

Proximate composition of traditional vegetable and fruit based foods from Black Sea Area countries

Helena S. Costa¹, Tânia G. Albuquerque¹, Tânia Fontes¹, Carla Mota¹, Effie Vasilopoulou², Filippo D'Antuono³, Iordanka Alexieva⁴, Osman Hayran⁵, Leonid Kaprelyants⁶, Dmitry Karpenko⁷, Zaza Kilasonia⁸, Andriy Pauk⁹, Alexandru L. Stroia¹⁰, Paul Finglas¹¹

¹ Food and Nutrition Department, National Institute of Health Dr. Ricardo Jorge, I.P., Av. Padre Cruz, 1649-016 Lisboa, Portugal; ² Dept. of Hygiene, Epidemiology & Medical Statistics, Medical School, University of Athens, Greece; ³ Campus of Food Science, Cesena, University of Bologna, Italy; ⁴ University of Food Technologies, Plovdiv, Bulgaria; ⁵ T C Yeditepe University, Istanbul, Turkey; ⁶ Department of Nutrition, Odessa National Academy of Food Technologies, Odessa, Ukraine; ⁷ State Educational Institution of the High Professional Education "Moscow State University of Food Productions", Russian Federation; ⁸ Elkana, Biological Farming Association, Tbilisi, Georgia; ⁹ UzhNU (Uzhhorod National University), Uzhhorod, Ukraine; ¹⁰ The Bucharest Academy of Economic Studies, Bucharest, Romania; ¹¹ Institute of Food Research, Norwich Research Park, Colney, Norwich, NR47UA, United Kingdom



BACKGROUND

In the last years, there has been an increased consumers interest and demand for traditional foods, which have an important role in diet. In fact, traditional foods can be a valuable contribution to the development and economic sustainability of rural areas and the preservation of biodiversity. Within the frame of the European Project BaSeFood (Sustainable Exploitation of Bioactive Components Black Sea Area traditional foods), thirty-three traditional foods from six Black Sea Area countries (Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine) were selected and prepared according to the traditional recipe, ingredients and traditional preparation methods [1]. The list of components for the nutritional composition of each traditional food were prioritised on the basis of (1) Inclusion relevant data in national food composition databases; (2) the most relevant components to be analysed for each composite food and (3) their importance in relation to the increased risk of diet-related chronic diseases. The prioritised list of components to be analyzed includes: water, ash, total nitrogen (for protein), total fat, saturated fatty acids (SFA), monounsaturated fatty acids (MUFA), polyunsaturated fatty acids (PUFA), cholesterol, total starch, total sugars, total dietary fibre, minerals and trace elements (Na, Fe, Zn, Se), vitamins A, E, C, B₂ and total folate. The aim of this study was to determine the proximate composition in traditional vegetable and fruit based recipes from Black Sea Area countries, in the frame of the European Project BaSeFood.

MATERIALS AND METHODS

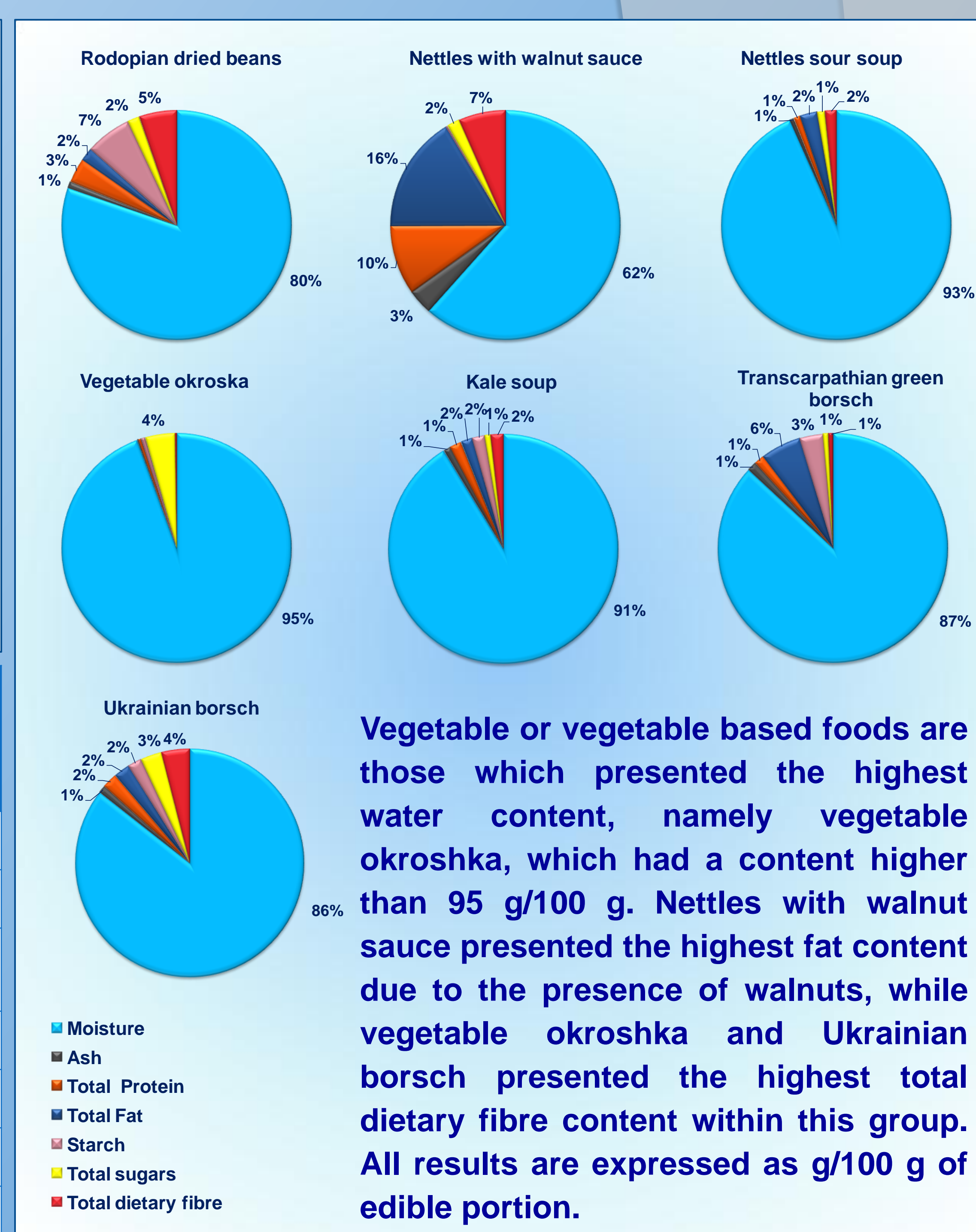
RESULTS AND DISCUSSION

VEGETABLE OR VEGETABLE BASED FOODS



Figure 1. Selected traditional foods from Black Sea Area countries. (A) Rodopian dried beans; (B) Nettles with walnut sauce; (C) Nettle sour soup; (D) Vegetable okroshka; (E) Kale soup; (F) Transcarpathian green borsch and (G) Ukrainian borsch

Traditional Food (English name)	Traditional Food (National language)	Food description
Rodopian dried beans	<i>Rodopski fasul</i>	A bean soup with a characteristic taste
Nettles with walnut sauce	<i>Chinchris mkhali nigvzit</i>	A meal of boiled stinging nettle seasoned with walnut
Nettle sour soup	<i>Ciorbă de urzici</i>	A liquid dish consisting of a sour soup made from fermented wheat bran, vegetables and green nettle leaves harvested from young plants
Vegetable okroshka	<i>Овощная окрошка</i>	A cold soup with shredded vegetables and bread kvass
Kale soup	<i>kara lahana corbasi</i>	Vegetable soup
Transcarpathian green borsch	<i>Zelenyj borshch Zakarpats'kyj</i>	Thick vegetable soup with sorrel, served with smoked meat
Ukrainian borsch	<i>Борщ український пісний</i>	A mildly tart vegetable soup in which beets predominate

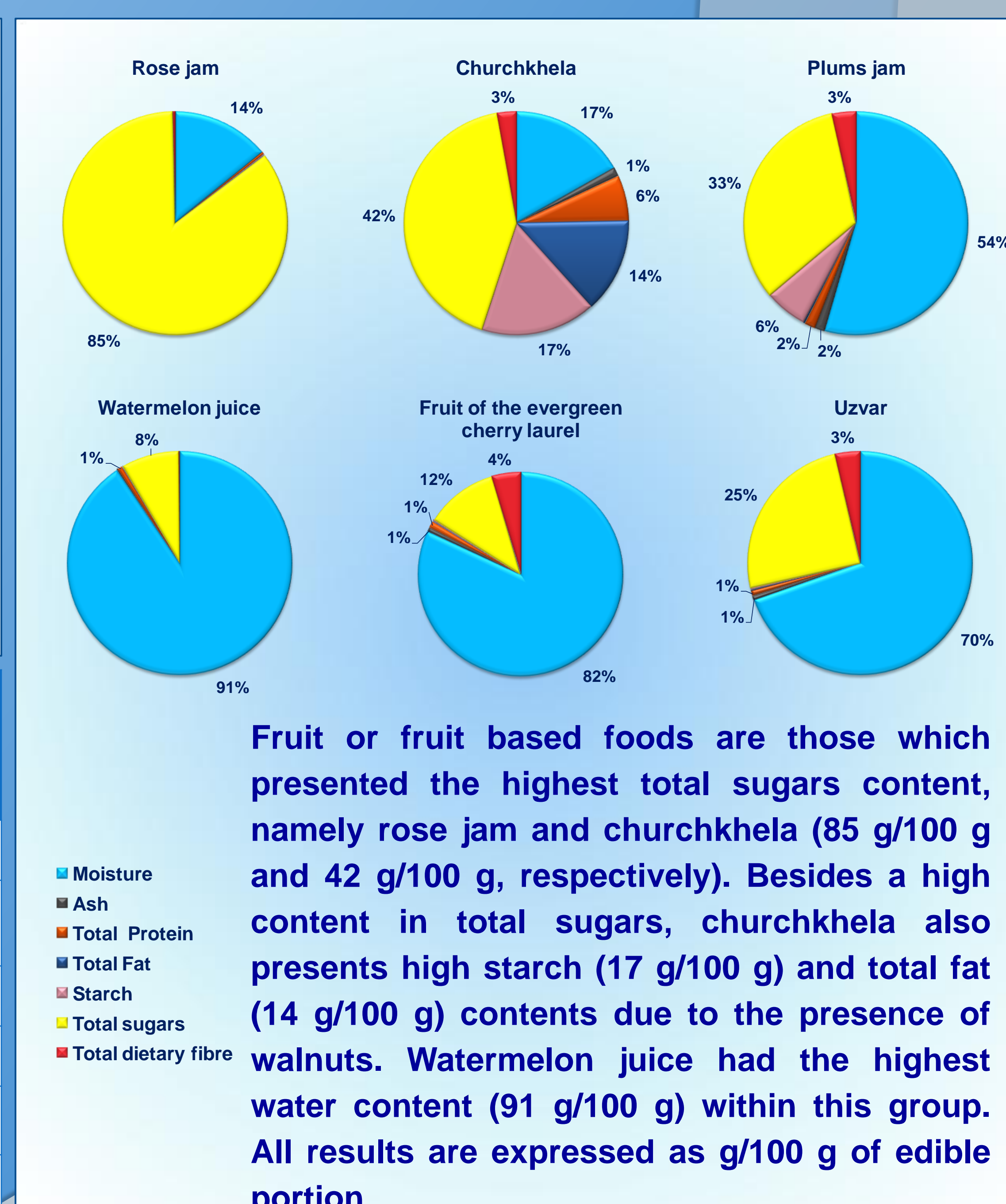


FRUIT OR FRUIT BASED FOODS



Figure 2. Selected traditional foods from Black Sea Area countries. (A) Rose jam; (B) Churchkhela; (C) Plums jam; (D) Fruit of the evergreen cherry laurel; (E) Watermelon juice and (F) Uzvar

Traditional Food (English name)	Traditional Food (National language)	Food description
Rose jam	<i>Dko ot rozi</i>	Sweet thick syrup with rose petals (<i>Rosa damascena</i> Mill.)
Churchkhela	<i>Churchkhela</i>	Traditional dish made of walnuts sewn onto a string, dipped in thickened grape juice and dried in the shape of a sausage
Plums jam	<i>Magiun de prune</i>	A traditional plum paste, obtained by boiling the plums without sugar
Watermelon juice	<i>Арбузний сок</i>	Watermelon juice with pulp
Fruit of the evergreen cherry laurel	<i>Karayemiş</i>	<i>Prunus laurocerasus</i> L.
Uzvar	<i>Узвар</i>	Boiled desiccated fruits in large quantities of water



CONCLUSION

The proximate composition of the selected traditional foods from Black Sea Area countries is important in order to elucidate their role in the dietary pattern of populations. The analysed samples present a high moisture and low fat contents. Foods with high water content are usually low in calories. Therefore, vegetable and fruit based traditional foods are not energy dense foods, while they are considered rich in other essential nutrients.

ACKNOWLEDGEMENTS

The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n.º 227118.

REFERENCES

[1] D'Antuono L.F., Soares Costa H., Sanches-Silva A. (2010). BaSeFood: Sustainable exploitation of bioactive components from the Black Sea Area traditional foods. Nutrition Bulletin, 35, 272-278