

## Nutritional and physicochemical analysis of quince from Cova da Beira region: similarities, differences and particularities

Guido R. Lopes<sup>1</sup>, [Ana Martins](mailto:ana.martins@cataa.pt)<sup>1\*</sup>, Alexandra Camelo<sup>1</sup>, Ana Rodrigues<sup>1</sup>, António Rodrigues<sup>1</sup>, Helena Beato<sup>1</sup>, Luísa Paulo<sup>1</sup>, Mafalda Resende<sup>1</sup>, Mário Cristovão<sup>1</sup>, Marlene Mota<sup>1</sup>, Christophe Espírito Santo<sup>1,2</sup>

<sup>1</sup> CATAA - Associação Centro de Apoio Tecnológico Agro-Alimentar, Castelo Branco, Portugal

<sup>2</sup> CFE - Centro de Ecologia Funcional, Departamento de Ciências da Vida, Universidade de Coimbra, Coimbra, Portugal

\*[ana.martins@cataa.pt](mailto:ana.martins@cataa.pt)

Quince, a fruit from the autumn season of the quince tree (*Cydonia oblonga* Miller), has a considerable nutritional value (e.g., pectin, vitamins C and B complex, minerals or chlorogenic acids). On the other hand, this fruit is characterized by having a hard, rough-looking pulp with a bitter and astringent taste. Since quince is not consumed raw, is mainly used in the production of jams and marmalades. Despite being easy to grow and weather resistant, its production is often neglected and undervalued. Thus, the study objective was to value quinces from the Cova da Beira region by the physicochemical and nutritional characterization, substantiating by how different production years and localization affect quince varieties properties.

In this study, a nutritional analysis was made (moisture, protein, fat, ash, fiber, sugars – sucrose, glucose, fructose, and minerals – calcium, copper, iron, phosphorus, magnesium, manganese, potassium, sodium, zinc, n= 10) and quality/physicochemical (weight, size, color (CIE L\*a\*b\*), total soluble solids, pH, acidity and texture – hardness, elasticity, resilience, cohesiveness and chewability, n=100) of the three quince varieties (Gigante de Vranja, Portugal and Galega) harvested in 2020 and 2021 in the Cova da Beira region (two different locations).

Overall, Cova da Beira Quinces had a composition 75.3-82.4% of water (g/100g), 14.8-21.6% of carbohydrates, 1.7-2.4% of fiber and 0.3-0.5% of ashes, considering the different varieties and production years. However, the studied varieties showed significant differences in most parameters depending on the variety, location and production year. The principal components analysis allowed to highlight the composition of minerals as well as the sugar content and profile, as differentiating parameters. On the other hand, the sample grouping with identical nutritional composition does not seem to be related to the fact that they come from the same growing place or variety. The analysis of the two years' cultivation showed that the samples continued to be grouped in a similar way, revealing a lower influence of this variable. As for the physicochemical analysis, quinces had significant differences mainly in the color, in the soluble solids content and in the texture. Thus, here were able to show that Cova da Beira Quince's present variability in terms of composition depending on the variety, place and year, which can be explored for new quince product applications.

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