,30 \pm 1,93$)
 Number of flowers: **low** ($17,90 \pm 2,47$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,23 \pm 1,43$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **high** ($0,63 \pm 0,20$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	10,20 \pm 1,71	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	9,57 \pm 0,82	Linolenic acid ($\omega 3$)	0,78 \pm 0,12		
Palmitoleic acid	1,42 \pm 0,62	Arachic acid	0,16 \pm 0,00	Unsat./saturated	7,91 \pm 0,78
Stearic acid	1,33 \pm 0,00	Eicosenoic acid	0,04 \pm 0,01	$\omega 6/\omega 3$	13,00 \pm 0,23
Oleic acid	74,78 \pm 1,46	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and read sensations of grass, leaves and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 172	185 - 185	212 - 212	214 - 221	126 - 144	170 - 203
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	135 - 135	166 - 193	143 - 143	213 - 220	

References:

- 1 - Mulas M., Agabbio M., Chessa I., In: *L'Olivo: le vecchie varietà della Sardegna*, Ed. Delfino (1994), pp. 310-338.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Nocellara del Belice ”

(synonymy: *Bariddara, Bianculidda, Nuciddara, Oliva da salari, Tunna, etc.*)

Areal distribution or origin area: **Sicilia**

Flesh/pit weight ratio: **high** ($9,13 \pm 1,07$)

Oil content (%): **medium** ($43,82 \pm 1,04$)

Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($6,39 \pm 0,62$)

Blade width (cm): **broad** ($1,55 \pm 0,16$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,80 \pm 1,55$)

Number of flowers: **low** ($15,50 \pm 3,92$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,58 \pm 0,84$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,53 \pm 0,09$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **symmetric**

Position of maximum transverse diameter:

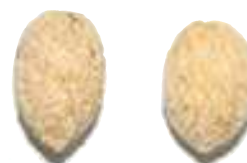
central

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	8,82 \pm 3,35	Lignoceric acid	0,04 \pm 0,01
Palmitic acid	10,50 \pm 0,42	Linolenic acid ($\omega 3$)	0,92 \pm 0,06		
Palmitoleic acid	0,70 \pm 0,18	Arachic acid	0,37 \pm 0,08	Unsat./saturated	6,38 \pm 0,03
Stearic acid	2,70 \pm 0,48	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	9,50 \pm 3,04
Oleic acid	75,16 \pm 3,26	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of artichoke, tomato, and grass-leaves. Balanced taste sensation with strong bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 172	177 - 181	212 - 212	214 - 214	144 - 144	150 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	166 - 166	166 - 193	182 - 182	108 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 48-52.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Nocellara etnea ”

(synonymy: *Auggialora*, *Nuciddara*, *Paturnisa*, *Pizzuta*, *Virdisa*, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($8,71 \pm 1,01$)
 Oil content (%): **high** ($51,59 \pm 0,93$)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,62 \pm 0,63$)
 Blade width (cm): **medium** ($1,15 \pm 0,15$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **short** ($2,05 \pm 0,43$)
 Number of flowers: **low** ($14,27 \pm 2,53$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,45 \pm 1,25$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter: **central**
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **high** ($0,47 \pm 0,09$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter: **central**
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	11,84 \pm 1,83	Lignoceric acid	0,06 \pm 0,04
Palmitic acid	12,70 \pm 1,32	Linolenic acid (ω 3)	0,91 \pm 0,07		
Palmitoleic acid	0,76 \pm 0,16	Arachic acid	0,39 \pm 0,11	Unsat./saturated	5,39 \pm 0,57
Stearic acid	2,57 \pm 0,34	Eicosenoic acid	0,14 \pm 0,21	ω 6/ ω 3	12,99 \pm 1,61
Oleic acid	69,54 \pm 0,44	Behenic acid	0,11 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of almond and artichoke, read sensations of tomato, grass and leaves. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	181 - 181	212 - 212	210 - 210	124 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	143 - 182	220 - 220	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 54-58.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Nocellara messinese ”

(synonymy: Nuciddara, Verdella.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($7,99 \pm 0,61$)
 Oil content (%): **medium** ($47,17 \pm 0,74$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,49 \pm 0,66$)
 Blade width (cm): **medium** ($1,19 \pm 0,14$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** ($2,49 \pm 1,38$)
 Number of flowers: **low** ($17,81 \pm 2,45$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,20 \pm 0,68$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and large**

Pit characters

Weight of 100 pits (g): **high** ($0,62 \pm 1,75$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

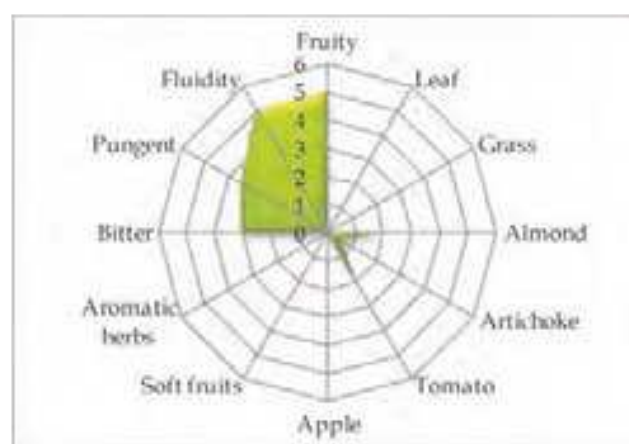
Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	5,07 \pm 0,63	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	9,42 \pm 1,78	Linolenic acid (ω 3)	0,93 \pm 0,10		
Palmitoleic acid	0,32 \pm 0,04	Arachic acid	0,29 \pm 0,02	Unsat./saturated	7,57 \pm 1,29
Stearic acid	2,17 \pm 0,02	Eicosenoic acid	0,04 \pm 0,01	ω 6/ ω 3	5,50 \pm 1,27
Oleic acid	81,53 \pm 1,16	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of almond and tomato. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 176	179 - 179	208 - 212	214 - 214	124 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	143 - 143	213 - 232	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 112-116.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Nociara ”

(synonymy: *Fra' Michele*)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($6,27 \pm 1,51$)
 Oil content (%): **medium** ($46,65 \pm 0,95$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,86 \pm 0,54$)
 Blade width (cm): **broad** ($1,91 \pm 0,30$)
 Shape (length/width): **elliptic**

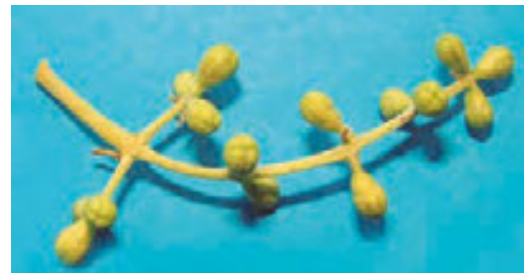


Inflorescence characters

Inflorescence length (cm): **long** ($3,67 \pm 0,70$)
 Number of flowers: **medium** ($18,75 \pm 2,82$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,64 \pm 0,68$)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,45 \pm 0,06$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	8,09 \pm 1,32	Lignoceric acid	0,05 \pm 0,02
Palmitic acid	12,73 \pm 1,58	Linolenic acid (ω 3)	0,84 \pm 0,05		
Palmitoleic acid	1,03 \pm 0,26	Arachic acid	0,36 \pm 0,05	Unsat./saturated	5,39 \pm 0,54
Stearic acid	2,58 \pm 0,22	Eicosenoic acid	0,12 \pm 0,14	ω 6/ ω 3	9,70 \pm 1,71
Oleic acid	73,23 \pm 2,19	Behenic acid	0,11 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: Fruity medium, with read sensations of aromatic herb. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 162	179 - 185	212 - 222	210 - 214	124 - 126	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 193	182 - 182	164 - 232	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Istituto Sperimentale per l'Olivicoltura (2004), pp. 61-64.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“Nolca”

(synonymy: *Amele, Anolca, Dolce, Dolce Mele, Mele, Noce, etc.*)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** (7,39 ± 1,91)
 Oil content (%): **medium** (41,06 ± 1,56)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** (5,84 ± 0,76)
 Blade width (cm): **broad** (1,67 ± 0,35)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **short** (2,45 ± 0,44)
 Number of flowers: **medium** (16,84 ± 1,98)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (7,73 ± 0,75)
 Shape (length/width): **spherical**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** (0,53 ± 0,06)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

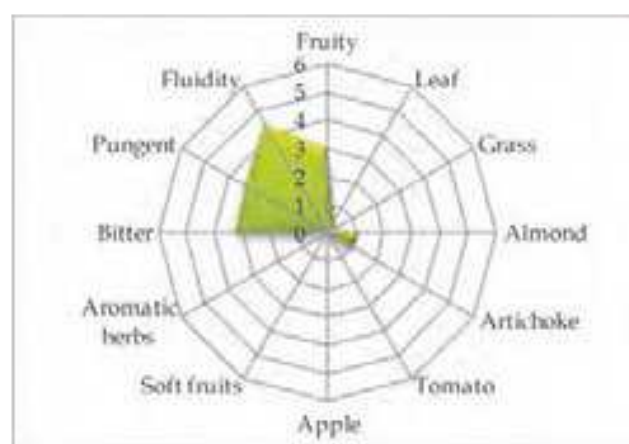
Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	11,05 \pm 0,21	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	11,09 \pm 0,17	Linolenic acid ($\omega 3$)	0,87 \pm 0,16		
Palmitoleic acid	1,00 \pm 0,04	Arachic acid	0,22 \pm 0,01	Unsat./saturated	6,62 \pm 0,35
Stearic acid	1,74 \pm 0,07	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	12,89 \pm 2,06
Oleic acid	72,90 \pm 3,65	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium-light intensity. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 182	177 - 185	208 - 208	214 - 214	124 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	153 - 153	166 - 177	150 - 182	108 - 170	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 57-60.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Nostrale di Fiano Romano ”

(synonymy: *Nostrale, Nostrale di Lauro, etc.*)

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **medium** ($5,43 \pm 0,64$)
 Oil content (%): **medium** ($45,78 \pm 0,47$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,92 \pm 0,81$)
 Blade width (cm): **broad** ($1,63 \pm 0,14$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **long** ($3,62 \pm 0,29$)
 Number of flowers: **low** ($16,88 \pm 2,11$)

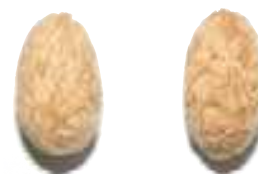
Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,47 \pm 0,19$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **high** ($0,49 \pm 0,13$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	6,19 \pm 1,12	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	15,08 \pm 1,26	Linolenic acid (ω 3)	0,82 \pm 0,04		
Palmitoleic acid	0,75 \pm 0,01	Arachic acid	0,24 \pm 0,03	Unsat./saturated	4,89 \pm 0,42
Stearic acid	1,64 \pm 0,08	Eicosenoic acid	0,01 \pm 0,00	ω 6/ ω 3	7,52 \pm 0,97
Oleic acid	74,64 \pm 0,11	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of artichoke, grass and almond. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	179 - 181	212 - 222	214 - 224	126 - 144	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 182	182 - 210	185 - 185	

References:

- 1 - Parlato M. V., Pandolfi S., In: *Olivo e Olio*, (2001), 4: pp. 67-72.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Nostrale di Rigali ”

(synonymy: *Borciona, Limona, Nostrale, Oliva, etc.*)

Areal distribution or origin area: **Umbria**

Flesh/pit weight ratio: **high** ($7,97 \pm 1,39$)

Oil content (%): **high** ($51,02 \pm 1,57$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium**($6,60 \pm 0,63$)

Blade width (cm): **medium**($1,21 \pm 0,17$)

Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,88 \pm 0,15$)

Number of flowers: **low** ($16,21 \pm 1,62$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,52 \pm 0,11$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,52 \pm 0,06$)

Shape (length/width): **elliptic**

Mucron: **absent**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **scabrous**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,51 \pm 1,31	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	12,19 \pm 1,50	Linolenic acid (ω 3)	0,87 \pm 0,11		
Palmitoleic acid	0,84 \pm 0,06	Arachic acid	0,43 \pm 0,17	Unsat./saturated	4,99 \pm 0,45
Stearic acid	4,14 \pm 1,69	Eicosenoic acid	0,12 \pm 0,17	ω 6/ ω 3	11,12 \pm 2,84
Oleic acid	71,06 \pm 2,51	Behenic acid	0,10 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of grass, leaves, and almond, read sensations of soft fruits. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 172	179 - 181	214 - 218	218 - 224	124 - 130	184 - 197
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 143	166 - 182	150 - 161	205 - 220	

References:

- 1 - Pannelli G., Alfei B., D' Ambrosio A., et al. In: *Varietà di olivo in Umbria*, Ed. Pliniana (2000), pp. 49-54.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Nostrana di Brisighella ”

(synonymy: *Nostrale di Brisighella, Nostrana.*)

Areal distribution or origin area: **Emilia**
 Flesh/pit weight ratio: **medium (6,82 ± 0,07)**
 Oil content (%): **medium (40,34 ± 1,28)**
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium (6,13 ± 0,50)**
 Blade width (cm): **medium (1,11 ± 0,18)**
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium (2,91 ± 1,87)**
 Number of flowers: **medium (31,29 ± 2,18)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (3,12 ± 0,18)**
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium (0,48 ± 0,02)**
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	8,29 \pm 1,01	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	14,09 \pm 0,59	Linolenic acid (ω 3)	0,90 \pm 0,14		
Palmitoleic acid	2,10 \pm 0,27	Arachic acid	0,30 \pm 0,04	Unsat./saturated	5,07 \pm 0,26
Stearic acid	1,85 \pm 0,05	Eicosenoic acid	0,10 \pm 0,14	ω 6/ ω 3	9,51 \pm 2,85
Oleic acid	70,47 \pm 2,12	Behenic acid	0,09 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: **fruity medium-high, with good sensation of grass, artichoke and tomato. Balanced in flavours, with hints of bitter and spicy medium-high intensity. Medium-high fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 198	177 - 179	214 - 214	214 - 224	126 - 144	136 - 144
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 135	166 - 166	150 - 161	213 - 213	

References:

- 1 - Rotondi A., Babini A.R. In: *Olivo e Olio*, (2001), 4: pp. 94-95.
- 2 - Cristoferi G., Rotondi A., Magli M. In *Il germoplasma dell'olivo in Emilia Romagna*, ISTE/CNR (1997)
- 3 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Ogliara ”

(synonymy: Oglarola)

Areal distribution or origin area: **Campania**

Flesh/pit weight ratio: **high (8,06 ± 0,34)**

Oil content (%): **medium (48,05 ± 3,44)**

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium (5,71 ± 0,53)**

Blade width (cm): **medium (1,38 ± 0,13)**

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium (2,98 ± 0,51)**

Number of flowers: **low (16,43 ± 1,87)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,42 ± 0,02)**

Shape (length/width): **ovoid**

Symmetry: **symmetric**

Position of maximum transverse diameter:

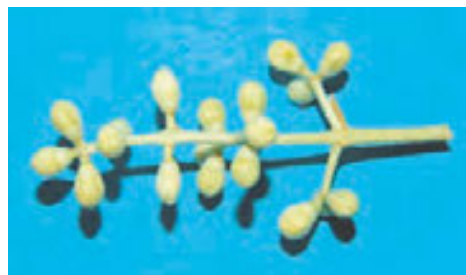
central

Apex: **rounded**

Base: **truncate**

Nipple: **tenuous**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low (0,27 ± 0,01)**

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **pointed**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	10,27 \pm 0,25	Lignoceric acid	0,05 \pm 0,04
Palmitic acid	13,80 \pm 0,15	Linolenic acid ($\omega 3$)	0,77 \pm 0,03		
Palmitoleic acid	1,26 \pm 0,19	Arachic acid	0,37 \pm 0,08	Unsat./saturated	4,89 \pm 0,17
Stearic acid	2,69 \pm 0,47	Eicosenoic acid	0,09 \pm 0,17	$\omega 6/\omega 3$	13,26 \pm 0,23
Oleic acid	69,47 \pm 0,79	Behenic acid	0,09 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of grass and almond, read sensations of artichoke and tomato. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 198	179 - 185	214 - 222	214 - 214	124 - 126	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	164 - 193	161 - 161	213 - 232	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Ogliarola barese ”

(synonymy: *Cima di Bitonto, Baresana, Marinese, Nostrana, Paesana, etc.*)

Areal distribution or origin area: **Puglia**

Flesh/pit weight ratio: **low** ($4,40 \pm 0,30$)

Oil content (%): **medium** ($42,69 \pm 1,85$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading-erect**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,55 \pm 0,70$)

Blade width (cm): **medium** ($1,46 \pm 0,18$)

Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **long** ($3,74 \pm 0,66$)

Number of flowers: **medium** ($19,89 \pm 2,52$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,54 \pm 0,45$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **many and large**

Pit characters

Weight of 100 pits (g): **high** ($0,49 \pm 0,06$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **pointed**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

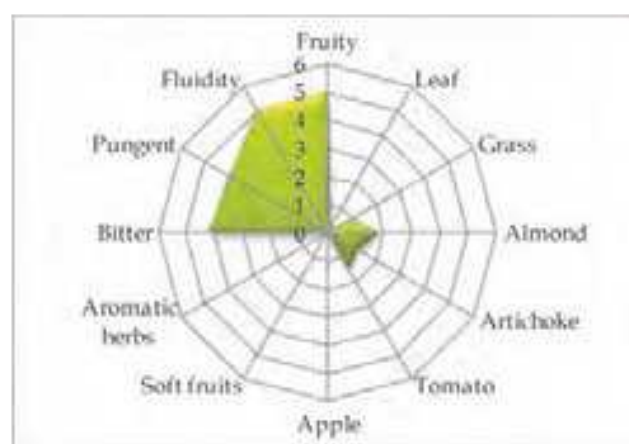
Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	10,25 \pm 2,52	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	12,19 \pm 1,45	Linolenic acid ($\omega 3$)	0,90 \pm 0,11		
Palmitoleic acid	0,95 \pm 0,44	Arachic acid	0,31 \pm 0,07	Unsat./saturated	5,91 \pm 0,68
Stearic acid	1,99 \pm 0,27	Eicosenoic acid	0,12 \pm 0,09	$\omega 6/\omega 3$	11,38 \pm 1,85
Oleic acid	77,32 \pm 2,87	Behenic acid	0,09 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and tomato, read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	179 - 181	208 - 212	214 - 224	124 - 144	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 182	182 - 205	205 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 65-68.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Ogliarola del Vulture ”

(*synonymy: Nostrale, Ogliarola di Melfi, Rapolese, Ripolese, etc.*)

Areal distribution or origin area: **Basilicata**
 Flesh/pit weight ratio: **medium** (6,22 ± 0,59)
 Oil content (%): **medium** (44,23 ± 2,07)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** (6,14 ± 0,57)
 Blade width (cm): **broad** (1,53 ± 0,24)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** (3,29 ± 0,30)
 Number of flowers: **low** (16,19 ± 2,67)

Fruit characters

Fresh weight of 100 fruits (g): **low** (1,94 ± 0,15)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** (0,27 ± 0,03)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	9,79 \pm 0,63	Lignoceric acid	0,06 \pm 0,04
Palmitic acid	13,62 \pm 0,25	Linolenic acid ($\omega 3$)	0,84 \pm 0,11		
Palmitoleic acid	1,09 \pm 0,04	Arachic acid	0,47 \pm 0,08	Unsat./saturated	4,77 \pm 0,06
Stearic acid	3,15 \pm 0,22	Eicosenoic acid	0,15 \pm 0,16	$\omega 6/\omega 3$	11,82 \pm 1,11
Oleic acid	69,68 \pm 0,77	Behenic acid	0,13 \pm 0,05		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond, grass, and artichoke, read sensations of leaf. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	179 - 181	212 - 218	214 - 214	124 - 124	150 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	143 - 143	166 - 193	182 - 182	213 - 213	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita - Potenza (2002), pp. 115-118.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Ogliarola messinese ”

(synonymy: *Aliva grossa*, *Castriciana*, *Marcellese*, *Nostrale*, *Ogliara*, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($9,75 \pm 1,48$)
 Oil content (%): **high** ($53,22 \pm 0,60$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($6,32 \pm 0,57$)
 Blade width (cm): **medium** ($1,43 \pm 0,16$)
 Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** ($2,07 \pm 0,52$)
 Number of flowers: **low** ($14,57 \pm 2,16$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,56 \pm 0,62$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **obvoius**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,60 \pm 0,18$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	4,08 \pm 0,44	Lignoceric acid	0,09 \pm 0,07
Palmitic acid	10,00 \pm 1,13	Linolenic acid ($\omega 3$)	0,72 \pm 0,30		
Palmitoleic acid	0,55 \pm 0,04	Arachic acid	0,45 \pm 0,04	Unsat./saturated	6,76 \pm 0,62
Stearic acid	2,41 \pm 0,17	Eicosenoic acid	0,19 \pm 0,25	$\omega 6/\omega 3$	6,38 \pm 3,26
Oleic acid	80,23 \pm 1,09	Behenic acid	0,11 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of artichoke and tomato, read sensations of almond. Balanced taste sensation with medium-light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 162	169 - 181	208 - 212	214 - 214	124 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	166 - 182	166 - 193	182 - 182	108 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 60-64.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp.582-588.

“ Ogliastro grande ”

(synonymy: *Ogliastro di Torre Orsaia*)

Areal distribution or origin area: **Campania**

Flesh/pit weight ratio: **high** ($9,29 \pm 1,74$)

Oil content (%): **medium** ($46,83 \pm 1,22$)

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **erect**

Canopy-density: **medium-dense**



Leaf characters

Blade length (cm): **medium** ($6,56 \pm 0,54$)

Blade width (cm): **medium** ($1,14 \pm 0,14$)

Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,80 \pm 0,75$)

Number of flowers: **low** ($16,43 \pm 1,87$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,15 \pm 0,33$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,41 \pm 0,04$)

Shape (length/width): **elongated**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **pointed**

Surface: **smooth**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

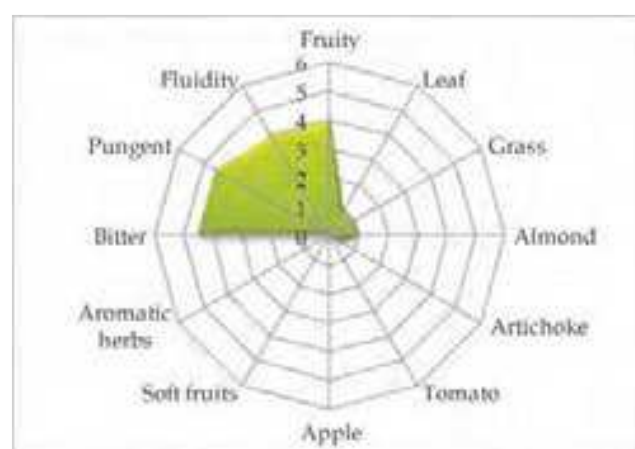
Myristic acid	0,00 \pm 0,00	Linoleic acid (ω 6)	6,10 \pm 0,14	Lignoceric acid	0,05 \pm 0,02
Palmitic acid	11,79 \pm 0,19	Linolenic acid (ω 3)	0,68 \pm 0,01		
Palmitoleic acid	1,91 \pm 0,35	Arachic acid	0,31 \pm 0,16	Unsat./saturated	6,11 \pm 0,22
Stearic acid	1,90 \pm 0,36	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	8,95 \pm 0,05
Oleic acid	75,56 \pm 0,39	Behenic acid	0,03 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and read sensations of leaves, artichoke and grass. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	181 - 185	214 - 218	218 - 218	126 - 126	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	164 - 164	143 - 143	200 - 220	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Olivago ”

(synonymy: *Selvatico*)

Areal distribution or origin area: **Umbria**
 Flesh/pit weight ratio: **low** ($2,51 \pm 0,06$)
 Oil content (%): **medium** ($46,27 \pm 0,08$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,47 \pm 0,42$)
 Blade width (cm): **medium** ($1,25 \pm 0,12$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,50 \pm 1,06$)
 Number of flowers: **low** ($17,84 \pm 1,07$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($0,93 \pm 0,12$)
 Shape (length/width): **elongated**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,27 \pm 0,03$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	10,35 \pm 0,87	Lignoceric acid	0,09 \pm 0,09
Palmitic acid	14,55 \pm 0,11	Linolenic acid (ω 3)	0,78 \pm 0,04		
Palmitoleic acid	3,05 \pm 0,07	Arachic acid	0,25 \pm 0,08	Unsat./saturated	4,92 \pm 0,31
Stearic acid	1,61 \pm 0,18	Eicosenoic acid	0,18 \pm 0,21	ω 6/ ω 3	13,28 \pm 0,46
Oleic acid	66,18 \pm 0,56	Behenic acid	0,07 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of almond and aromatic herbs, read sensations of artichoke and grass. Balanced taste sensation with medium-light bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 198	177 - 181	212 - 212	212 - 212	126 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 135	166 - 166	161 - 210	185 - 185	

References:

- 1 - Preziosi P., Tini M. In: *Acta Horticulturae*, (1990), 286 pp. 85-88.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Olivastra seggianese ”

(synonymy: *Giogliaia, Olivastra di Montalcino, Olivastra di Seggiano, etc.*)

Areal distribution or origin area: **Toscana**

Flesh/pit weight ratio: **high** ($7,94 \pm 0,68$)

Oil content (%): **medium** ($47,20 \pm 2,17$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,97 \pm 0,49$)

Blade width (cm): **medium** ($1,27 \pm 0,12$)

Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **long** ($3,71 \pm 0,67$)

Number of flowers: **medium** ($18,25 \pm 1,58$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,73 \pm 0,62$)

Shape (length/width): **spherical**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,38 \pm 0,03$)

Shape (length/width): **spherical**

Mucron: **tenuous**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	8,67 \pm 0,41	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	13,82 \pm 0,25	Linolenic acid (ω 3)	0,77 \pm 0,02		
Palmitoleic acid	1,50 \pm 0,02	Arachic acid	0,29 \pm 0,03	Unsat./saturated	5,17 \pm 0,12
Stearic acid	2,00 \pm 0,03	Eicosenoic acid	0,01 \pm 00,00	ω 6/ ω 3	11,28 \pm 0,30
Oleic acid	71,71 \pm 0,03	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	179 - 185	212 - 218	210 - 212	126 - 144	150 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	150 - 150	156 - 164	156 - 182	205 - 205	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Olivastro di Bucchianico ”

(synonymy: *Olivastro*)

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **medium** ($7,39 \pm 0,12$)
 Oil content (%): **high** ($53,11 \pm 1,75$)
 Purpose: **oil**



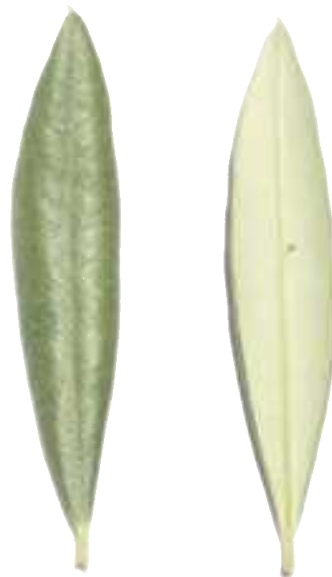
Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **short** ($4,37 \pm 0,43$)
 Blade width (cm): **medium** ($1,23 \pm 0,15$)
 Shape (length/width): **elliptic**

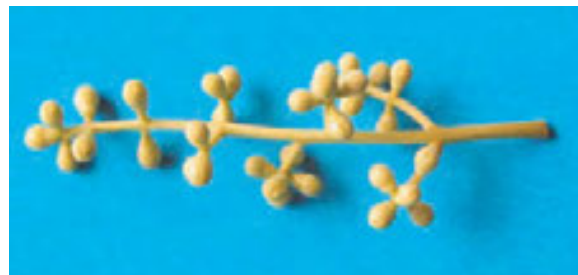


Inflorescence characters

Inflorescence length (cm): **long** ($3,55 \pm 0,59$)
 Number of flowers: **medium** ($18,63 \pm 0,34$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,48 \pm 0,37$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,30 \pm 0,03$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,97 \pm 0,20	Lignoceric acid	0,10 \pm 0,01
Palmitic acid	11,50 \pm 0,20	Linolenic acid (ω 3)	0,41 \pm 0,02		
Palmitoleic acid	0,50 \pm 0,01	Arachic acid	0,49 \pm 0,13	Unsat./saturated	5,48 \pm 0,07
Stearic acid	3,39 \pm 0,35	Eicosenoic acid	0,25 \pm 0,05	ω 6/ ω 3	24,14 \pm 0,89
Oleic acid	72,73 \pm 0,06	Behenic acid	0,15 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of grass and leaves, read sensations of almond and aromatic herbs. Balanced taste sensation with a medium bitter and medium-high spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 210	179 - 181	208 - 222	210 - 214	124 - 124	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	182 - 182	177 - 193	154 - 210	213 - 213	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 50-51.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Olivastro frentano ”

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **low** ($4,98 \pm 0,12$)
 Oil content (%): **medium** ($42,40 \pm 1,56$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,22 \pm 0,37$)
 Blade width (cm): **medium** ($1,45 \pm 0,16$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,40 \pm 0,55$)
 Number of flowers: **medium** ($18,48 \pm 2,78$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,67 \pm 0,01$)
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,31 \pm 0,03$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **pointed**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid (ω 6)	6,68 \pm 0,43	Lignoceric acid	0,06 \pm 0,06
Palmitic acid	11,54 \pm 0,47	Linolenic acid (ω 3)	0,70 \pm 0,07		
Palmitoleic acid	1,43 \pm 0,32	Arachic acid	0,27 \pm 0,01	Unsat./saturated	6,12 \pm 0,03
Stearic acid	1,94 \pm 0,24	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	9,67 \pm 1,53
Oleic acid	75,73 \pm 0,90	Behenic acid	0,13 \pm 0,09		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of grass, read sensations of almond and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	177 - 181	208 - 222	210 - 214	126 - 144	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	182 - 182	177 - 177	154 - 210	205 - 232	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 52-53.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Olivo da olio ”

(*synonymy: Cicinella, Minucciolo, Oliva a pasta gialla, Sessanella, etc.*)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium** ($6,91 \pm 0,22$)
 Oil content (%): **medium** ($46,08 \pm 0,81$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium** ($5,07 \pm 0,44$)
 Blade width (cm): **medium** ($1,24 \pm 0,12$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,86 \pm 1,81$)
 Number of flowers: **low** ($14,91 \pm 0,95$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,19 \pm 0,07$)
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,28 \pm 0,02$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,99 \pm 0,59	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	13,91 \pm 0,35	Linolenic acid (ω 3)	0,77 \pm 0,03		
Palmitoleic acid	1,22 \pm 0,15	Arachic acid	0,30 \pm 0,10	Unsat./saturated	4,92 \pm 0,06
Stearic acid	2,64 \pm 0,06	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	12,98 \pm 1,26
Oleic acid	70,19 \pm 0,55	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of leaves, grass, almond and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 198	179 - 185	214 - 214	218 - 218	124 - 130	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 154	143 - 150	164 - 177	182 - 182	213 - 213	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Olivo da salare ”

(synonymy: *Gaetana*)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium** ($5,95 \pm 0,50$)
 Oil content (%): **medium** ($46,43 \pm 1,84$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,86 \pm 0,36$)
 Blade width (cm): **medium** ($1,41 \pm 0,14$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,69 \pm 0,55$)
 Number of flowers: **low** ($13,12 \pm 1,40$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,48 \pm 0,16$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,51 \pm 0,06$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	12,01 \pm 1,24	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	12,39 \pm 0,79	Linolenic acid ($\omega 3$)	0,60 \pm 0,00		
Palmitoleic acid	1,92 \pm 0,17	Arachic acid	0,31 \pm 0,08	Unsat./saturated	5,70 \pm 0,39
Stearic acid	2,08 \pm 0,81	Eicosenoic acid	0,03 \pm 0,00	$\omega 6/\omega 3$	20,13 \pm 1,91
Oleic acid	68,81 \pm 0,14	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of leaves, grass, artichoke and tomato. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 194	179 - 181	214 - 222	214 - 214	126 - 130	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 135	123 - 123	166 - 177	200 - 200	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Olivo della Madonna ”

Areal distribution or origin area: **Toscana**

Flesh/pit weight ratio: **low** ($3,87 \pm 0,44$)

Oil content (%): **low** ($39,38 \pm 0,08$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **erect-sprading**

Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($6,13 \pm 0,49$)

Blade width (cm): **broad** ($2,08 \pm 0,26$)

Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,92 \pm 0,49$)

Number of flowers: **medium** ($24,73 \pm 1,31$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,34 \pm 0,03$)

Shape (length/width): **elongated**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,49 \pm 0,03$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **pointed**

Base: **rounded**

Surface: **scabrous**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	7,06 \pm 0,13	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	12,33 \pm 1,16	Linolenic acid ($\omega 3$)	0,69 \pm 0,04		
Palmitoleic acid	0,72 \pm 0,09	Arachic acid	0,23 \pm 0,05	Unsat./saturated	5,80 \pm 0,24
Stearic acid	2,12 \pm 0,79	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	10,17 \pm 0,34
Oleic acid	76,13 \pm 1,23	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of artichoke and grass. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 206	177 - 177	212 - 222	214 - 214	124 - 144	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	177 - 177	182 - 210	205 - 205	

References:

- 1 - Basso M. In: *Le cultivar coltivate sui monti pisani*, Ann. Fac. Agr. Pisa (1958), 12 pp. 14-54.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Orbetana ”

(synonymy: *Marchigiana, Oliva bastarda, Oliva di San Francesco, Sarga, etc.*)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** ($5,79 \pm 0,31$)
 Oil content (%): **medium** ($43,10 \pm 1,65$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **long** ($7,06 \pm 0,66$)
 Blade width (cm): **medium** ($1,23 \pm 0,12$)
 Shape (length/width): **elliptic - lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,98 \pm 0,46$)
 Number of flowers: **medium** ($23,15 \pm 0,94$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,29 \pm 0,72$)
 Shape (length/width): **spherical**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,58 \pm 0,03$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	16,46 \pm 1,50	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	15,24 \pm 1,47	Linolenic acid ($\omega 3$)	0,31 \pm 0,02		
Palmitoleic acid	1,58 \pm 0,05	Arachic acid	0,81 \pm 0,15	Unsat./saturated	4,64 \pm 0,46
Stearic acid	1,87 \pm 0,10	Eicosenoic acid	0,26 \pm 0,09	$\omega 6/\omega 3$	53,89 \pm 0,56
Oleic acid	61,50 \pm 0,68	Behenic acid	0,10 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 182	177 - 189	214 - 218	218 - 224	124 - 144	184 - 197
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 135	135 - 135	166 - 177	182 - 210	200 - 200	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*, (2001), ASSAM pp. 85-88.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Ortice ”

(synonymy: *Iessana, Olivastro, Olivielo, Olivona, Testicolo di Gallo, etc.*)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium (5,43 ± 0,33)**
 Oil content (%): **medium (43,38 ± 0,38)**
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect-spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium (6,44 ± 0,56)**
 Blade width (cm): **medium (1,11 ± 0,13)**
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium (3,45 ± 0,50)**
 Number of flowers: **medium (22,84 ± 1,62)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,28 ± 0,22)**
 Shape (length/width): **elongated**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Nipple: **obvious**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium (0,37 ± 0,02)**
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,00 \pm 0,00	Linoleic acid ($\omega 6$)	8,20 \pm 0,19	Lignoceric acid	0,05 \pm 0,02
Palmitic acid	13,54 \pm 0,07	Linolenic acid ($\omega 3$)	0,89 \pm 0,02		
Palmitoleic acid	0,72 \pm 0,12	Arachic acid	0,41 \pm 0,07	Unsat./satured	4,98 \pm 0,17
Stearic acid	2,79 \pm 0,31	Eicosenoic acid	0,20 \pm 0,15	$\omega 6/\omega 3$	9,21 \pm 0,37
Oleic acid	72,55 \pm 0,72	Behenic acid	0,10 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of grass, less almond and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 198	177 - 185	218 - 218	214 - 224	126 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 166	166 - 182	161 - 205	164 - 164	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Ortolana ”

(synonymy: *Bella di San Lorenzo, Melella, etc.*)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium (6,46 ± 1,50)**
 Oil content (%): **medium (45,28 ± 0,86)**
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium (5,59 ± 0,51)**
 Blade width (cm): **broad (1,63 ± 0,22)**
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium (3,28 ± 2,87)**
 Number of flowers: **medium (21,91 ± 1,51)**

Fruit characters

Fresh weight of 100 fruits (g): **high (4,37 ± 0,45)**
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high (0,60 ± 0,06)**
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,30 \pm 0,84	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	14,19 \pm 0,28	Linolenic acid (ω 3)	0,70 \pm 0,12		
Palmitoleic acid	0,75 \pm 0,44	Arachic acid	0,26 \pm 0,06	Unsat./saturated	5,30 \pm 0,22
Stearic acid	1,38 \pm 0,34	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	13,39 \pm 1,01
Oleic acid	72,59 \pm 0,64	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of almond and artichoke, with read sensations of aromatic herbs. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 194	177 - 181	214 - 218	218 - 218	212 - 124	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	164 - 164	161 - 161	205 - 213	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Ottobratica ”

(synonymy: *Dedarico, Dolce, Mirtoleo, Ottobratico, Perciasacchi, etc.*)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **low** ($4,80 \pm 2,06$)

Oil content (%): **medium** ($44,33 \pm 2,49$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,56 \pm 0,61$)

Blade width (cm): **broad** ($1,53 \pm 0,18$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,00 \pm 1,05$)

Number of flowers: **low** ($17,24 \pm 2,78$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,74 \pm 0,04$)

Shape (length/width): **elongated**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,31 \pm 0,06$)

Shape (length/width): **elongated**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **pointed**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	9,79 \pm 0,85	Lignoceric acid	0,08 \pm 0,06
Palmitic acid	14,19 \pm 1,18	Linolenic acid ($\omega 3$)	0,65 \pm 0,18		
Palmitoleic acid	1,12 \pm 0,21	Arachic acid	0,32 \pm 0,09	Unsat./saturated	4,94 \pm 0,52
Stearic acid	2,23 \pm 0,36	Eicosenoic acid	0,15 \pm 0,10	$\omega 6/\omega 3$	16,07 \pm 4,27
Oleic acid	70,52 \pm 2,02	Behenic acid	0,14 \pm 0,06		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and medium spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	177 - 185	212 - 222	212 - 212	124 - 124	157 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 150	143 - 143	177 - 193	143 - 154	170 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 11.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortiv-Amsterdam*, (2010), 126: pp. 324-329.

“ Ottobrina ”

Areal distribution or origin area: **Liguria**
 Flesh/pit weight ratio: **medium** ($5,54 \pm 1,02$)
 Oil content (%): **medium** ($46,48 \pm 0,52$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **dense**



Leaf characters

Blade length (cm): **medium** ($5,07 \pm 0,32$)
 Blade width (cm): **medium** ($1,31 \pm 0,19$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **long** ($3,82 \pm 1,56$)
 Number of flowers: **medium** ($21,17 \pm 2,68$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,74 \pm 0,29$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter: **central**
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,46 \pm 0,06$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter: **towards apex**
 Apex: **pointed**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	12,24 \pm 0,12	Lignoceric acid	0,10 \pm 0,01
Palmitic acid	14,92 \pm 0,46	Linolenic acid ($\omega 3$)	0,59 \pm 0,01		
Palmitoleic acid	1,95 \pm 0,08	Arachic acid	0,30 \pm 0,02	Unsat./saturated	4,78 \pm 0,15
Stearic acid	1,78 \pm 0,05	Eicosenoic acid	0,30 \pm 0,02	$\omega 6/\omega 3$	20,71 \pm 0,65
Oleic acid	65,97 \pm 0,49	Behenic acid	0,08 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 166	163 - 177	208 - 212	214 - 224	124 - 144	129 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 177	182 - 210	205 - 205	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Paesana bianca ”

(synonymy: *Oliva bianca*)

Areal distribution or origin area: **Molise**

Flesh/pit weight ratio: **low** ($4,41 \pm 0,14$)

Oil content (%): **medium** ($45,54 \pm 0,49$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading-erect**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,82 \pm 0,58$)

Blade width (cm): **broad** ($1,64 \pm 0,21$)

Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **long** ($3,53 \pm 1,64$)

Number of flowers: **low** ($16,92 \pm 0,87$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,49 \pm 0,14$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,46 \pm 0,04$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	12,24 \pm 0,12	Lignoceric acid	0,10 \pm 0,01
Palmitic acid	14,92 \pm 0,46	Linolenic acid ($\omega 3$)	0,59 \pm 0,01		
Palmitoleic acid	1,95 \pm 0,08	Arachic acid	0,30 \pm 0,02	Unsat./saturated	4,78 \pm 0,15
Stearic acid	1,78 \pm 0,05	Eicosenoic acid	0,30 \pm 0,02	$\omega 6/\omega 3$	20,71 \pm 0,65
Oleic acid	65,97 \pm 0,49	Behenic acid	0,08 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 166	163 - 177	208 - 212	214 - 224	124 - 144	129 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 177	182 - 210	205 - 205	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Paesana nera ”

(synonymy: *Ceciarola, Cicerola, Oliva nera, etc.*)

Areal distribution or origin area: **Molise**
 Flesh/pit weight ratio: **medium** ($6,41 \pm 0,01$)
 Oil content (%): **medium** ($47,93 \pm 0,06$)
 Purpose: **oil**



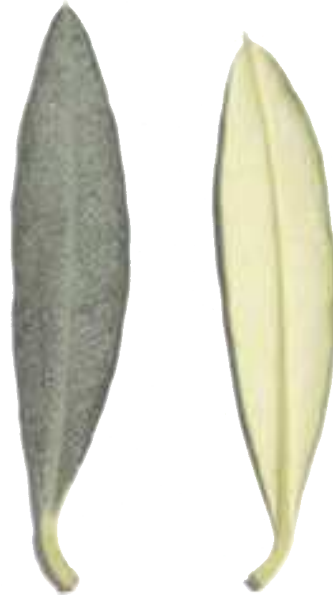
Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,68 \pm 0,46$)
 Blade width (cm): **medium** ($1,35 \pm 0,18$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,43 \pm 1,08$)
 Number of flowers: **medium** ($23,18 \pm 1,07$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,15 \pm 0,02$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,29 \pm 0,04$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	11,51 \pm 0,26	Lignoceric acid	0,06 \pm 0,03
Palmitic acid	14,66 \pm 1,52	Linolenic acid ($\omega 3$)	0,73 \pm 0,02		
Palmitoleic acid	1,39 \pm 0,11	Arachic acid	0,30 \pm 0,03	Unsat./saturated	4,68 \pm 0,20
Stearic acid	2,49 \pm 1,00	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	15,87 \pm 0,09
Oleic acid	67,58 \pm 1,07	Behenic acid	0,08 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of artichoke, almond and grass. Balanced taste sensation with medium spicy and bitter. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 204	177 - 177	212 - 222	214 - 214	124 - 130	150 - 150
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 182	177 - 193	154 - 205	213 - 213	

References:

- Ente regionale di sviluppo agricolo per il Molise. In: *Il germoplasma dell'olivo nel Molise*, Quaderno divulgativo dell'ERSA (2000), n° 5.
- Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Palmarola ”

(synonymy: *Palmina*, *Palmina*, *Parmarola*, *Seloatica*, etc.)

Areal distribution or origin area: **Basilicata**

Flesh/pit weight ratio: **low** ($3,65 \pm 0,24$)

Oil content (%): **medium** ($47,56 \pm 0,90$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading-drooping**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,64 \pm 0,56$)

Blade width (cm): **broad** ($1,52 \pm 0,23$)

Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,64 \pm 1,42$)

Number of flowers: **low** ($12,70 \pm 2,37$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,72 \pm 0,65$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **few and small**

Pit characters

Weight of 100 pits (g): **high** ($0,50 \pm 0,07$)

Shape (length/width): **elliptic**

Mucron: **tenuous**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	6,37 \pm 1,94	Lignoceric acid	0,04 \pm 0,01
Palmitic acid	13,02 \pm 0,95	Linolenic acid ($\omega 3$)	0,74 \pm 0,10		
Palmitoleic acid	1,71 \pm 0,22	Arachic acid	0,25 \pm 0,07	Unsat./saturated	5,61 \pm 0,41
Stearic acid	1,65 \pm 0,13	Eicosenoic acid	0,14 \pm 0,14	$\omega 6/\omega 3$	8,45 \pm 1,62
Oleic acid	74,11 \pm 2,43	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of almond and tomato, read sensations of grass, leaf, and aromatic herbs. Balanced taste sensation with medium-light bitter and medium spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 198	177 - 179	208 - 222	214 - 224	124 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 166	182 - 210	200 - 200	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita - Potenza (2002), pp. 127-130.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Pasola ”

(synonymy: *Fasola*, *Passula*.)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($5,36 \pm 0,69$)
 Oil content (%): **medium** ($44,38 \pm 0,69$)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,38 \pm 0,77$)
 Blade width (cm): **medium** ($1,48 \pm 0,20$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,75 \pm 0,44$)
 Number of flowers: **medium** ($16,75 \pm 2,66$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,63 \pm 0,38$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,53 \pm 0,06$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	9,83 \pm 0,76	Lignoceric acid	0,03 \pm 0,02
Palmitic acid	10,89 \pm 1,27	Linolenic acid ($\omega 3$)	0,88 \pm 0,07		
Palmitoleic acid	0,86 \pm 0,49	Arachic acid	0,31 \pm 0,05	Unsat./saturated	6,51 \pm 0,46
Stearic acid	2,12 \pm 0,59	Eicosenoic acid	0,11 \pm 0,17	$\omega 6/\omega 3$	11,14 \pm 0,88
Oleic acid	74,15 \pm 1,05	Behenic acid	0,08 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium-light intensity. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 177	208 - 218	214 - 214	124 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 177	150 - 182	170 - 170	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 77-80.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Passulunara ”

(synonymy: *Palermitana*, *Passalunara*, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($8,37 \pm 1,20$)
 Oil content (%): **medium** ($49,54 \pm 0,20$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,65 \pm 0,56$)
 Blade width (cm): **medium** ($1,29 \pm 0,12$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,20 \pm 1,60$)
 Number of flowers: **low** ($11,87 \pm 2,03$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,08 \pm 0,49$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **high** ($0,55 \pm 0,02$)
 Shape (length/width): **ovoid**
 Mucron: **tenuous**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	11,76 \pm 0,29	Lignoceric acid	0,07 \pm 0,01
Palmitic acid	10,36 \pm 0,38	Linolenic acid ($\omega 3$)	0,33 \pm 0,02		
Palmitoleic acid	0,58 \pm 0,03	Arachic acid	0,61 \pm 0,07	Unsat./saturated	6,81 \pm 0,21
Stearic acid	2,05 \pm 0,03	Eicosenoic acid	0,40 \pm 0,02	$\omega 6/\omega 3$	35,45 \pm 0,95
Oleic acid	73,40 \pm 0,07	Behenic acid	0,11 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of artichoke and tomato, read sensations of almond. Balanced taste sensation with medium-light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 182	179 - 179	212 - 222	210 - 210	124 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	182 - 182	108 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 59-64.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Pennulara ”

(synonymy: *Caccuri*, *Nostrale di Caccuri*.)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **high** ($8,07 \pm 0,80$)

Oil content (%): **medium** ($49,73 \pm 1,98$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,08 \pm 0,98$)

Blade width (cm): **medium** ($1,30 \pm 0,09$)

Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** ($2,43 \pm 1,30$)

Number of flowers: **low** ($10,64 \pm 1,03$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,66 \pm 1,47$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards base

Apex: **pointed**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,64 \pm 0,22$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards base

Apex: **pointed**

Base: **rounded**

Surface: **scabrous**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	8,48 \pm 0,73	Lignoceric acid	0,06 \pm 0,01
Palmitic acid	8,57 \pm 0,66	Linolenic acid ($\omega 3$)	0,69 \pm 0,18		
Palmitoleic acid	0,44 \pm 0,03	Arachic acid	0,32 \pm 0,01	Unsat./saturated	7,87 \pm 0,48
Stearic acid	2,42 \pm 0,03	Eicosenoic acid	0,03 \pm 0,00	$\omega 6/\omega 3$	12,49 \pm 2,13
Oleic acid	78,55 \pm 1,05	Behenic acid	0,10 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of grass, read sensations of almond, artichoke and leaves. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	179 - 179	212 - 222	214 - 214	130 - 144	150 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 150	143 - 143	177 - 193	143 - 182	209 - 220	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 25.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortiv-Amsterdam*, (2010), 126: pp. 324-329.

“ Peranzana ”

(synonymy: *Francese, Provenzale, Provenzana, Tondina, etc.*)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($4,86 \pm 1,08$)
 Oil content (%): **low** ($40,17 \pm 2,01$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,51 \pm 0,60$)
 Blade width (cm): **medium** ($1,46 \pm 0,13$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** ($2,41 \pm 0,49$)
 Number of flowers: **medium** ($17,09 \pm 1,33$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,10 \pm 0,36$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,55 \pm 0,07$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

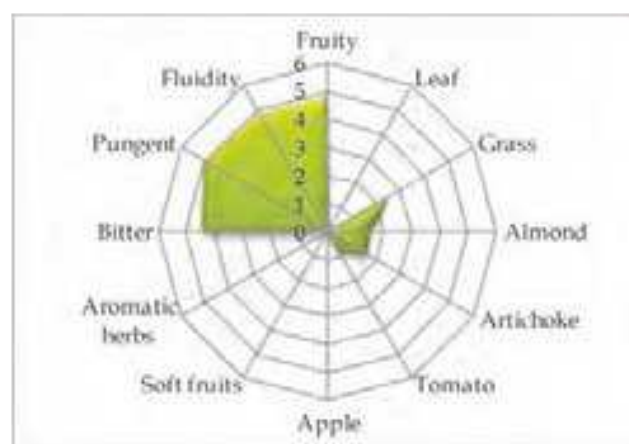
Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	5,44 \pm 0,37	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	11,47 \pm 0,89	Linolenic acid (ω 3)	0,95 \pm 0,05		
Palmitoleic acid	0,61 \pm 0,24	Arachic acid	0,29 \pm 0,07	Unsat./saturated	6,31 \pm 0,42
Stearic acid	1,94 \pm 0,24	Eicosenoic acid	0,02 \pm 0,02	ω 6/ ω 3	5,74 \pm 0,16
Oleic acid	78,66 \pm 1,20	Behenic acid	0,08 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of grass, less almond and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 172	181 - 181	212 - 222	212 - 214	130 - 144	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	182 - 182	166 - 193	143 - 205	108 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 81-84.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Perciasacchi ”

Areal distribution or origin area: **Campania**

Flesh/pit weight ratio: **low** ($4,01 \pm 0,03$)

Oil content (%): **medium** ($40,27 \pm 0,55$)

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **spreading**

Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium** ($6,70 \pm 0,63$)

Blade width (cm): **medium** ($1,43 \pm 0,16$)

Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,70 \pm 0,46$)

Number of flowers: **medium** ($20,97 \pm 1,29$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,74 \pm 0,11$)

Shape (length/width): **elongated**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,55 \pm 0,02$)

Shape (length/width): **elongated**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **pointed**

Surface: **scabrous**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	4,79 \pm 1,33	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	7,40 \pm 0,28	Linolenic acid ($\omega 3$)	0,79 \pm 0,01		
Palmitoleic acid	2,61 \pm 0,22	Arachic acid	0,27 \pm 0,05	Unsat./saturated	9,26 \pm 0,08
Stearic acid	1,89 \pm 0,45	Eicosenoic acid	0,01 \pm 0,01	$\omega 6/\omega 3$	6,04 \pm 1,57
Oleic acid	79,69 \pm 0,35	Behenic acid	0,08 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of artichoke, almond and grass. Balanced taste sensation with medium spicy and bitter. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	181 - 181	212 - 214	214 - 224	124 - 144	136 - 136
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	164 - 177	161 - 182	213 - 220	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Piangente ”

(synonymy: *Alloro*, *Leccino pendulo*, *Leccino piangente*, etc.)

Areal distribution or origin area: **Toscana**
 Flesh/pit weight ratio: **medium** ($5,71 \pm 1,27$)
 Oil content (%): **low** ($39,31 \pm 0,07$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,90 \pm 0,36$)
 Blade width (cm): **medium** ($1,33 \pm 0,10$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,27 \pm 1,09$)
 Number of flowers: **low** ($17,74 \pm 0,28$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,48 \pm 0,47$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,37 \pm 0,07$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid ($\omega 6$)	10,11 \pm 0,13	Lignoceric acid	0,05 \pm 0,02
Palmitic acid	10,31 \pm 0,37	Linolenic acid ($\omega 3$)	0,93 \pm 0,06		
Palmitoleic acid	0,40 \pm 0,10	Arachic acid	0,28 \pm 0,06	Unsat./saturated	7,25 \pm 0,98
Stearic acid	1,85 \pm 0,41	Eicosenoic acid	0,06 \pm 0,06	$\omega 6/\omega 3$	10,89 \pm 0,80
Oleic acid	77,79 \pm 1,33	Behenic acid	0,11 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 206	181 - 181	208 - 212	214 - 214	126 - 126	157 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	154 - 154	205 - 205	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Piantone di Falerone ”

(synonymy: *Piantone*)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** ($5,35 \pm 0,25$)
 Oil content (%): **medium** ($46,75 \pm 1,14$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **short** ($4,16 \pm 0,33$)
 Blade width (cm): **narrow** ($0,99 \pm 0,08$)
 Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,54 \pm 0,78$)
 Number of flowers: **low** ($15,91 \pm 0,87$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,42 \pm 0,48$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,36 \pm 0,04$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	12,45 \pm 0,50	Lignoceric acid	0,06 \pm 0,02
Palmitic acid	11,89 \pm 0,36	Linolenic acid (ω 3)	0,31 \pm 0,03		
Palmitoleic acid	1,36 \pm 0,03	Arachic acid	0,57 \pm 0,08	Unsat./saturated	6,04 \pm 0,23
Stearic acid	1,77 \pm 0,12	Eicosenoic acid	0,30 \pm 0,13	ω 6/ ω 3	40,39 \pm 1,89
Oleic acid	70,03 \pm 0,24	Behenic acid	0,14 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium - light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 182	177 - 185	218 - 222	218 - 218	124 - 130	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 135	166 - 177	210 - 210	205 - 232	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*, (2001), ASSAM pp. 93-96.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Piantone di Mogliano ”

(*synonymy: Limoncella, Oliva riccia, Piantone, Raggiola, Rosciola, etc.*)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** ($5,92 \pm 0,23$)
 Oil content (%): **medium** ($42,17 \pm 1,36$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **short** ($4,92 \pm 0,34$)
 Blade width (cm): **medium** ($1,08 \pm 0,09$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($3,56 \pm 1,20$)
 Number of flowers: **medium** ($21,08 \pm 1,87$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,85 \pm 0,75$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter: **central**
 Apex: **rounded**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,36 \pm 0,05$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter: **towards apex**
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

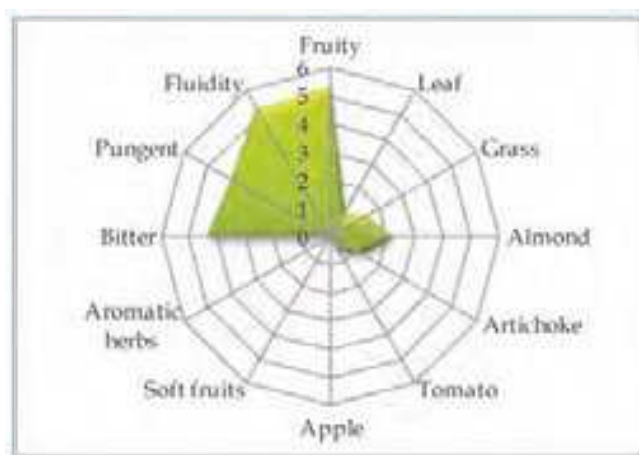
Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	12,45 \pm 0,15	Lignoceric acid	0,08 \pm 0,01
Palmitic acid	11,39 \pm 0,15	Linolenic acid ($\omega 3$)	0,39 \pm 0,02		
Palmitoleic acid	0,74 \pm 0,05	Arachic acid	0,67 \pm 0,10	Unsat./saturated	6,07 \pm 0,27
Stearic acid	2,36 \pm 0,29	Eicosenoic acid	0,44 \pm 0,06	$\omega 6/\omega 3$	31,69 \pm 1,10
Oleic acid	70,75 \pm 0,39	Behenic acid	0,08 \pm 0,08		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	181 - 181	214 - 214	218 - 224	124 - 130	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 135	166 - 166	182 - 210	200 - 232	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*. ASSAM (2001), pp. 97-100.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Pidicuddara ”

(synonymy: *Minutedda, Ogliara, Oliva Nera, Piricuddara, Ugghiara, etc.*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** (7,00 ± 0,57)
 Oil content (%): **medium** (45,70 ± 1,58)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium weak**
 Growth habit: **erect-spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** (6,38 ± 0,75)
 Blade width (cm): **broad** (1,54 ± 0,18)
 Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** (3,40 ± 1,21)
 Number of flowers: **medium** (22,34 ± 2,75)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (3,00 ± 0,24)
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **medium** (0,38 ± 0,06)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

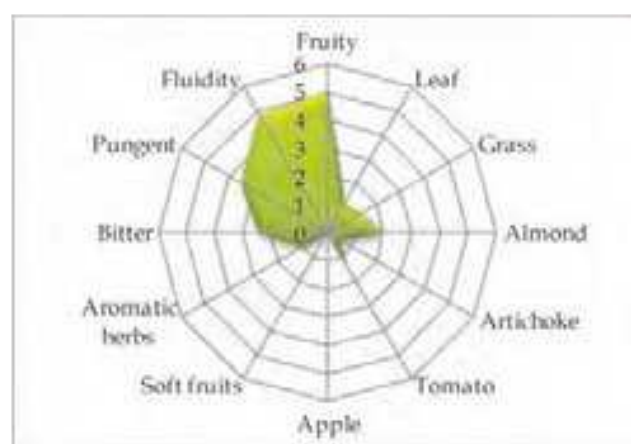
Myristic acid	0,00 \pm 0,00	Linoleic acid ($\omega 6$)	8,55 \pm 0,52	Lignoceric acid	0,07 \pm 0,03
Palmitic acid	11,46 \pm 1,34	Linolenic acid ($\omega 3$)	0,88 \pm 0,09		
Palmitoleic acid	0,64 \pm 0,06	Arachic acid	0,47 \pm 0,51	Unsat./saturated	6,21 \pm 0,75
Stearic acid	2,03 \pm 0,34	Eicosenoic acid	0,29 \pm 0,24	$\omega 6/\omega 3$	9,80 \pm 1,55
Oleic acid	75,04 \pm 0,26	Behenic acid	0,15 \pm 0,05		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of almond, read sensations of tomato, grass, leaf and aromatic herbs. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 182	177 - 179	212 - 212	210 - 210	124 - 144	150 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 166	182 - 182	205 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 118-122.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Pignola ”

(synonymy: *Crovia*, *Merletta*, *Negretta*, *Pignola doppia*, *Pinola*, etc.)

Areal distribution or origin area: **Liguria**
 Flesh/pit weight ratio: **medium** ($6,26 \pm 0,33$)
 Oil content (%): **medium** ($40,20 \pm 0,07$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-rade**

Leaf characters

Blade length (cm): **medium** ($5,35 \pm 0,42$)
 Blade width (cm): **medium** ($1,21 \pm 0,12$)
 Shape (length/width): **elliptic - lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($3,83 \pm 0,29$)
 Number of flowers: **high** ($29,72 \pm 2,80$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,35 \pm 0,04$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,33 \pm 0,02$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	10,27 \pm 0,04	Lignoceric acid	0,05 \pm 0,00
Palmitic acid	13,81 \pm 0,24	Linolenic acid ($\omega 3$)	0,31 \pm 0,01		
Palmitoleic acid	1,19 \pm 0,01	Arachic acid	0,48 \pm 0,26	Unsat./saturated	5,28 \pm 0,02
Stearic acid	1,62 \pm 0,08	Eicosenoic acid	0,38 \pm 0,02	$\omega 6/\omega 3$	33,66 \pm 0,68
Oleic acid	70,76 \pm 0,31	Behenic acid	0,11 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium -light intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	181 - 185	214 - 222	214 - 214	126 - 130	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	177 - 193	154 - 182	205 - 205	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“Pisciottana”

(synonymy: *Ogliastrina*, *Olivo dell'ascea*.)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium** ($6,83 \pm 1,47$)
 Oil content (%): **medium** ($40,12 \pm 0,85$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($6,67 \pm 0,54$)
 Blade width (cm): **medium** ($1,68 \pm 0,16$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,12 \pm 1,35$)
 Number of flowers: **low** ($13,39 \pm 0,29$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,83 \pm 0,31$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,29 \pm 0,06$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	3,93 \pm 0,80	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	11,20 \pm 0,07	Linolenic acid (ω 3)	0,75 \pm 0,05		
Palmitoleic acid	1,18 \pm 0,53	Arachic acid	0,24 \pm 0,06	Unsat./saturated	6,42 \pm 0,42
Stearic acid	2,00 \pm 0,72	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	5,19 \pm 0,83
Oleic acid	79,72 \pm 1,22	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: **fruity medium-high, with good sensation of grass, artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity. Medium-high fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	177 - 181	214 - 222	218 - 218	121 - 124	136 - 150
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	177 - 182	150 - 161	213 - 232	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Pizz’è carroga ”

Areal distribution or origin area: **Sardegna**
 Flesh/pit weight ratio: **medium** ($7,24 \pm 0,35$)
 Oil content (%): **medium** ($46,53 \pm 1,18$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,17 \pm 0,51$)
 Blade width (cm): **medium** ($1,24 \pm 0,16$)
 Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

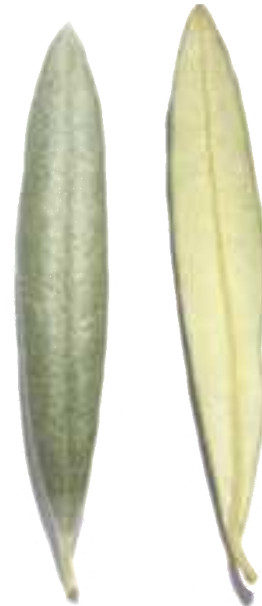
Inflorescence length (cm): **short** ($2,18 \pm 0,97$)
 Number of flowers: **low** ($12,68 \pm 2,59$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,86 \pm 0,59$)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,63 \pm 0,16$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	10,69 \pm 0,68	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	15,00 \pm 1,07	Linolenic acid ($\omega 3$)	0,82 \pm 0,16		
Palmitoleic acid	1,49 \pm 0,30	Arachic acid	0,25 \pm 0,05	Unsat./saturated	4,73 \pm 0,35
Stearic acid	2,00 \pm 0,26	Eicosenoic acid	0,03 \pm 0,02	$\omega 6/\omega 3$	13,44 \pm 2,84
Oleic acid	68,01 \pm 1,61	Behenic acid	0,08 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium-high fruity, with good sensation of grass, less almond and artichoke. Balanced taste sensation, with bitter and spicy medium-high. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 172	179 - 185	212 - 222	218 - 218	126 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 135	164 - 193	150 - 150	125 - 125	

References:

- 1 - Mulas M., Agabbio M., Chessa I., In: *L'Olivio: le vecchie varietà della Sardegna*, Ed. Delfino (1994), pp. 310-338.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Pizzutella ”

(synonymy: *Pizziricò, Pizzutedda, etc.*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** ($5,32 \pm 0,39$)
 Oil content (%): **medium** ($44,06 \pm 2,06$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **short** ($4,90 \pm 0,47$)
 Blade width (cm): **medium** ($1,24 \pm 0,15$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **short** ($2,12 \pm 0,89$)
 Number of flowers: **medium** ($24,41 \pm 1,86$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,34 \pm 0,44$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **medium** ($0,53 \pm 0,06$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	11,86 \pm 1,07	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	14,67 \pm 0,76	Linolenic acid ($\omega 3$)	0,96 \pm 0,01		
Palmitoleic acid	1,61 \pm 0,06	Arachic acid	0,33 \pm 0,01	Unsat./saturated	4,75 \pm 0,19
Stearic acid	2,19 \pm 0,17	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	12,37 \pm 1,27
Oleic acid	66,63 \pm 0,65	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and artichoke, read sensations of grass and tomato. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 182	179 - 181	208 - 222	210 - 214	124 - 124	157 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 166	143 - 154	164 - 164	

References:

- 1 - Bottari V., Spina P. In: *Le varietà di olivo coltivate in Sicilia*, Ann. Sper. Agr. (1953), 7: pp. 937-1004.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Posola ”

(synonymy: *D’Alannese, Pennese, Pizzutella, etc.*)

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **medium** ($7,46 \pm 0,10$)
 Oil content (%): **medium** ($41,04 \pm 2,48$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,32 \pm 0,40$)
 Blade width (cm): **medium** ($1,06 \pm 0,12$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** ($2,25 \pm 0,70$)
 Number of flowers: **medium** ($15,51 \pm 1,32$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,81 \pm 0,02$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **medium** ($0,45 \pm 0,01$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid (ω 6)	20,78 \pm 0,14	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	14,63 \pm 0,22	Linolenic acid (ω 3)	0,85 \pm 0,06		
Palmitoleic acid	5,26 \pm 0,30	Arachic acid	0,23 \pm 0,07	Unsat./saturated	4,90 \pm 0,11
Stearic acid	1,22 \pm 0,18	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	24,60 \pm 1,74
Oleic acid	51,47 \pm 0,29	Behenic acid	0,04 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of almond and aromatic herbs, less grass and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	173 - 181	212 - 218	214 - 214	124 - 144	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 166	166 - 193	154 - 205	213 - 213	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 54-55.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Posolella ”

(synonymy: *Gentile, Precoce.*)

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **medium** (5,11 ± 0,21)
 Oil content (%): **medium** (43,01 ± 2,05)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** (5,50 ± 0,38)
 Blade width (cm): **medium** (1,00 ± 0,12)
 Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **long** (3,53 ± 1,28)
 Number of flowers: **medium** (18,79 ± 1,69)

Fruit characters

Fresh weight of 100 fruits (g): **low** (1,60 ± 0,07)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **low** (0,26 ± 0,01)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,47 \pm 0,21	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	12,44 \pm 0,85	Linolenic acid (ω 3)	0,82 \pm 0,06		
Palmitoleic acid	0,96 \pm 0,18	Arachic acid	0,27 \pm 0,05	Unsat./saturated	5,88 \pm 0,49
Stearic acid	1,81 \pm 0,15	Eicosenoic acid	0,02 \pm 0,00	ω 6/ ω 3	11,64 \pm 0,80
Oleic acid	73,15 \pm 1,55	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium-high fruity, with good sensation of almond, less grass, tomato and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 206	173 - 185	214 - 218	214 - 214	126 - 144	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 193	154 - 205	213 - 213	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 56-57.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Provenzale ”

(synonymy: *Olivastro, Olivone, etc.*)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium** ($7,05 \pm 1,00$)
 Oil content (%): **medium** ($41,78 \pm 0,43$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **spreading-erect**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,44 \pm 0,46$)
 Blade width (cm): **medium** ($1,06 \pm 0,10$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,60 \pm 0,86$)
 Number of flowers: **low** ($13,49 \pm 1,59$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,83 \pm 0,08$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,36 \pm 0,04$)
 Shape (length/width): **ovoid**
 Mucron: **tenuous**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

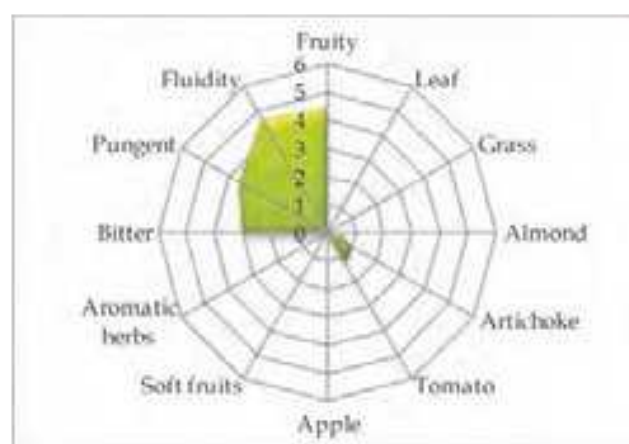
Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	3,63 \pm 0,71	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	12,63 \pm 0,43	Linolenic acid ($\omega 3$)	0,89 \pm 0,10		
Palmitoleic acid	2,28 \pm 0,82	Arachic acid	0,23 \pm 0,03	Unsat./saturated	5,83 \pm 0,25
Stearic acid	1,51 \pm 0,27	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	4,08 \pm 0,45
Oleic acid	76,63 \pm 1,97	Behenic acid	0,07 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of artichoke and tomato, read sensations of almond. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 206	179 - 181	218 - 218	218 - 218	126 - 144	157 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	143 - 150	164 - 164	143 - 210	200 - 220	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Puntella ”

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **medium** ($5,08 \pm 0,31$)
 Oil content (%): **medium** ($45,09 \pm 0,66$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect**
 Canopy-density: **medium-dense**



Leaf characters

Blade length (cm): **medium** ($5,78 \pm 0,45$)
 Blade width (cm): **broad** ($1,53 \pm 0,22$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,13 \pm 0,36$)
 Number of flowers: **medium** ($21,00 \pm 0,87$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,66 \pm 0,17$)
 Shape (length/width): **spherical**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,28 \pm 0,03$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	15,44 \pm 0,65	Lignoceric acid	0,05 \pm 0,04
Palmitic acid	16,71 \pm 0,35	Linolenic acid ($\omega 3$)	0,96 \pm 0,02		
Palmitoleic acid	2,93 \pm 0,52	Arachic acid	0,29 \pm 0,05	Unsat./saturated	4,20 \pm 2,10
Stearic acid	1,64 \pm 0,07	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	16,15 \pm 1,01
Oleic acid	58,86 \pm 0,22	Behenic acid	0,10 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of artichoke and almond. Balanced taste sensation with medium spicy and bitter. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 198	177 - 185	222 - 214	214 - 214	124 - 130	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	202 - 202	166 - 193	154 - 205	213 - 213	

References:

- 1 - Castorina S. In: *Le varietà di olivo coltivate in Abruzzo*, Ann. Sper. Agr. (1954), 9 (6) pp. 11-53.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Racioppa ”

(*synonymy: Cioppella, Racioppella, Racioppa di Rivello, etc.*)

Areal distribution or origin area: **Basilicata**
 Flesh/pit weight ratio: **medium** (5,37 ± 1,26)
 Oil content (%): **medium** (46,38 ± 2,38)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect-sreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** (6,59 ± 1,09)
 Blade width (cm): **medium** (1,48 ± 0,38)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **short** (2,48 ± 0,31)
 Number of flowers: **medium** (19,58 ± 1,78)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (2,23 ± 0,32)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** (0,36 ± 0,03)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	7,00 \pm 0,38	Lignoceric acid	0,07 \pm 0,05
Palmitic acid	13,21 \pm 2,33	Linolenic acid ($\omega 3$)	0,62 \pm 0,07		
Palmitoleic acid	2,03 \pm 0,47	Arachic acid	0,27 \pm 0,08	Unsat./saturated	5,54 \pm 0,98
Stearic acid	1,73 \pm 0,13	Eicosenoic acid	0,15 \pm 0,12	$\omega 6/\omega 3$	11,27 \pm 0,89
Oleic acid	72,92 \pm 2,98	Behenic acid	0,08 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of almond and artichoke, with read sensations of aromatic herbs. Balanced taste sensation with medium-high bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	179 - 185	208 - 208	212 - 214	124 - 130	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	161 - 205	220 - 232	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita-Potenza (2002), pp. 135-138.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Racioppella ”

(*synonymy: Cacacella, Grappetella, Olivo a racioppella etc.*)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium** (5,63 ± 1,39)
 Oil content (%): **medium** (43,34 ± 0,97)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **erect-spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** (5,49 ± 0,45)
 Blade width (cm): **broad** (1,51 ± 0,12)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **long** (3,71 ± 0,72)
 Number of flowers: **medium** (14,12 ± 1,27)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (2,40 ± 0,09)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** (0,38 ± 0,07)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	11,80 \pm 0,85	Lignoceric acid	0,05 \pm 0,02
Palmitic acid	10,26 \pm 0,39	Linolenic acid (ω 3)	0,81 \pm 0,02		
Palmitoleic acid	1,17 \pm 0,73	Arachic acid	0,61 \pm 0,48	Unsat./satured	6,59 \pm 0,15
Stearic acid	2,44 \pm 0,03	Eicosenoic acid	0,15 \pm 0,17	ω 6/ ω 3	14,54 \pm 1,48
Oleic acid	71,24 \pm 0,36	Behenic acid	0,09 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of almond and leaves. Balanced taste sensation with a medium bitter and medium-high spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
194 - 198	177 - 179	218 - 222	212 - 224	124 - 130	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 135	164 - 182	143 - 143	205 - 220	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Raggiola ”

(synonymy: *Corgiola, Correggiolo, Ragiola, Vergiola, etc.*)

Areal distribution or origin area: **Marche**

Flesh/pit weight ratio: **low** ($3,53 \pm 0,61$)

Oil content (%): **medium** ($43,76 \pm 1,15$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **spreading-erect**

Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,32 \pm 0,37$)

Blade width (cm): **medium** ($1,38 \pm 0,16$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **long** ($3,98 \pm 0,38$)

Number of flowers: **medium** ($19,08 \pm 1,21$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,40 \pm 0,10$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,54 \pm 0,09$)

Shape (length/width): **elliptic**

Mucron: **tenuous**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	10,81 \pm 0,22	Lignoceric acid	0,06 \pm 0,01
Palmitic acid	13,35 \pm 0,14	Linolenic acid (ω 3)	0,87 \pm 0,03		
Palmitoleic acid	1,64 \pm 0,03	Arachic acid	0,49 \pm 0,12	Unsat./saturated	5,27 \pm 0,12
Stearic acid	2,05 \pm 0,08	Eicosenoic acid	0,39 \pm 0,01	ω 6/ ω 3	12,46 \pm 0,66
Oleic acid	68,96 \pm 0,26	Behenic acid	0,11 \pm 0,01		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium - light, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	179 - 181	212 - 222	218 - 224	126 - 144	157 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 182	161 - 182	185 - 185	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*. ASSAM (2001), pp. 105-108.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138-140.

“ Raja sabina ”

Areal distribution or origin area: **Lazio**

Flesh/pit weight ratio: **low (4,22 ± 0,71)**

Oil content (%): **low (42,18 ± 0,79)**

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-dense**



Leaf characters

Blade length (cm): **medium (5,87 ± 0,47)**

Blade width (cm): **broad (1,53 ± 0,17)**

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **long (3,70 ± 1,43)**

Number of flowers: **low (17,08 ± 3,62)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,68 ± 0,36)**

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

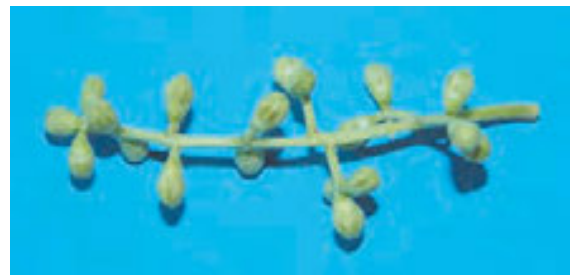
towards apex

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **high (0,52 ± 0,08)**

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	9,23 \pm 1,30	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	13,28 \pm 1,01	Linolenic acid ($\omega 3$)	0,76 \pm 0,06		
Palmitoleic acid	1,44 \pm 0,06	Arachic acid	0,22 \pm 0,07	Unsat./saturated	5,50 \pm 0,49
Stearic acid	1,70 \pm 0,07	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	12,23 \pm 2,64
Oleic acid	71,90 \pm 2,47	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (*Panel test*)

Comment: fruity medium - light, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 198	179 - 181	212 - 222	218 - 224	124 - 144	157 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 182	182 - 210	185 - 185	

References:

- 1 - Lombardo N. In: *Le risorse genetiche vegetali presso gli IRSA*, MIPAF (2001), 1: pp. 361-405.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Ravece ”

(synonymy: *Curatona, Olivona, Ravaiola.*)

Areal distribution or origin area: **Campania**

Flesh/pit weight ratio: **low** ($3,19 \pm 0,20$)

Oil content (%): **medium** ($41,11 \pm 1,67$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **spreading-erect**

Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,98 \pm 1,19$)

Blade width (cm): **medium** ($1,22 \pm 0,27$)

Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,57 \pm 2,38$)

Number of flowers: **low** ($14,76 \pm 0,57$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,86 \pm 0,10$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,68 \pm 0,03$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **pointed**

Surface: **scabrous**

Number of grooves: **high**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	4,02 \pm 0,40	Lignoceric acid	0,08 \pm 0,02
Palmitic acid	12,43 \pm 0,18	Linolenic acid (ω 3)	0,85 \pm 0,07		
Palmitoleic acid	2,20 \pm 0,57	Arachic acid	0,27 \pm 0,04	Unsat./saturated	5,82 \pm 0,03
Stearic acid	1,61 \pm 0,28	Eicosenoic acid	0,32 \pm 0,02	ω 6/ ω 3	4,76 \pm 0,87
Oleic acid	76,12 \pm 0,82	Behenic acid	0,12 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of grass and tomato, read sensations of almond and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 194	181 - 185	214 - 218	212 - 224	124 - 144	136 - 136
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	135 - 135	164 - 177	143 - 150	205 - 205	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Raza ”

(synonymy: *Bezzana, Olivo selvatico, Rezzana, etc.*)

Areal distribution or origin area: **Veneto**

Flesh/pit weight ratio: **low** ($3,29 \pm 0,20$)

Oil content (%): **medium** ($45,49 \pm 1,11$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **short** ($4,85 \pm 0,44$)

Blade width (cm): **medium** ($1,30 \pm 0,14$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,33 \pm 1,43$)

Number of flowers: **low** ($13,61 \pm 0,94$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,17 \pm 0,04$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,51 \pm 0,02$)

Shape (length/width): **ovoid**

Mucron: **tenuous**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	8,85 \pm 0,13	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	13,74 \pm 0,31	Linolenic acid ($\omega 3$)	0,71 \pm 0,04		
Palmitoleic acid	2,19 \pm 0,03	Arachic acid	0,25 \pm 0,06	Unsat./saturated	5,24 \pm 0,20
Stearic acid	1,81 \pm 0,10	Eicosenoic acid	0,01 \pm 0,01	$\omega 6/\omega 3$	12,41 \pm 0,47
Oleic acid	70,49 \pm 0,65	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with good sensation of leaves, grass, and artichoke. Balanced in flavours, with hints of bitter and spicy medium-light intensity. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	179 - 179	212 - 222	214 - 224	126 - 144	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	177 - 182	182 - 220	185 - 185	

References:

- 1 - Carocci Buzi C. In: *Annali Istituto Sperimentale per l'Olivicoltura e l'Oleificio*, Ed. Bracco Imperia (1965), pp. 1-31
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Razzo ”

(synonymy: *Grossaio, Pendaglio, Razzarolo, etc.*)

Areal distribution or origin area: **Toscana**
 Flesh/pit weight ratio: **medium** ($5,79 \pm 1,07$)
 Oil content (%): **medium** ($43,83 \pm 0,25$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **short** ($4,94 \pm 0,37$)
 Blade width (cm): **medium** ($1,06 \pm 0,13$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,61 \pm 1,29$)
 Number of flowers: **low** ($16,61 \pm 0,85$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,35 \pm 0,08$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **medium** ($0,36 \pm 0,05$)
 Shape (length/width): **elliptic**
 Mucron: **tenuous**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	10,63 \pm 0,50	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	14,20 \pm 0,14	Linolenic acid (ω 3)	0,73 \pm 0,05		
Palmitoleic acid	1,31 \pm 0,04	Arachic acid	0,24 \pm 0,05	Unsat./saturated	4,95 \pm 0,11
Stearic acid	2,24 \pm 0,14	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	14,61 \pm 0,23
Oleic acid	69,42 \pm 0,24	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium - light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	181 - 185	208 - 212	210 - 214	124 - 130	150 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 144	150 - 150	177 - 177	154 - 205	205 - 205	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138-140.

“ Razzola ”

(synonymy: *Corno maurino*, *Fischiettara*, *Martina a cornetto*, *Olivo femmina*, *Razzuola*, etc.)

Areal distribution or origin area: **Liguria**

Flesh/pit weight ratio: **low** ($4,35 \pm 0,15$)

Oil content (%): **medium** ($46,14 \pm 1,96$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading-erect**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,79 \pm 0,77$)

Blade width (cm): **broad** ($1,63 \pm 0,23$)

Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,24 \pm 2,11$)

Number of flowers: **medium** ($19,03 \pm 1,88$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,38 \pm 0,12$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,47 \pm 0,06$)

Shape (length/width): **elliptic**

Mucron: **absent**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	6,99 \pm 0,80	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	6,52 \pm 0,81	Linolenic acid (ω 3)	0,92 \pm 0,02		
Palmitoleic acid	0,97 \pm 0,08	Arachic acid	0,29 \pm 0,02	Unsat./saturated	10,72 \pm 1,00
Stearic acid	1,77 \pm 0,18	Eicosenoic acid	0,01 \pm 0,00	ω 6/ ω 3	7,65 \pm 1,05
Oleic acid	81,49 \pm 0,11	Behenic acid	0,07 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of almond and aromatic herbs, less grass and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	181 - 181	214 - 222	218 - 224	126 - 144	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	150 - 150	177 - 182	182 - 205	200 - 200	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ Riminino ”

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **medium** ($6,84 \pm 0,63$)
 Oil content (%): **low** ($38,45 \pm 1,02$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **spreading-erect**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,29 \pm 0,52$)
 Blade width (cm): **broad** ($1,63 \pm 0,14$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **long** ($4,67 \pm 0,65$)
 Number of flowers: **high** ($28,59 \pm 2,63$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,61 \pm 0,27$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,45 \pm 0,01$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	6,76 \pm 0,15	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	12,82 \pm 0,23	Linolenic acid ($\omega 3$)	0,71 \pm 0,15		
Palmitoleic acid	1,28 \pm 0,53	Arachic acid	0,29 \pm 0,05	Unsat./saturated	5,44 \pm 0,27
Stearic acid	2,34 \pm 0,25	Eicosenoic acid	0,01 \pm 0,00	$\omega 6/\omega 3$	9,74 \pm 2,33
Oleic acid	74,49 \pm 1,92	Behenic acid	0,06 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with good sensation of almond, grass, and artichoke. Balanced in flavours, with hints of bitter and spicy medium intensity. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 198	177 - 181	214 - 222	214 - 224	126 - 144	157 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 182	166 - 177	143 - 182	205 - 205	

References:

- 1 - Lombardo N. In: *Le risorse genetiche vegetali presso gli IRSA*, MIPAF (2001), 1: pp. 361-405.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Ritonnella ”

(synonymy: *Marinella, Romanella, Tonnella, etc.*)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium** ($7,24 \pm 0,16$)
 Oil content (%): **medium** ($45,36 \pm 2,24$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **short** ($4,81 \pm 0,41$)
 Blade width (cm): **medium** ($1,32 \pm 0,14$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,73 \pm 0,62$)
 Number of flowers: **medium** ($21,19 \pm 1,77$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,74 \pm 0,18$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,46 \pm 0,02$)
 Shape (length/width): **ovoid**
 Mucron: **tenuous**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	8,72 \pm 0,39	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	10,31 \pm 0,97	Linolenic acid ($\omega 3$)	0,87 \pm 0,02		
Palmitoleic acid	0,71 \pm 0,06	Arachic acid	0,32 \pm 0,04	Unsat./saturated	4,36 \pm 0,14
Stearic acid	6,18 \pm 0,60	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	9,98 \pm 0,18
Oleic acid	72,17 \pm 0,09	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of almond, grass and leaves, read sensations of soft fruits. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 181	214 - 218	212 - 218	126 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 150	143 - 143	193 - 193	154 - 161	213 - 220	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Rizzitella ”

(synonymy: Rizzinella)

Areal distribution or origin area: **Campania**

Flesh/pit weight ratio: **low** ($3,93 \pm 0,56$)

Oil content (%): **medium** ($41,49 \pm 1,79$)

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **weak**

Growth habit: **spreading**

Canopy-density: **medium-sparse**



Leaf characters

Blade length (cm): **short** ($4,28 \pm 0,31$)

Blade width (cm): **medium** ($1,04 \pm 0,09$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **short** ($2,41 \pm 0,50$)

Number of flowers: **low** ($17,66 \pm 0,88$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,35 \pm 0,27$)

Shape (length/width): **spherical**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,40 \pm 0,03$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	8,75 \pm 0,05	Lignoceric acid	0,05 \pm 0,04
Palmitic acid	12,77 \pm 0,50	Linolenic acid ($\omega 3$)	0,69 \pm 0,02		
Palmitoleic acid	2,03 \pm 0,03	Arachic acid	0,24 \pm 0,05	Unsat./saturated	5,45 \pm 0,15
Stearic acid	2,16 \pm 0,05	Eicosenoic acid	0,17 \pm 0,21	$\omega 6/\omega 3$	12,71 \pm 0,36
Oleic acid	70,94 \pm 0,03	Behenic acid	0,09 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of aromatic herbs and leaves. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	177 - 179	214 - 218	214 - 214	124 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	177 - 177	161 - 161	213 - 232	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Romanella molisana ”

Areal distribution or origin area: **Molise**
 Flesh/pit weight ratio: **low** ($4,85 \pm 0,76$)
 Oil content (%): **medium** ($47,97 \pm 0,86$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,66 \pm 0,53$)
 Blade width (cm): **medium** ($1,43 \pm 0,13$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,23 \pm 0,52$)
 Number of flowers: **medium** ($22,17 \pm 1,62$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,95 \pm 0,04$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,34 \pm 0,04$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	6,49 \pm 0,57	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	13,40 \pm 0,36	Linolenic acid (ω 3)	0,75 \pm 0,04		
Palmitoleic acid	1,47 \pm 0,04	Arachic acid	0,21 \pm 0,03	Unsat./saturated	5,37 \pm 0,18
Stearic acid	1,97 \pm 0,02	Eicosenoic acid	0,02 \pm 0,00	ω 6/ ω 3	8,62 \pm 0,30
Oleic acid	74,41 \pm 0,16	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass, tomato and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 210	181 - 181	212 - 222	214 - 214	130 - 126	150 - 150
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	177 - 193	154 - 205	213 - 243	

References:

- Ente regionale di sviluppo agricolo per il Molise. In: *Il germoplasma dell'olivo nel Molise*, Quaderno divulgativo dell'ERSA (2000), n° 5.
- Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Rosciola Coltodino ”

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **medium** ($5,53 \pm 1,00$)
 Oil content (%): **medium** ($45,60 \pm 1,66$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,49 \pm 0,43$)
 Blade width (cm): **medium** ($1,23 \pm 0,11$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,65 \pm 0,49$)
 Number of flowers: **medium** ($24,04 \pm 2,31$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,65 \pm 0,08$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and small**

Pit characters

Weight of 100 pits (g): **low** ($0,26 \pm 0,05$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid ($\omega 6$)	12,22 \pm 1,47	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	15,89 \pm 0,12	Linolenic acid ($\omega 3$)	0,78 \pm 0,03		
Palmitoleic acid	1,97 \pm 0,07	Arachic acid	0,16 \pm 0,02	Unsat./saturated	4,54 \pm 0,03
Stearic acid	1,66 \pm 0,01	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	15,71 \pm 2,46
Oleic acid	65,22 \pm 1,24	Behenic acid	0,04 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	179 - 181	208 - 218	212 - 212	126 - 144	184 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	182 - 202	177 - 182	156 - 161	200 - 200	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Rosciola di Rotello ”

(synonymy: *Rusciola*)

Areal distribution or origin area: **Molise**

Flesh/pit weight ratio: **low** ($3,84 \pm 0,34$)

Oil content (%): **medium** ($48,10 \pm 0,08$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **erect**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,38 \pm 0,43$)

Blade width (cm): **medium** ($1,46 \pm 0,21$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,16 \pm 0,73$)

Number of flowers: **low** ($13,55 \pm 1,46$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,14 \pm 0,18$)

Shape (length/width): **ovoid**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

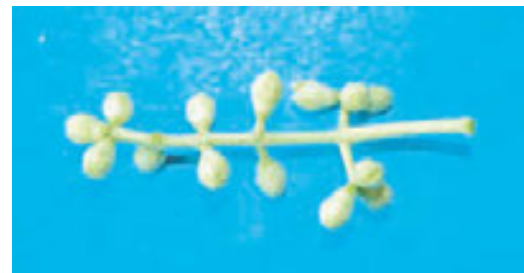
towards apex

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,45 \pm 0,01$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	8,87 \pm 0,95	Lignoceric acid	0,03 \pm 0,02
Palmitic acid	10,63 \pm 2,09	Linolenic acid ($\omega 3$)	0,89 \pm 0,02		
Palmitoleic acid	1,99 \pm 1,01	Arachic acid	0,23 \pm 0,08	Unsat./saturated	7,06 \pm 1,54
Stearic acid	1,61 \pm 0,24	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	9,99 \pm 0,86
Oleic acid	74,02 \pm 0,06	Behenic acid	0,07 \pm 0,05		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and artichoke. Balanced taste sensation with a medium-light bitter and medium spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 166	163 - 177	208 - 212	214 - 224	124 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 177	182 - 182	205 - 205	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Rosciola di Venafro ”

Areal distribution or origin area: **Molise**
 Flesh/pit weight ratio: **low (4,90 ± 1,13)**
 Oil content (%): **medium (45,42 ± 1,19)**
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium (8,83 ± 0,54)**
 Blade width (cm): **medium (1,45 ± 0,19)**
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **long (3,54 ± 2,92)**
 Number of flowers: **medium (19,99 ± 1,78)**

Fruit characters

Fresh weight of 100 fruits (g): **medium (2,38 ± 0,22)**
 Shape (length/width): **spherical**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **medium (0,43 ± 0,11)**
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	10,64 \pm 0,87	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	14,13 \pm 0,04	Linolenic acid ($\omega 3$)	0,79 \pm 0,00		
Palmitoleic acid	1,88 \pm 0,16	Arachic acid	0,26 \pm 0,01	Unsat./saturated	5,02 \pm 0,03
Stearic acid	2,02 \pm 0,08	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	13,44 \pm 1,05
Oleic acid	68,50 \pm 0,79	Behenic acid	0,06 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of aromatic herbs, artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	177 - 181	208 - 222	214 - 214	126 - 144	136 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	177 - 193	143 - 154	213 - 213	

References:

- 1 - Ente regionale di sviluppo agricolo per il Molise. In: *Il germoplasma dell'olivo nel Molise*, Quaderno divulgativo dell'ERSA (2000), n° 5.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Rosciola ”

(synonymy: Raggiola, Rossetta.)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **medium** ($6,79 \pm 0,31$)
 Oil content (%): **medium** ($44,55 \pm 1,90$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,43 \pm 0,37$)
 Blade width (cm): **medium** ($1,22 \pm 0,09$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,98 \pm 0,55$)
 Number of flowers: **medium** ($20,02 \pm 0,60$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,79 \pm 0,12$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,24 \pm 0,02$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	13,74 \pm 0,70	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	12,45 \pm 0,29	Linolenic acid ($\omega 3$)	0,38 \pm 0,02		
Palmitoleic acid	1,36 \pm 0,01	Arachic acid	0,24 \pm 0,04	Unsat./saturated	5,76 \pm 0,11
Stearic acid	1,91 \pm 0,10	Eicosenoic acid	0,26 \pm 0,02	$\omega 6/\omega 3$	36,74 \pm 0,95
Oleic acid	68,25 \pm 1,04	Behenic acid	0,09 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of artichoke, read sensations of almond, aromatic herbs and grass. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 189	214 - 222	218 - 218	126 - 144	184 - 197
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	143 - 143	177 - 182	154 - 205	205 - 205	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*, (2001), ASSAM pp. 109-112.
- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“ Rotondella di Sanza ”

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium** ($6,39 \pm 0,42$)
 Oil content (%): **medium** ($46,51 \pm 2,52$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **erect-spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,58 \pm 0,79$)
 Blade width (cm): **narrow** ($1,00 \pm 0,19$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

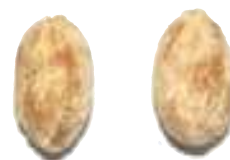
Inflorescence length (cm): **medium** ($2,74 \pm 1,20$)
 Number of flowers: **low** ($15,52 \pm 0,72$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,87 \pm 0,19$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,39 \pm 0,05$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	3,08 \pm 0,30	Lignoceric acid	0,06 \pm 0,04
Palmitic acid	12,08 \pm 1,00	Linolenic acid ($\omega 3$)	0,74 \pm 0,12		
Palmitoleic acid	1,81 \pm 0,26	Arachic acid	0,25 \pm 0,05	Unsat./saturated	6,14 \pm 0,54
Stearic acid	1,47 \pm 0,15	Eicosenoic acid	0,19 \pm 0,14	$\omega 6/\omega 3$	4,29 \pm 0,98
Oleic acid	78,50 \pm 1,46	Behenic acid	0,09 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	179 - 181	212 - 213	218 - 218	126 - 144	157 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 150	164 - 182	150 - 205	205 - 232	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience*, (2009), 44: pp. 582-588.

“ Salvia ”

(synonymy: *Salvia Montelibretti*)

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **medium** ($6,59 \pm 0,72$)
 Oil content (%): **medium** ($41,11 \pm 0,84$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **short** ($4,89 \pm 0,42$)
 Blade width (cm): **medium** ($1,23 \pm 0,13$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **short** ($2,04 \pm 0,57$)
 Number of flowers: **low** ($17,32 \pm 2,29$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,60 \pm 0,14$)
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **low** ($0,26 \pm 0,07$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	7,41 \pm 0,80	Lignoceric acid	0,07 \pm 0,01
Palmitic acid	10,90 \pm 1,06	Linolenic acid ($\omega 3$)	0,84 \pm 0,08		
Palmitoleic acid	1,34 \pm 0,05	Arachic acid	0,38 \pm 0,03	Unsat./saturated	6,71 \pm 0,63
Stearic acid	1,67 \pm 0,04	Eicosenoic acid	0,34 \pm 0,04	$\omega 6/\omega 3$	8,87 \pm 0,14
Oleic acid	76,00 \pm 0,08	Behenic acid	0,10 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with read sensations of aromatic herbs, almond, and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	179 - 181	218 - 222	218 - 224	126 - 144	150 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	143 - 143	177 - 193	154 - 210	185 - 185	

References:

- 1 - Parlato M. V., Pandolfi S. In: *Olivo e Olio*, (2001), 4: pp. 67-72.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*, University of Bari (in press), ISBN 978-88-88793-97-9.

“Sammartinara”

(synonymy: *San Martinara*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($7,87 \pm 1,09$)
 Oil content (%): **medium** ($47,43 \pm 2,06$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **erect**
 Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium** ($6,27 \pm 0,50$)
 Blade width (cm): **medium** ($1,47 \pm 0,15$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,03 \pm 2,45$)
 Number of flowers: **low** ($14,46 \pm 0,60$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,04 \pm 0,37$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **high** ($0,46 \pm 0,06$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,00	Linoleic acid ($\omega 6$)	13,13 \pm 0,21	Lignoceric acid	0,06 \pm 0,05
Palmitic acid	12,83 \pm 1,03	Linolenic acid ($\omega 3$)	0,85 \pm 0,02		
Palmitoleic acid	0,90 \pm 0,03	Arachic acid	0,23 \pm 0,01	Unsat./saturated	5,13 \pm 0,10
Stearic acid	2,99 \pm 1,28	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	15,49 \pm 0,57
Oleic acid	68,01 \pm 0,16	Behenic acid	0,14 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium-high fruity, with good sensation of almond and artichoke, less grass and aromatic herbs. Balanced taste sensation, with bitter and spicy medium. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 162	179 - 181	212 - 212	214 - 214	126 - 144	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 177	182 - 182	205 - 205	

References:

- 1 - Sottile I. In: *Giornate di studio sulla propagazione delle specie legnose*, Ist. Colt. Arb. Pisa (1964), pp. 21-26.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Sammartinenga ”

Areal distribution or origin area: **Basilicata**
 Flesh/pit weight ratio: **medium** ($6,77 \pm 2,80$)
 Oil content (%): **medium** ($41,74 \pm 1,68$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,83 \pm 0,58$)
 Blade width (cm): **medium** ($1,04 \pm 0,14$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,95 \pm 1,25$)
 Number of flowers: **medium** ($22,99 \pm 3,41$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,12 \pm 0,36$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,28 \pm 0,07$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	6,76 \pm 0,32	Lignoceric acid	0,06 \pm 0,05
Palmitic acid	11,69 \pm 0,63	Linolenic acid ($\omega 3$)	0,77 \pm 0,20		
Palmitoleic acid	1,16 \pm 0,18	Arachic acid	0,38 \pm 0,11	Unsat./saturated	5,86 \pm 0,20
Stearic acid	2,37 \pm 0,07	Eicosenoic acid	0,17 \pm 0,21	$\omega 6/\omega 3$	9,18 \pm 2,83
Oleic acid	75,07 \pm 0,14	Behenic acid	0,10 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 176	179 - 181	208 - 222	214 - 214	124 - 144	136 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 177	143 - 182	213 - 213	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita - Potenza (2002), pp. 85-88.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ San Benedetto ”

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($5,02 \pm 0,47$)
 Oil content (%): **medium** ($43,30 \pm 1,20$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **erect-spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,70 \pm 0,44$)
 Blade width (cm): **medium** ($1,12 \pm 0,10$)
 Shape (length/width): **elliptic - lanceolate**

Inflorescence characters

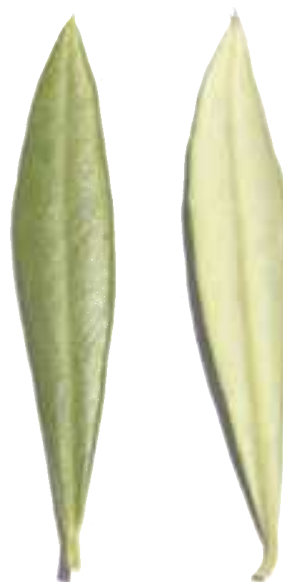
Inflorescence length (cm): **medium** ($2,86 \pm 0,77$)
 Number of flowers: **medium** ($15,65 \pm 1,06$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,98 \pm 0,15$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,49 \pm 0,07$)
 Shape (length/width): **symmetric**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

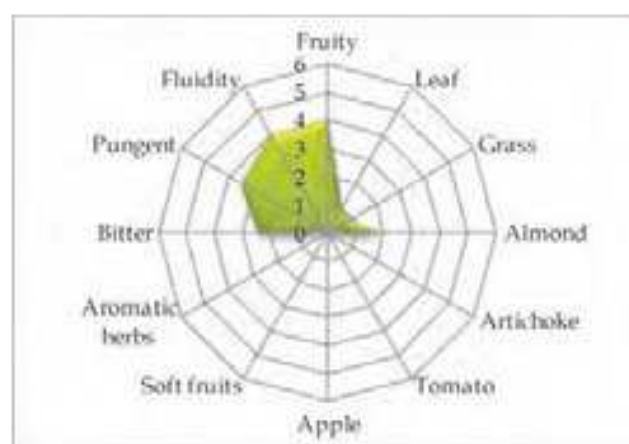
Myristic acid	$0,01 \pm 0,01$	Linoleic acid ($\omega 6$)	$12,69 \pm 1,47$	Lignoceric acid	$0,04 \pm 0,01$
Palmitic acid	$14,55 \pm 0,43$	Linolenic acid ($\omega 3$)	$0,87 \pm 0,08$		
Palmitoleic acid	$3,74 \pm 0,66$	Arachic acid	$0,36 \pm 0,18$	Unsat./saturated	$4,85 \pm 0,17$
Stearic acid	$1,69 \pm 0,11$	Eicosenoic acid	$0,11 \pm 0,15$	$\omega 6/\omega 3$	$14,56 \pm 2,35$
Oleic acid	$62,33 \pm 0,69$	Behenic acid	$0,09 \pm 0,02$		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of almond, read sensations of grass and leaves. Balanced taste sensation with medium – light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	179 - 185	208 - 212	214 - 214	124 - 144	157 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 143	166 - 193	154 - 182	205 - 205	

References:

- 1 - bellomo F. In: *Seminario olive da tavola nell'olivicultura*, Acc. Naz. Olivo Cerignola (1969), pp. 9-18.
- 2 - Muzzalupo I., Lombardo N., Salimonti A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 142-148.

“ San Francesco ”

Areal distribution or origin area: **Toscana**
 Flesh/pit weight ratio: **medium** ($5,00 \pm 0,01$)
 Oil content (%): **low** ($35,88 \pm 1,78$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,34 \pm 0,44$)
 Blade width (cm): **broad** ($5,00 \pm 0,11$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **long** ($3,82 \pm 1,44$)
 Number of flowers: **high** ($25,58 \pm 1,40$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,52 \pm 0,11$)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,59 \pm 0,02$)
 Shape (length/width): **elongated**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	4,79 \pm 0,44	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	10,68 \pm 0,67	Linolenic acid (ω 3)	0,91 \pm 0,09		
Palmitoleic acid	0,98 \pm 0,01	Arachic acid	0,20 \pm 0,01	Unsat./saturated	7,13 \pm 0,56
Stearic acid	1,41 \pm 0,11	Eicosenoic acid	0,03 \pm 0,01	ω 6/ ω 3	5,32 \pm 1,03
Oleic acid	80,10 \pm 1,54	Behenic acid	0,04 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of almond and aromatic herbs, less grass and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	179 - 181	208 - 208	210 - 210	126 - 130	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	156 - 182	182 - 182	213 - 213	

References:

- 1 - Cimato A., Cantini C., Sani G., et al. In: *Atti convegno tecniche, norme e qualità in olivicoltura*, Uni. Bas.(1993).
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Santa Caterina ”

(synonymy: *Oliva da indolcire, Oliva di San Biagio, Oliva lucchese, etc.*)

Areal distribution or origin area: **Toscana**
 Flesh/pit weight ratio: **very high** (10,13 ± 0,98)
 Oil content (%): **medium** (41,40 ± 0,59)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **long** (7,14 ± 0,64)
 Blade width (cm): **medium** (1,26 ± 0,13)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** (2,76 ± 0,51)
 Number of flowers: **low** (16,70 ± 2,59)

Fruit characters

Fresh weight of 100 fruits (g): **very high** (7,70 ± 0,52)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **very high** (0,72 ± 0,10)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **truncate**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	11,17 \pm 1,44	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	12,06 \pm 1,31	Linolenic acid ($\omega 3$)	0,97 \pm 0,02		
Palmitoleic acid	0,50 \pm 0,02	Arachic acid	0,17 \pm 0,04	Unsat./saturated	6,23 \pm 0,70
Stearic acid	1,56 \pm 0,13	Eicosenoic acid	0,01 \pm 0,00	$\omega 6/\omega 3$	11,56 \pm 1,24
Oleic acid	72,56 \pm 0,61	Behenic acid	0,05 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium-light intensity. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 194	185 - 185	208 - 208	210 - 212	124 - 144	136 - 197
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	156 - 164	150 - 182	220 - 220	

References:

- 1 - Cimato A., Cantini C., Sani G., In: *L'olivo in Toscana: il germoplasma autoctono*, Ed. ARSIA (2001).
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Santa Maria ”

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium** ($6,18 \pm 0,46$)
 Oil content (%): **medium** ($48,21 \pm 0,21$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($6,27 \pm 0,52$)
 Blade width (cm): **broad** ($1,62 \pm 0,14$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **long** ($3,72 \pm 2,03$)
 Number of flowers: **medium** ($15,58 \pm 2,49$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,42 \pm 0,10$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **low** ($0,20 \pm 0,00$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid (ω 6)	10,41 \pm 1,10	Lignoceric acid	0,08 \pm 0,08
Palmitic acid	11,21 \pm 1,42	Linolenic acid (ω 3)	0,72 \pm 0,01		
Palmitoleic acid	2,45 \pm 0,48	Arachic acid	0,28 \pm 0,03	Unsat./satured	6,51 \pm 0,87
Stearic acid	1,56 \pm 0,12	Eicosenoic acid	0,09 \pm 0,11	ω 6/ ω 3	14,55 \pm 1,40
Oleic acid	70,82 \pm 0,02	Behenic acid	0,11 \pm 0,06		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of almond, tomato and artichoke. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 172	173 - 179	214 - 218	214 - 218	124 - 144	157 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 150	143 - 143	164 - 177	154 - 205	205 - 205	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Sant’Agatese ”

(synonymy: *Aliva d’oggi, Comune, Ogliara, Palermitana, Ugghiara, etc.*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($7,77 \pm 0,61$)
 Oil content (%): **medium** ($47,29 \pm 0,20$)
 Purpose: **oil**



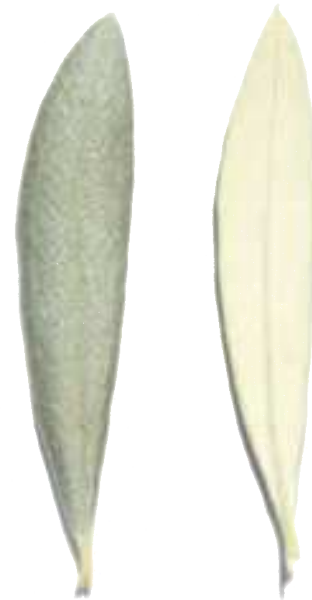
Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **erect-spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,50 \pm 0,33$)
 Blade width (cm): **medium** ($1,27 \pm 0,10$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,66 \pm 1,44$)
 Number of flowers: **low** ($15,81 \pm 0,52$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,40 \pm 1,41$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **high** ($0,52 \pm 0,18$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid ($\omega 6$)	8,54 \pm 0,80	Lignoceric acid	0,05 \pm 0,04
Palmitic acid	14,58 \pm 0,25	Linolenic acid ($\omega 3$)	0,71 \pm 0,06		
Palmitoleic acid	0,99 \pm 0,42	Arachic acid	0,26 \pm 0,02	Unsat./saturated	4,85 \pm 0,05
Stearic acid	2,01 \pm 0,19	Eicosenoic acid	0,03 \pm 0,01	$\omega 6/\omega 3$	12,05 \pm 0,79
Oleic acid	71,47 \pm 0,45	Behenic acid	0,09 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-light, with read sensations of artichoke, almond and grass. Balanced taste sensation with medium-light spicy and bitter. Medium-light fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	177 - 189	208 - 222	214 - 214	124 - 126	150 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 177	182 - 182	213 - 213	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 66-70.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Sant’Agostino ”

(*synonymy: Grossa di Andria, Oliva di Andria, Oliva grossa, etc.*)

Areal distribution or origin area: **Puglia**

Flesh/pit weight ratio: **high** ($8,73 \pm 0,21$)

Oil content (%): **medium** ($48,14 \pm 2,33$)

Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,32 \pm 0,77$)

Blade width (cm): **broad** ($1,56 \pm 0,21$)

Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,80 \pm 0,62$)

Number of flowers: **low** ($14,55 \pm 1,38$)

Fruit characters

Fresh weight of 100 fruits (g): **very high** ($6,71 \pm 1,50$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **very high** ($0,70 \pm 0,09$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards base

Apex: **pointed**

Base: **rounded**

Surface: **scabrous**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	9,41 \pm 0,15	Lignoceric acid	0,06 \pm 0,04
Palmitic acid	12,69 \pm 1,40	Linolenic acid (ω 3)	0,92 \pm 0,09		
Palmitoleic acid	0,73 \pm 0,02	Arachic acid	0,31 \pm 0,20	Unsat./saturated	5,67 \pm 0,28
Stearic acid	1,92 \pm 0,55	Eicosenoic acid	0,19 \pm 0,24	ω 6/ ω 3	10,28 \pm 0,80
Oleic acid	73,09 \pm 0,15	Behenic acid	0,11 \pm 0,07		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond, artichoke and tomato. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 198	177 - 181	212 - 212	210 - 214	124 - 144	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 166	154 - 154	108 - 108	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 85-88.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Santomauro ”

(synonymy: *Verace.*)

Areal distribution or origin area: **Calabria**
 Flesh/pit weight ratio: **medium** (7,10 ± 2,96)
 Oil content (%): **medium** (42,22 ± 3,15)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** (5,26 ± 0,39)
 Blade width (cm): **medium** (1,05 ± 0,09)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** (2,80 ± 0,28)
 Number of flowers: **low** (17,23 ± 2,95)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (3,39 ± 0,66)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** (0,44 ± 0,61)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	2,52 \pm 0,32	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	12,22 \pm 0,70	Linolenic acid ($\omega 3$)	0,93 \pm 0,11		
Palmitoleic acid	1,80 \pm 0,06	Arachic acid	0,26 \pm 0,04	Unsat./saturated	6,08 \pm 0,47
Stearic acid	1,43 \pm 0,20	Eicosenoic acid	0,15 \pm 0,21	$\omega 6/\omega 3$	2,78 \pm 0,72
Oleic acid	78,54 \pm 1,31	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of almond, grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 198	177 - 179	208 - 222	214 - 2124	124 - 144	157 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	143 - 143	166 - 182	143 - 205	205 - 232	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 25.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortic-Amsterdam*, (2010), 126: pp. 324-329.

“ Sargano di Fermo ”

(synonymy: *Rosciola di Sirolo, Sargana, Sargano, etc.*)

Areal distribution or origin area: **Marche**
 Flesh/pit weight ratio: **low** ($4,85 \pm 0,61$)
 Oil content (%): **medium** ($47,96 \pm 0,78$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,30 \pm 0,38$)
 Blade width (cm): **medium** ($1,38 \pm 0,12$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **long** ($3,92 \pm 0,81$)
 Number of flowers: **low** ($17,77 \pm 1,33$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,61 \pm 0,11$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,45 \pm 0,03$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	6,90 \pm 0,49	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	9,03 \pm 0,10	Linolenic acid ($\omega 3$)	0,93 \pm 0,03		
Palmitoleic acid	0,71 \pm 0,04	Arachic acid	0,33 \pm 0,02	Unsat./saturated	8,24 \pm 0,15
Stearic acid	1,51 \pm 0,03	Eicosenoic acid	0,01 \pm 0,00	$\omega 6/\omega 3$	7,29 \pm 0,26
Oleic acid	80,09 \pm 0,21	Behenic acid	0,09 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 198	179 - 181	214 - 222	218 - 224	124 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 182	182 - 210	185 - 185	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*, (2001), ASSAM pp. 117-120.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138-140.

“ Sargano di San Benedetto ”

(synonymy: *Sargano*)

Areal distribution or origin area: **Marche**

Flesh/pit weight ratio: **low** ($4,21 \pm 0,76$)

Oil content (%): **medium** ($40,13 \pm 0,18$)

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **erect**

Canopy-density: **medium-dense**



Leaf characters

Blade length (cm): **short** ($4,83 \pm 0,41$)

Blade width (cm): **narrow** ($0,97 \pm 0,13$)

Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **long** ($4,35 \pm 2,98$)

Number of flowers: **high** ($26,25 \pm 0,09$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,58 \pm 0,12$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,30 \pm 0,02$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **smooth**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	12,55 \pm 1,50	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	16,62 \pm 0,75	Linolenic acid ($\omega 3$)	0,76 \pm 0,03		
Palmitoleic acid	2,61 \pm 0,03	Arachic acid	0,27 \pm 0,04	Unsat./saturated	4,25 \pm 0,24
Stearic acid	1,79 \pm 0,06	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	16,53 \pm 1,40
Oleic acid	62,99 \pm 0,62	Behenic acid	0,08 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond, grass, and artichoke. Balanced taste sensation with a medium-light bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	177 - 177	218 - 222	214 - 214	130 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	135 - 135	166 - 167	154 - 205	200 - 205	

References:

- 1 - Pannelli G., Alfei B., Santinelli A. In: *Varietà di olivo nelle Marche*, (2001), ASSAM pp. 121-124
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138-140.

“ Scarpetta ”

Areal distribution or origin area: **Basilicata**

Flesh/pit weight ratio: **low** ($4,42 \pm 0,84$)

Oil content (%): **medium** ($48,82 \pm 1,96$)

Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading-erect**

Canopy-density: **medium-dense**



Leaf characters

Blade length (cm): **medium** ($6,86 \pm 1,24$)

Blade width (cm): **broad** ($1,63 \pm 0,33$)

Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,93 \pm 1,23$)

Number of flowers: **low** ($15,98 \pm 2,46$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,97 \pm 0,27$)

Shape (length/width): **ovoid**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,34 \pm 0,03$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid ($\omega 6$)	9,50 \pm 1,34	Lignoceric acid	0,06 \pm 0,04
Palmitic acid	9,78 \pm 0,91	Linolenic acid ($\omega 3$)	0,95 \pm 0,04		
Palmitoleic acid	0,39 \pm 0,02	Arachic acid	0,48 \pm 0,10	Unsat./saturated	6,22 \pm 0,28
Stearic acid	3,66 \pm 0,48	Eicosenoic acid	0,15 \pm 0,11	$\omega 6/\omega 3$	9,94 \pm 1,11
Oleic acid	74,49 \pm 2,09	Behenic acid	0,12 \pm 0,05		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and artichoke, read sensations of grass and tomato. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 198	179 - 181	208 - 218	212 - 221	124 - 124	150 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 182	143 - 143	200 - 200	

References:

- 1 - Rotundo A., Marone E. In: *Il germoplasma olivicolo lucano*, Olita - Potenza (2002), pp. 151-154.
- 2 - Rotundo A., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo meridionale*, (2012 in press).
- 3 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Semidana ”

(synonymy: *Olia di Riola, Olieddu terzu, Terza, etc.*)

Areal distribution or origin area: **Sardegna**
 Flesh/pit weight ratio: **medium** ($5,05 \pm 0,37$)
 Oil content (%): **medium** ($44,46 \pm 2,71$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **weak**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($6,73 \pm 0,70$)
 Blade width (cm): **medium** ($1,28 \pm 0,17$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,86 \pm 1,51$)
 Number of flowers: **medium** ($18,57 \pm 1,48$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,45 \pm 0,37$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **obvious**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **high** ($0,60 \pm 0,01$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	10,69 \pm 1,85	Lignoceric acid	0,04 \pm 0,00
Palmitic acid	12,15 \pm 1,34	Linolenic acid (ω 3)	0,81 \pm 0,23		
Palmitoleic acid	1,03 \pm 0,36	Arachic acid	0,27 \pm 0,08	Unsat./saturated	5,87 \pm 0,45
Stearic acid	2,06 \pm 0,45	Eicosenoic acid	0,03 \pm 0,01	ω 6/ ω 3	13,52 \pm 1,64
Oleic acid	71,93 \pm 0,05	Behenic acid	0,08 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of almond, grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 172	185 - 185	214 - 214	214 - 218	130 - 144	136 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 150	135 - 135	164 - 193	150 - 161	200 - 200	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Sessana ”

(synonymy: *Cicinella*, *Minucciolo*, etc.)

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium (6,18 ± 0,25)**
 Oil content (%): **medium (46,05 ± 0,75)**
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **medium sparse**

Leaf characters

Blade length (cm): **medium (5,92 ± 0,45)**
 Blade width (cm): **medium (1,46 ± 0,18)**
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium (2,65 ± 1,06)**
 Number of flowers: **low (17,71 ± 1,66)**

Fruit characters

Fresh weight of 100 fruits (g): **low (1,99 ± 0,18)**
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and small**

Pit characters

Weight of 100 pits (g): **low (0,28 ± 0,03)**
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	6,58 \pm 0,99	Lignoceric acid	0,09 \pm 0,08
Palmitic acid	11,46 \pm 0,45	Linolenic acid (ω 3)	0,97 \pm 0,02		
Palmitoleic acid	1,18 \pm 0,26	Arachic acid	0,29 \pm 0,05	Unsat./saturated	6,32 \pm 0,16
Stearic acid	1,75 \pm 0,24	Eicosenoic acid	0,24 \pm 0,19	ω 6/ ω 3	6,78 \pm 0,87
Oleic acid	76,29 \pm 0,63	Behenic acid	0,09 \pm 0,05		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass, tomato and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	181 - 185	214 - 214	214 - 224	126 - 130	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 177	182 - 205	213 - 213	

References:

- 1 - Pugliano G., Flaminio G., Pugliano M.L., et al. In: *La risorsa genetica dell'olivo in Campania*, SE. S.I.R.C.A. Ed. Napoli, (2000).
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Simona ”

(synonymy: *Simone*)

Areal distribution or origin area: **Puglia**

Flesh/pit weight ratio: **low** ($3,96 \pm 0,18$)

Oil content (%): **medium** ($40,63 \pm 3,23$)

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **strong**

Growth habit: **spreading-erect**

Canopy-density: **medium**



Leaf characters

Blade length (cm): **medium** ($5,94 \pm 0,52$)

Blade width (cm): **medium** ($1,35 \pm 0,19$)

Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **long** ($3,91 \pm 0,87$)

Number of flowers: **high** ($20,16 \pm 2,42$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,69 \pm 0,28$)

Shape (length/width): **elongated**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Nipple: **absent**

Lenticels: **may and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,35 \pm 0,05$)

Shape (length/width): **elongated**

Mucron: **obvious**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **pointed**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	3,31 \pm 0,54	Lignoceric acid	0,10 \pm 0,05
Palmitic acid	10,30 \pm 0,98	Linolenic acid (ω 3)	0,71 \pm 0,06		
Palmitoleic acid	0,89 \pm 0,20	Arachic acid	0,42 \pm 0,06	Unsat./saturated	6,36 \pm 0,55
Stearic acid	2,85 \pm 0,15	Eicosenoic acid	0,22 \pm 0,14	ω 6/ ω 3	4,65 \pm 0,69
Oleic acid	80,41 \pm 1,79	Behenic acid	0,13 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of almond, artichoke and tomato. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 182	175 - 181	212 - 222	210 - 210	124 - 126	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	166 - 166	166 - 177	154 - 154	108 - 170	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Istituto Sperimentale per l'Olivicoltura (2004), pp. 89-82.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Sinopolese ”

(synonymy: *Calabrese, Chianota, Coccitano, Pizzocorno, Seminarota, etc.*)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **high** ($3,58 \pm 0,32$)

Oil content (%): **medium** ($42,82 \pm 4,12$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **erect**

Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,81 \pm 0,82$)

Blade width (cm): **medium** ($1,50 \pm 0,27$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,07 \pm 1,74$)

Number of flowers: **xmedium** ($22,17 \pm 1,82$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,46 \pm 0,11$)

Shape (length/width): **elongated**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Nipple: **tenuous**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,34 \pm 0,07$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **pointed**

Base: **pointed**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	6,46 \pm 2,20	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	12,25 \pm 0,83	Linolenic acid ($\omega 3$)	0,70 \pm 0,15		
Palmitoleic acid	0,96 \pm 0,30	Arachic acid	0,36 \pm 0,16	Unsat./saturated	5,66 \pm 0,86
Stearic acid	2,49 \pm 0,88	Eicosenoic acid	0,10 \pm 0,16	$\omega 6/\omega 3$	9,42 \pm 2,97
Oleic acid	75,52 \pm 1,28	Behenic acid	0,11 \pm 0,07		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond, artichoke and tomato. Balanced taste sensation with a medium-high bitter and medium-light spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	177 - 179	212 - 214	212 - 212	124 - 130	170 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 193	154 - 210	164 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 13.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortic-Amsterdam*, (2010), 126: pp. 324-329.

“ Sirole ”

(synonymy: *Sirole*, *Sirole Soratte*, *Sirole Soratte 1*, etc.)

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **medium** ($7,27 \pm 0,41$)
 Oil content (%): **medium** ($44,80 \pm 0,19$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **short** ($4,57 \pm 0,39$)
 Blade width (cm): **medium** ($1,12 \pm 0,18$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **short** ($2,45 \pm 0,10$)
 Number of flowers: **low** ($14,73 \pm 1,80$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,34 \pm 0,37$)
 Shape (length/width): **elongated**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **medium** ($0,33 \pm 0,09$)
 Shape (length/width): **elongated**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **pointed**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	10,93 \pm 0,42	Lignoceric acid	0,06 \pm 0,00
Palmitic acid	14,06 \pm 1,28	Linolenic acid (ω 3)	0,92 \pm 0,08		
Palmitoleic acid	1,30 \pm 0,08	Arachic acid	0,29 \pm 0,12	Unsat./saturated	4,73 \pm 0,56
Stearic acid	2,92 \pm 0,47	Eicosenoic acid	0,34 \pm 0,07	ω 6/ ω 3	12,00 \pm 1,48
Oleic acid	67,93 \pm 1,11	Behenic acid	0,13 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass, leaves, and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
176 - 206	181 - 185	214 - 222	218 - 224	130 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	135 - 135	177 - 182	182 - 210	185 - 220	

References:

- 1 - Parlato M. V., Pandolfi S. In: *Olivo e Olio*, (2001), 4: pp. 67-72.
- 2 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.

“ Sperone di gallo ”

(*synonymy: Oliva torta, Olivona, Tortarella, Zampa di gallo, etc.*)

Areal distribution or origin area: **Molise**

Flesh/pit weight ratio: **high** ($9,82 \pm 1,01$)

Oil content (%): **medium** ($48,86 \pm 0,46$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **erect**

Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **long** ($7,48 \pm 0,98$)

Blade width (cm): **broad** ($2,06 \pm 0,35$)

Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,58 \pm 0,92$)

Number of flowers: **medium** ($19,85 \pm 2,32$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,21 \pm 0,07$)

Shape (length/width): **ovoid**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **medium** ($0,39 \pm 0,03$)

Shape (length/width): **elliptic**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

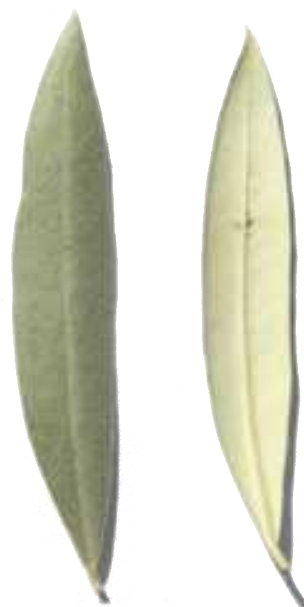
towards apex

Apex: **pointed**

Base: **pointed**

Surface: **smooth**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,01	Linoleic acid ($\omega 6$)	15,64 \pm 1,04	Lignoceric acid	0,05 \pm 0,04
Palmitic acid	16,19 \pm 1,50	Linolenic acid ($\omega 3$)	0,72 \pm 0,02		
Palmitoleic acid	2,01 \pm 0,19	Arachic acid	0,43 \pm 0,17	Unsat./saturated	4,05 \pm 0,38
Stearic acid	3,00 \pm 0,37	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	21,65 \pm 1,55
Oleic acid	60,01 \pm 0,26	Behenic acid	0,10 \pm 0,05		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of aromatic herbs. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 172	169 - 179	212 - 212	214 - 214	130 - 130	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 193	182 - 182	213 - 213	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“Termite di Bitetto”

(synonymy: *Cima di Bitetto, Mele di Bitetto, Oliva mele, Termite, etc.*)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** ($7,07 \pm 0,76$)
 Oil content (%): **medium** ($47,26 \pm 0,21$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,38 \pm 0,68$)
 Blade width (cm): **board** ($1,58 \pm 0,22$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,80 \pm 0,53$)
 Number of flowers: **low** ($14,46 \pm 2,68$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,22 \pm 0,68$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,56 \pm 0,07$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	10,92 \pm 1,37	Lignoceric acid	0,02 \pm 0,01
Palmitic acid	16,04 \pm 2,74	Linolenic acid (ω 3)	0,86 \pm 0,04		
Palmitoleic acid	2,87 \pm 1,94	Arachic acid	0,17 \pm 0,03	Unsat./saturated	4,62 \pm 0,78
Stearic acid	1,28 \pm 0,02	Eicosenoic acid	0,02 \pm 0,00	ω 6/ ω 3	12,69 \pm 0,99
Oleic acid	64,92 \pm 0,59	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: **fruity medium, with read sensations of artichoke and soft fruits. Balanced in flavours, with hints of bitter and spicy medium-light intensity. Medium fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed.

For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 194	179 - 179	208 - 212	214 - 214	124 - 144	150 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 182	143 - 205	108 - 170	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 93-96.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Terza Grande ”

(synonymy: Di Bosa, Di Cuglieri, Olia Terza, Terza, etc.)

Areal distribution or origin area: **Sardegna**
 Flesh/pit weight ratio: **medium** ($5,65 \pm 0,10$)
 Oil content (%): **medium** ($42,46 \pm 0,57$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,11 \pm 0,34$)
 Blade width (cm): **medium** ($1,21 \pm 0,11$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,60 \pm 0,67$)
 Number of flowers: **low** ($15,31 \pm 1,52$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,13 \pm 1,03$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **high** ($0,60 \pm 0,06$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	8,00 \pm 1,57	Lignoceric acid	0,06 \pm 0,05
Palmitic acid	12,13 \pm 0,81	Linolenic acid (ω 3)	0,83 \pm 0,08		
Palmitoleic acid	1,29 \pm 0,17	Arachic acid	0,31 \pm 0,10	Unsat./saturated	6,12 \pm 0,66
Stearic acid	1,56 \pm 0,35	Eicosenoic acid	0,19 \pm 0,24	ω 6/ ω 3	9,77 \pm 2,87
Oleic acid	74,42 \pm 3,04	Behenic acid	0,08 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass, tomato, and artichoke. Balanced taste sensation with a medium-high bitter and medium spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 198	179 - 181	214 - 222	214 - 221	126 - 144	157 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 150	143 - 143	164 - 177	150 - 161	213 - 213	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience*, (2009), 44: pp. 582-588.

“ Tombarello ”

Areal distribution or origin area: **Calabria**
 Flesh/pit weight ratio: **medium** ($5,14 \pm 1,44$)
 Oil content (%): **medium** ($44,95 \pm 4,80$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **short** ($4,36 \pm 0,30$)
 Blade width (cm): **medium** ($1,27 \pm 0,16$)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,74 \pm 0,55$)
 Number of flowers: **medium** ($19,34 \pm 1,60$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,49 \pm 0,14$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **low** ($0,25 \pm 0,04$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	7,41 \pm 1,14	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	13,70 \pm 0,91	Linolenic acid ($\omega 3$)	0,67 \pm 0,03		
Palmitoleic acid	1,72 \pm 0,20	Arachic acid	0,35 \pm 0,09	Unsat./saturated	5,07 \pm 0,41
Stearic acid	2,29 \pm 0,16	Eicosenoic acid	0,08 \pm 0,12	$\omega 6/\omega 3$	10,98 \pm 1,49
Oleic acid	71,91 \pm 2,04	Behenic acid	0,08 \pm 0,12		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) *loci* analyzed. For each *locus* the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 206	177 - 177	212 - 212	212 - 212	130 - 144	150 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	177 - 193	143 - 182	205 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 25.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortiv-Amsterdam*, (2010), 126: pp. 324-329.

“ Tonda di Alife ”

Areal distribution or origin area: **Campania**
 Flesh/pit weight ratio: **medium** ($5,86 \pm 0,29$)
 Oil content (%): **medium** ($42,05 \pm 1,79$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,62 \pm 0,37$)
 Blade width (cm): **medium** ($1,36 \pm 0,12$)
 Shape (length/width): **elliptic-lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($3,12 \pm 0,45$)
 Number of flowers: **medium** ($22,13 \pm 1,72$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,29 \pm 0,07$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,34 \pm 0,01$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

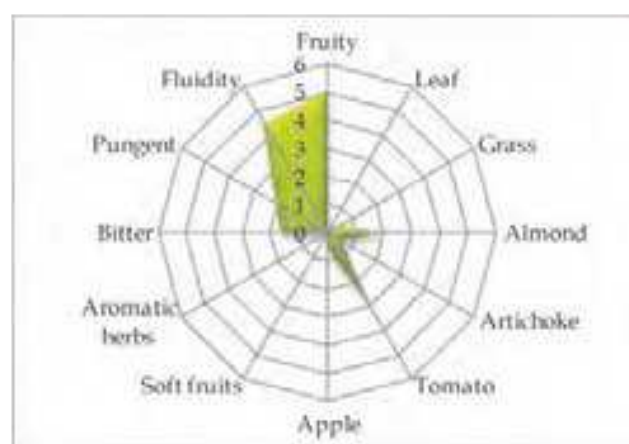
Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	10,13 \pm 0,87	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	15,65 \pm 0,35	Linolenic acid (ω 3)	0,96 \pm 0,02		
Palmitoleic acid	1,42 \pm 0,10	Arachic acid	0,24 \pm 0,02	Unsat./saturated	4,68 \pm 0,17
Stearic acid	1,59 \pm 0,16	Eicosenoic acid	0,02 \pm 0,01	ω 6/ ω 3	10,51 \pm 0,65
Oleic acid	68,79 \pm 1,50	Behenic acid	0,07 \pm 0,00		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of tomato, read sensations of almond. Balanced taste sensation with medium-light spicy and bitter. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	181 - 185	214 - 214	214 - 214	124 - 126	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	166 - 166	164 - 193	150 - 154	205 - 205	

References:

- 1 - Various authors. In: *Catalogo Nazionale delle Varietà di Olivo*. University of Bari (in press), ISBN 978-88-88793-97-9.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Tonda di Filadelfia ”

(synonymy: *Oliva di Pentone, Strongolese, Tonda di Filogaso, Tonda dolce, etc.*)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **high** ($7,90 \pm 1,79$)

Oil content (%): **high** ($51,45 \pm 5,14$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**

Growth habit: **spreading**

Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** ($5,95 \pm 0,74$)

Blade width (cm): **broad** ($1,51 \pm 0,11$)

Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **short** ($2,40 \pm 1,21$)

Number of flowers: **low** ($14,00 \pm 1,46$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,22 \pm 0,64$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,36 \pm 0,03$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	7,55 \pm 1,00	Lignoceric acid	0,02 \pm 0,00
Palmitic acid	11,10 \pm 0,01	Linolenic acid ($\omega 3$)	0,79 \pm 0,02		
Palmitoleic acid	1,09 \pm 0,35	Arachic acid	0,25 \pm 0,04	Unsat./saturated	6,53 \pm 0,14
Stearic acid	1,89 \pm 0,19	Eicosenoic acid	0,02 \pm 0,00	$\omega 6/\omega 3$	9,52 \pm 1,00
Oleic acid	76,13 \pm 0,04	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with read sensations of artichoke, almond, and leaves. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	177 - 185	212 - 222	212 - 218	126 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	143 - 205	205 - 232	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 23.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortiv-Amsterdam*, (2010), 126: pp. 324-329.

“ Tonda di Filogaso ”

(synonymy: *Oliva di Pentone, Strongolese, Tonda di Filadelfia, Tonda Dolce, etc.*)

Areal distribution or origin area: **Calabria**
 Flesh/pit weight ratio: **medium** ($6,24 \pm 1,73$)
 Oil content (%): **medium** ($46,58 \pm 2,19$)
 Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,26 \pm 0,57$)
 Blade width (cm): **broad** ($1,59 \pm 0,18$)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **long** ($3,53 \pm 0,18$)
 Number of flowers: **medium** ($23,75 \pm 2,97$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,90 \pm 0,33$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,30 \pm 0,06$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,02 \pm 0,02	Linoleic acid ($\omega 6$)	6,69 \pm 0,26	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	11,49 \pm 0,72	Linolenic acid ($\omega 3$)	0,72 \pm 0,04		
Palmitoleic acid	1,08 \pm 0,30	Arachic acid	0,27 \pm 0,03	Unsat./saturated	6,17 \pm 0,38
Stearic acid	2,11 \pm 0,07	Eicosenoic acid	0,03 \pm 0,03	$\omega 6/\omega 3$	9,24 \pm 0,39
Oleic acid	76,46 \pm 0,69	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: medium fruity, with good sensation of almond and aromatic herbs, less grass and artichoke. Balanced taste sensation, with bitter and spicy medium. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 179	212 - 212	212 - 250	124 - 124	157 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	166 - 166	143 - 182	205 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 24.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortiv-Amsterdam*, (2010), 126: pp. 324-329.

“ Tonda di Strongoli ”

(*synonymy: Olivo di Pentone, Strongolese, Tonda di Filadelfia, Tonda di Filogaso, etc.*)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **high (8,58 ± 0,60)**

Oil content (%): **medium (51,88 ± 2,91)**

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium (6,19 ± 0,61)**

Blade width (cm): **medium (1,01 ± 0,14)**

Shape (length/width): **lanceolate**



Inflorescence characters

Inflorescence length (cm): **short (2,44 ± 1,0)**

Number of flowers: **low (17,08 ± 1,13)**

Fruit characters

Fresh weight of 100 fruits (g): **high (5,10 ± 1,49)**

Shape (length/width): **ovoid**

Symmetry: **asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **tenuous**

Lenticels: **few and large**



Pit characters

Weight of 100 pits (g): **high (0,53 ± 0,13)**

Shape (length/width): **ovoid**

Mucron: **absent**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **rounded**

Surface: **rugose**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,03 \pm 0,03	Linoleic acid ($\omega 6$)	7,95 \pm 1,56	Lignoceric acid	0,03 \pm 0,00
Palmitic acid	13,04 \pm 0,67	Linolenic acid ($\omega 3$)	0,85 \pm 0,05		
Palmitoleic acid	1,46 \pm 0,45	Arachic acid	0,23 \pm 0,05	Unsat./saturated	5,52 \pm 0,26
Stearic acid	1,88 \pm 0,07	Eicosenoic acid	0,04 \pm 0,02	$\omega 6/\omega 3$	9,29 \pm 1,31
Oleic acid	72,93 \pm 1,14	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	177 - 185	212 - 222	212 - 218	124 - 126	136 - 150
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	166 - 193	143 - 182	205 - 220	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 15.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortiv-Amsterdam*, (2010), 126: pp. 324-329.

“ Tonda dolce di Partanna ”

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **high** ($8,87 \pm 0,57$)
 Oil content (%): **medium** ($48,55 \pm 0,03$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($6,39 \pm 0,68$)
 Blade width (cm): **broad** ($1,53 \pm 0,17$)
 Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,61 \pm 0,66$)
 Number of flowers: **low** ($14,45 \pm 2,17$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($5,30 \pm 0,71$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,54 \pm 0,04$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **rounded**
 Base: **truncate**
 Surface: **scabrous**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

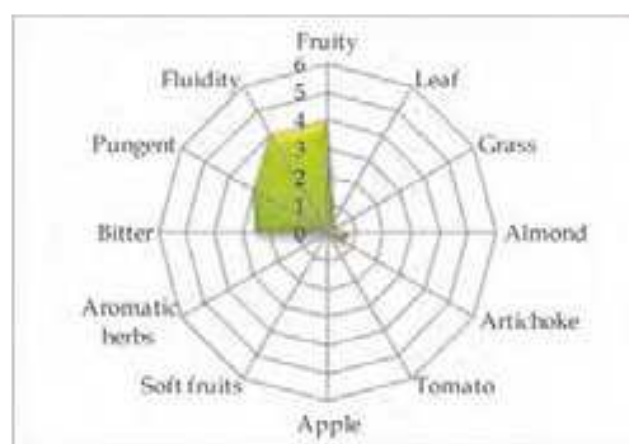
Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	9,73 \pm 0,08	Lignoceric acid	0,04 \pm 0,01
Palmitic acid	10,18 \pm 0,11	Linolenic acid ($\omega 3$)	0,89 \pm 0,13		
Palmitoleic acid	0,81 \pm 0,03	Arachic acid	0,26 \pm 0,01	Unsat./satured	6,90 \pm 0,04
Stearic acid	2,23 \pm 0,03	Eicosenoic acid	0,02 \pm 0,01	$\omega 6/\omega 3$	11,01 \pm 1,46
Oleic acid	75,22 \pm 0,29	Behenic acid	0,05 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of artichoke and almond. Balanced in flavours, with hints of bitter and spicy medium – light intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 182	177 - 181	212 - 212	214 - 214	144 - 144	157 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	166 - 193	182 - 182	205 - 205	

References:

- 1 - Mulè R., Fodale A. S., Parlati M. V., et al. In: *Frutticoltura*, (1992), 11 pp. 25-29.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Tonda Iblea ”

(synonymy: *Alimena, Cetralla, Ferlisa, Nuciddara, Tunna, etc.*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** ($7,17 \pm 0,65$)
 Oil content (%): **high** ($54,23 \pm 0,58$)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium-weak**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,15 \pm 0,30$)
 Blade width (cm): **medium** ($1,15 \pm 0,13$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **short** ($1,86 \pm 0,37$)
 Number of flowers: **low** ($12,93 \pm 3,70$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,84 \pm 1,48$)
 Shape (length/width): **spherical**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **high** ($0,65 \pm 0,07$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,03 \pm 0,03	Linoleic acid (ω 6)	8,82 \pm 0,61	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	13,44 \pm 0,57	Linolenic acid (ω 3)	0,85 \pm 0,03		
Palmitoleic acid	1,23 \pm 0,23	Arachic acid	0,28 \pm 0,04	Unsat./saturated	5,34 \pm 0,29
Stearic acid	1,94 \pm 0,14	Eicosenoic acid	0,10 \pm 0,14	ω 6/ ω 3	10,37 \pm 0,83
Oleic acid	72,11 \pm 1,17	Behenic acid	0,07 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of grass and tomato, read sensations of almond and artichoke. Balanced taste sensation with a medium-bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	169 - 177	208 - 212	210 - 214	124 - 144	136 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	154 - 154	108 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 72-76.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Tondina ”

(synonymy: *Amaro, Roggianella, Roggianese, Spezzanota, Vernile, etc.*)

Areal distribution or origin area: **Calabria**

Flesh/pit weight ratio: **high** ($7,54 \pm 0,92$)

Oil content (%): **low** ($39,70 \pm 0,88$)

Purpose: **oil**



Morphological characters

Tree characters

Vigour: **strong**

Growth habit: **spreading-erect**

Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** ($5,23 \pm 0,44$)

Blade width (cm): **medium** ($1,13 \pm 0,12$)

Shape (length/width): **elliptic - lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,02 \pm 1,34$)

Number of flowers: **medium** ($19,38 \pm 2,57$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,60 \pm 0,26$)

Shape (length/width): **spherical**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **rounded**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,37 \pm 0,05$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **pointed**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	4,75 \pm 3,09	Lignoceric acid	0,07 \pm 0,06
Palmitic acid	12,40 \pm 0,78	Linolenic acid (ω 3)	0,89 \pm 0,18		
Palmitoleic acid	1,31 \pm 0,27	Arachic acid	0,29 \pm 0,16	Unsat./saturated	5,93 \pm 0,38
Stearic acid	1,59 \pm 0,34	Eicosenoic acid	0,19 \pm 0,14	ω 6/ ω 3	5,11 \pm 2,41
Oleic acid	77,11 \pm 3,31	Behenic acid	0,08 \pm 0,03		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with read sensations of almond, grass and artichoke. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 179	208 - 222	214 - 214	126 - 144	159 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
150 - 150	143 - 143	166 - 182	143 - 182	205 - 232	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp:17.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortic-Amsterdam*, (2010), 126: pp. 324-329.

“ Tortiglione ”

Areal distribution or origin area: **Abruzzo**
 Flesh/pit weight ratio: **high** ($9,47 \pm 0,37$)
 Oil content (%): **medium** ($41,86 \pm 2,07$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **erect – spreading**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($4,87 \pm 0,65$)
 Blade width (cm): **medium** ($1,21 \pm 0,15$)
 Shape (length/width): **elliptic - lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,66 \pm 2,81$)
 Number of flowers: **low** ($17,39 \pm 2,58$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,69 \pm 0,27$)
 Shape (length/width): **spherical**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **low** ($0,20 \pm 0,04$)
 Shape (length/width): **ovoid**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	9,45 \pm 0,50	Lignoceric acid	0,04 \pm 0,01
Palmitic acid	10,90 \pm 0,87	Linolenic acid (ω 3)	0,88 \pm 0,01		
Palmitoleic acid	0,85 \pm 0,21	Arachic acid	0,43 \pm 0,11	Unsat./saturated	6,47 \pm 0,79
Stearic acid	2,19 \pm 0,40	Eicosenoic acid	0,16 \pm 0,19	ω 6/ ω 3	10,73 \pm 0,72
Oleic acid	74,46 \pm 1,93	Behenic acid	0,10 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of aromatic herbs. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	179 - 181	208 - 212	214 - 224	124 - 126	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	166 - 166	177 - 177	154 - 210	220 - 243	

References:

- 1 - Pietrangeli E., Russo A., In: *Olivi D'Abruzzo*, Grafiche di Prinzi (1997), pp. 32-33.
- 2 - Muzzalupo I., Salimonti A., Caravita M. A., et al. *Adv. Hort. Sci.* (2008), 22(2): pp. 129-135.

“ Toscanina ”

(synonymy: *Oliva a grappa*)

Areal distribution or origin area: **Puglia**

Flesh/pit weight ratio: **low** ($4,51 \pm 0,61$)

Oil content (%): **medium** ($39,79 \pm 0,02$)

Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**

Growth habit: **spreading**

Canopy-density: **medium-dense**



Leaf characters

Blade length (cm): **medium** ($5,44 \pm 0,80$)

Blade width (cm): **medium** ($1,47 \pm 0,27$)

Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **medium** ($3,14 \pm 0,58$)

Number of flowers: **medium** ($16,62 \pm 1,87$)

Fruit characters

Fresh weight of 100 fruits (g): **low** ($1,78 \pm 0,27$)

Shape (length/width): **spherical**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **tenuous**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,30 \pm 0,04$)

Shape (length/width): **ovoid**

Mucron: **absent**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **pointed**

Base: **rounded**

Surface: **rugose**

Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	3,53 \pm 0,70	Lignoceric acid	0,04 \pm 0,03
Palmitic acid	11,02 \pm 0,56	Linolenic acid ($\omega 3$)	0,76 \pm 0,02		
Palmitoleic acid	1,17 \pm 0,12	Arachic acid	0,32 \pm 0,12	Unsat./saturated	6,74 \pm 0,30
Stearic acid	1,51 \pm 0,14	Eicosenoic acid	0,17 \pm 0,26	$\omega 6/\omega 3$	4,63 \pm 0,78
Oleic acid	8,24 \pm 1,27	Behenic acid	0,09 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and grass, read sensations of soft fruits. Balanced taste sensation with a medium-high bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 198	177 - 181	218 - 218	210 - 214	124 - 144	150 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 177	161 - 182	164 - 164	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 97-100.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Tunnulidda ”

(synonymy: Marsalesa, Marsalese, Marsalisa, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** (5,93 ± 1,02)
 Oil content (%): **medium** (49,72 ± 1,28)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** (5,52 ± 0,44)
 Blade width (cm): **medium** (1,40 ± 0,19)
 Shape (length/width): **elliptic**

Inflorescence characters

Inflorescence length (cm): **medium** (2,72 ± 0,11)
 Number of flowers: **low** (15,73 ± 2,57)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (3,72 ± 0,29)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **absent**
 Lenticels: **few and large**

Pit characters

Weight of 100 pits (g): **high** (0,54 ± 0,05)
 Shape (length/width): **ovoid**
 Mucron: **abvius**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **smooth**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	9,47 \pm 0,81	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	7,19 \pm 1,23	Linolenic acid ($\omega 3$)	0,86 \pm 0,04		
Palmitoleic acid	0,96 \pm 0,72	Arachic acid	0,25 \pm 0,05	Unsat./saturated	9,21 \pm 0,06
Stearic acid	2,35 \pm 1,16	Eicosenoic acid	0,03 \pm 0,00	$\omega 6/\omega 3$	11,07 \pm 1,44
Oleic acid	77,86 \pm 2,49	Behenic acid	0,06 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with hints of almond and read sensations of grass and artichoke. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
172 - 182	169 - 181	208 - 212	214 - 214	126 - 144	159 - 184
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	182 - 182	205 - 205	

References:

- 1 - Bottari V., Spina P. In: *Le varietà di olivo coltivate in Sicilia*, Ann. Sper. Agr. (1953), 7: pp. 937-1004.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Vaddara ”

(synonymy: *Agghiarica, Gaddarica, Gallarichi, Vaddarica, etc.*)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** (5,42 ± 1,11)
 Oil content (%): **medium** (40,84 ± 2,84)
 Purpose: **table**



Morphological characters

Tree characters

Vigour: **medium-strong**
 Growth habit: **erect-spreading**
 Canopy-density: **medium-dense**

Leaf characters

Blade length (cm): **medium** (5,02 ± 1,06)
 Blade width (cm): **medium** (1,31 ± 0,25)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **short** (2,14 ± 0,49)
 Number of flowers: **medium** (19,44 ± 3,18)

Fruit characters

Fresh weight of 100 fruits (g): **medium** (3,37 ± 0,54)
 Shape (length/width): **ovoid**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards base
 Apex: **pointed**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and large**



Pit characters

Weight of 100 pits (g): **high** (0,53 ± 0,09)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid (ω 6)	19,14 \pm 5,05	Lignoceric acid	0,08 \pm 0,01
Palmitic acid	15,41 \pm 2,44	Linolenic acid (ω 3)	0,74 \pm 0,06		
Palmitoleic acid	3,17 \pm 1,27	Arachic acid	0,32 \pm 0,01	Unsat./satured	4,57 \pm 0,64
Stearic acid	1,73 \pm 0,12	Eicosenoic acid	0,25 \pm 0,07	ω 6/ ω 3	25,84 \pm 4,63
Oleic acid	55,68 \pm 4,84	Behenic acid	0,11 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium, with taste of aromatic herbs. Balanced taste sensation with medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 198	179 - 179	208 - 212	210 - 214	124 - 124	157 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	177 - 193	154 - 182	164 - 205	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 182-186.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Vallanella ”

(synonymy: *Vallanella Ravebianca*)

Areal distribution or origin area: **Lazio**
 Flesh/pit weight ratio: **medium** ($6,11 \pm 2,83$)
 Oil content (%): **medium** ($44,29 \pm 1,80$)
 Purpose: **dual purpose**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-dense**



Leaf characters

Blade length (cm): **long** ($7,02 \pm 0,42$)
 Blade width (cm): **medium** ($1,49 \pm 0,15$)
 Shape (length/width): **elliptic-lanceolata**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,76 \pm 1,63$)
 Number of flowers: **low** ($15,50 \pm 4,27$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,93 \pm 1,99$)
 Shape (length/width): **ovoid**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **obvious**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **high** ($0,57 \pm 0,08$)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	8,48 \pm 2,12	Lignoceric acid	0,03 \pm 0,01
Palmitic acid	10,35 \pm 0,68	Linolenic acid ($\omega 3$)	0,98 \pm 0,12		
Palmitoleic acid	0,42 \pm 0,05	Arachic acid	0,48 \pm 0,15	Unsat./saturated	6,77 \pm 0,89
Stearic acid	2,32 \pm 0,83	Eicosenoic acid	0,28 \pm 0,25	$\omega 6/\omega 3$	8,90 \pm 3,27
Oleic acid	76,60 \pm 0,89	Behenic acid	0,10 \pm 0,01		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium - light, with hints of almond and artichoke. Balanced in flavours, with hints of bitter and spicy medium intensity, medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 206	173 - 175	208 - 212	214 - 224	130 - 144	170 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 193	143 - 210	213 - 232	

References:

- 1 - Parlato M. V., Pandolfi S. In: *Olivo e Olio*, (2001), 4: pp. 67-72.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Verdello ”

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** ($6,03 \pm 0,08$)
 Oil content (%): **medium** ($50,35 \pm 0,26$)
 Purpose: **oil**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading-erect**
 Canopy-density: **medium**

Leaf characters

Blade length (cm): **short** ($4,51 \pm 0,44$)
 Blade width (cm): **narrow** ($0,95 \pm 0,12$)
 Shape (length/width): **elliptic – lanceolate**

Inflorescence characters

Inflorescence length (cm): **medium** ($2,97 \pm 1,56$)
 Number of flowers: **medium** ($21,78 \pm 3,48$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($2,39 \pm 0,45$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **tenuous**
 Lenticels: **many and small**

Pit characters

Weight of 100 pits (g): **medium** ($0,30 \pm 0,01$)
 Shape (length/width): **elliptic**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	13,05 \pm 1,38	Lignoceric acid	0,04 \pm 0,02
Palmitic acid	13,12 \pm 0,67	Linolenic acid (ω 3)	0,91 \pm 0,07		
Palmitoleic acid	0,88 \pm 0,17	Arachic acid	0,30 \pm 0,03	Unsat./saturated	5,58 \pm 0,44
Stearic acid	1,78 \pm 0,34	Eicosenoic acid	0,16 \pm 0,18	ω 6/ ω 3	14,40 \pm 1,86
Oleic acid	68,98 \pm 1,88	Behenic acid	0,09 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with taste of artichoke and almond, read sensations of grass and leaves. Balanced taste sensation with medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	181 - 181	212 - 222	210 - 214	124 - 126	159 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	150 - 150	166 - 166	143 - 143	170 - 220	

References:

- 1 - Caruso T., Cartabellotta D., Motisi A., et al. In: *Cultivar di olivo siciliane*, Università degli Studi di Palermo (2007), pp. 124-128.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Vocio ”

(synonymy: *Corniolo da curare, Corniolo dolce, Olivo da pasto, Olivoce, Voce, etc.*)

Areal distribution or origin area: **Umbria**

Flesh/pit weight ratio: **high** ($7,76 \pm 0,49$)

Oil content (%): **medium** ($45,82 \pm 0,08$)

Purpose: **dual purpose**



Morphological characters

Tree characters

Vigour: **medium-weak**

Growth habit: **erect-spreading**

Canopy-density: **medium**

Leaf characters

Blade length (cm): **medium** ($5,45 \pm 0,47$)

Blade width (cm): **medium** ($1,20 \pm 0,17$)

Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **medium** ($2,55 \pm 1,07$)

Number of flowers: **low** ($15,17 \pm 1,54$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,86 \pm 0,29$)

Shape (length/width): **spherical**

Symmetry: **symmetric**

Position of maximum transverse diameter:

central

Apex: **rounded**

Base: **truncate**

Nipple: **absent**

Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** ($0,44 \pm 0,01$)

Shape (length/width): **ovoid**

Mucron: **obvious**

Symmetry: **slightly asymmetric**

Position of maximum transverse diameter:

towards apex

Apex: **rounded**

Base: **truncate**

Surface: **rugose**

Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid ($\omega 6$)	18,38 \pm 0,56	Lignoceric acid	0,08 \pm 0,01
Palmitic acid	14,42 \pm 0,49	Linolenic acid ($\omega 3$)	0,66 \pm 0,02		
Palmitoleic acid	1,23 \pm 0,04	Arachic acid	0,39 \pm 0,03	Unsat./saturated	4,81 \pm 0,14
Stearic acid	2,13 \pm 0,04	Eicosenoic acid	0,35 \pm 0,04	$\omega 6/\omega 3$	28,05 \pm 0,06
Oleic acid	60,80 \pm 0,07	Behenic acid	0,15 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of almond, grass and artichoke, read sensations of leaves. Balanced taste sensation with a medium bitter and spicy. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 206	177 - 181	214 - 214	214 - 214	130 - 144	150 - 157
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	143 - 143	166 - 177	161 - 205	205 - 213	

References:

- 1 - Pannelli G., Alfei B., D' Ambrosio A., et al. In: *Varietà di olivo in Umbria*, Ed. Pliniana (2000), pp. 1-6.
- 2 - Muzzalupo I., Stefanizzi F., Bucci C., et al. In *Acta Italus Hortus*, (2011), 1: 138 -140.

“ Zaituna ”

(synonymy: *Saracena*, *Saracinesca*, *Siracusana*, *Verdisi*, *Zaituni*, etc.)

Areal distribution or origin area: **Sicilia**
 Flesh/pit weight ratio: **medium** ($6,24 \pm 1,60$)
 Oil content (%): **medium** ($49,05 \pm 1,59$)
 Purpose: **table**

Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **erect**
 Canopy-density: **sparse**



Leaf characters

Blade length (cm): **medium** ($5,56 \pm 0,45$)
 Blade width (cm): **medium** ($1,27 \pm 0,11$)
 Shape (length/width): **elliptic-lanceolate**



Inflorescence characters

Inflorescence length (cm): **short** ($2,35 \pm 1,50$)
 Number of flowers: **low** ($12,58 \pm 2,70$)

Fruit characters

Fresh weight of 100 fruits (g): **high** ($4,00 \pm 1,99$)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **high** ($0,54 \pm 0,18$)
 Shape (length/width): **ovoid**
 Mucron: **absent**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,03 \pm 0,01	Linoleic acid (ω 6)	3,92 \pm 1,37	Lignoceric acid	0,06 \pm 0,01
Palmitic acid	11,44 \pm 0,77	Linolenic acid (ω 3)	0,84 \pm 0,13		
Palmitoleic acid	0,68 \pm 0,13	Arachic acid	0,24 \pm 0,05	Unsat./saturated	6,19 \pm 0,25
Stearic acid	2,05 \pm 0,50	Eicosenoic acid	0,04 \pm 0,02	ω 6/ ω 3	4,60 \pm 0,91
Oleic acid	79,77 \pm 0,79	Behenic acid	0,11 \pm 0,08		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with good sensation of grass, artichoke, almond and tomato. Balanced in flavours, with hints of bitter and spicy medium-high intensity. Medium-high fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed. For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
182 - 206	177 - 177	212 - 212	214 - 214	124 - 144	150 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
140 - 140	150 - 150	166 - 193	182 - 182	108 - 108	

References:

- 1 - Bottari V., Spina P. In: *Le varietà di olivo coltivate in Sicilia*, Ann. Sper. Agr. (1953), 7: pp. 937-1004.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience*, (2009), 44: pp. 582-588.

“ Zimbimbo ”

(synonymy: Nzimbibolo)

Areal distribution or origin area: **Puglia**
 Flesh/pit weight ratio: **medium** (5,66 ± 1,34)
 Oil content (%): **medium** (39,72 ± 1,98)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **strong**
 Growth habit: **spreading-erect**
 Canopy-density: **dense**

Leaf characters

Blade length (cm): **medium** (5,54 ± 0,36)
 Blade width (cm): **broad** (1,62 ± 0,16)
 Shape (length/width): **elliptic**



Inflorescence characters

Inflorescence length (cm): **short** (2,13 ± 0,38)
 Number of flowers: **low** (13,92 ± 0,96)

Fruit characters

Fresh weight of 100 fruits (g): **low** (2,00 ± 0,32)
 Shape (length/width): **ovoid**
 Symmetry: **slightly asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **rounded**
 Nipple: **tenuous**
 Lenticels: **many and small**



Pit characters

Weight of 100 pits (g): **medium** (0,35 ± 0,04)
 Shape (length/width): **elliptic**
 Mucron: **obvious**
 Symmetry: **asymmetric**
 Position of maximum transverse diameter:
central
 Apex: **pointed**
 Base: **pointed**
 Surface: **rugose**
 Number of grooves: **low**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,01	Linoleic acid ($\omega 6$)	10,88 \pm 1,12	Lignoceric acid	0,07 \pm 0,00
Palmitic acid	12,68 \pm 1,28	Linolenic acid ($\omega 3$)	0,53 \pm 0,06		
Palmitoleic acid	2,41 \pm 0,54	Arachic acid	0,24 \pm 0,04	Unsat./saturated	5,97 \pm 0,55
Stearic acid	1,12 \pm 0,06	Eicosenoic acid	0,29 \pm 0,02	$\omega 6/\omega 3$	20,61 \pm 4,53
Oleic acid	69,35 \pm 1,10	Behenic acid	0,07 \pm 0,02		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: fruity medium-high, with hints of artichoke, read sensations of grass, tomato and almond. Balanced taste sensation with a medium bitter and spicy. Medium fluidity.



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
198 - 198	177 - 179	208 - 218	214 - 224	124 - 144	157 - 170
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	135 - 135	177 - 182	182 - 182	108 - 108	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Contributo alla caratterizzazione del germoplasma olivicolo pugliese*, Ist. Sper. Oliv. (2004), pp. 101-104.
- 2 - Muzzalupo I., Stefanizzi F., Perri E. *HortScience* (2009), 44: pp. 582-588.

“ Zinzifarica ”

(synonymy: Zinzolarica, Zuzufarica.)

Areal distribution or origin area: **Calabria**
 Flesh/pit weight ratio: **high** ($7,74 \pm 2,23$)
 Oil content (%): **medium** ($48,22 \pm 0,18$)
 Purpose: **oil**



Morphological characters

Tree characters

Vigour: **medium**
 Growth habit: **spreading**
 Canopy-density: **medium-sparse**

Leaf characters

Blade length (cm): **medium** ($5,25 \pm 0,63$)
 Blade width (cm): **medium** ($1,13 \pm 0,07$)
 Shape (length/width): **elliptic – lanceolate**



Inflorescence characters

Inflorescence length (cm): **short** ($2,37 \pm 1,26$)
 Number of flowers: **low** ($16,21 \pm 1,88$)

Fruit characters

Fresh weight of 100 fruits (g): **medium** ($3,92 \pm 0,08$)
 Shape (length/width): **spherical**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
central
 Apex: **rounded**
 Base: **truncate**
 Nipple: **absent**
 Lenticels: **few and small**



Pit characters

Weight of 100 pits (g): **high** ($0,47 \pm 0,11$)
 Shape (length/width): **ovoid**
 Mucron: **tenuous**
 Symmetry: **symmetric**
 Position of maximum transverse diameter:
towards apex
 Apex: **rounded**
 Base: **rounded**
 Surface: **scabrous**
 Number of grooves: **medium**



Biochemical Characters

Fatty Acid Composition

Table 1. Average values (express in % \pm standard deviations) of the fatty acids methyl esters and nutritional ratios obtained from single cultivar olive oils.

Myristic acid	0,01 \pm 0,00	Linoleic acid (ω 6)	14,66 \pm 1,55	Lignoceric acid	0,05 \pm 0,03
Palmitic acid	12,60 \pm 0,50	Linolenic acid (ω 3)	0,75 \pm 0,03		
Palmitoleic acid	0,11 \pm 0,01	Arachic acid	0,32 \pm 0,06	Unsat./satured	5,77 \pm 0,25
Stearic acid	1,84 \pm 0,12	Eicosenoic acid	0,11 \pm 0,18	ω 6/ ω 3	19,63 \pm 2,54
Oleic acid	68,34 \pm 1,98	Behenic acid	0,10 \pm 0,04		



Organoleptic oil values

Sensory Analysis (Panel test)

Comment: **fruity medium, with read sensations of aromatic herb and leaves. Balanced taste sensation with medium bitter and spicy. Medium fluidity.**



Molecular Markers



Table 2. Microsatellites (SSR) loci analyzed.

For each locus the allele size (expressed in base pairs) is reported.

<i>DCA09</i>	<i>DCA18</i>	<i>GAPU59</i>	<i>GAPU71A</i>	<i>GUPA71B</i>	<i>GAPU103A</i>
162 - 198	177 - 179	212 - 222	214 - 214	126 - 144	150 - 159
<i>UDO01</i>	<i>UDO03</i>	<i>UDO12</i>	<i>UDO28</i>	<i>UDO39</i>	
144 - 144	143 - 143	177 - 177	143 - 182	205 - 205	

References:

- 1 - Lombardo N., Perri E., Muzzalupo I., et al. In: *Il germoplasma olivicolo calabrese*, Ist. Sper. Oliviv. (2003), pp: 24.
- 2 - Perri E., Mazzotti F., Muzzalupo I., et al. In: *Relazione attività*, CO.R.ASS.OL. (2003).
- 3 - Muzzalupo I., Chiappetta A., Benincasa C., et al *Sci Hortic-Amsterdam*, (2010), 126: pp. 324-329.