**FATTY ACIDS COMPOSITION AND TOTAL FAT CONTENT IN TRADITIONAL FOODS FROM BLACK SEA AREA COUNTRIES**

Tânia Gonçalves Albuquerque,a,b Ana Sanches-Silva,a Paul Finglas,b Filippo D’Antuono,c Antonia Trichopoulou,d Iordanka Alexieva,a Nadiya Boyko,a Carmen Costea,a Katerina Fedosova,b Dmitry Karpenko,b Zaza Kilasonia,b T C Yeditepe University, Istanbul, Turkey

a Department of Food and Nutrition, National Institute of Health Dr. Ricardo Jorge, L.P., Lisbon, Portugal; b REQUEMTE/Faculdade de Farmácia da Universidade do Porto, Porto, Portugal; c Institute of Food Research, Norwich, UK; d Food Science University Campus, University of Bologna, Cesena, Italy; e Department of Hygiene, Epidemiology & Medical Statistics, Medical School, National and Kapodistrian University of Athens, Athens, Greece; f University of Food Technologies, Plovdiv, Bulgaria; g UzNBU (Uzhhorod National University), Ukraine; i ASE Bucharest, Romania; j Department of Nutrition, Odessa National Academy of Food Technologies, Odessa, Ukraine; k State Educational Institution of the High Professional Education “Moscow State University of Food Productions”, Moscow, Russian Federation; l Elkana, Biological Farming Association, Tbilisi, Georgia; m T C Yeditepe University, Istanbul, Turkey

E-mail: tania.albuquerque@insa.min-sauve.pt

**INTRODUCTION**

Traditional foods from 6 Black Sea Area Countries (Bulgaria, Georgia, Romania, Russian Federation, Turkey and Ukraine) were prioritized within the frame of the European Project BaSeFood (Sustainable Exploitation of Bioactive Components Black Sea Area traditional foods)1) One of the aims within BaSeFood project was to produce an overview of the nutritional value of each traditional food and compare it among the categorized food groups.

**OBJECTIVES**

The overall objective of this study was to determine the total fat content and fatty acids (FA) composition among 33 traditional foods (Fig. 1) from six Black Sea Area countries (BSAC).

**SELECTED TRADITIONAL FOODS**

- **BULGARIA**
  - (A) Baked layers of pastry stuffed with pumpkin; (B) Halva; (C) Millet ale; (D) Mural tea; (E) Redopan dried beans; (F) Rose jam
- **GEORGIA**
  - (A) Nettles with walnut; (B) Taiseli dol; bread; (C) Churchkhela; (D) Plax oil; (E) Wild plum sauce
- **ROMANIA**
  - (A) Commeal mush; (B) Nettle sour soup; (C) Herbal dish; (D) Elderberry soft drink; (E) Plums jam
- **RUSSIAN FEDERATION**
  - (A) Buckwheat porridge country; (B) Kvass southern; (C) Watermelon juice; (D) Mustard oil; (E) Vegetable oitroshka
- **TURKEY**
  - (A) Black loc; (B) Bulgar pild; (C) Fruit of the evergreen cherry laurel; (D) Sauteed pickled green beans; (E) Kale soup
- **UKRAINE**
  - (A) Saurkraut; (B) Ukrainian borsch; (C) Transcarpathian green borsch; (D) Roasted sunflower seeds; (E) Uzar; (F) Sour rye bread; (G) Cottage cheese with dill and garlic

**RESULTS**

Total fat content ranged between 0.136 g/100 g for Uzvar (Ukraine) and 99.9 g/100 g for flax oil and mustard oil (Fig. 4).

From the 33 analysed traditional foods, 27.3% had fat contents below the limit of quantification (<0.1 g/100 g).

**MATERIALS AND METHODS**

**33 Traditional Foods**

**Extraction/ transesterification**

- 2 – 10 g of sample
- 75 mL Ultra-pure water + 45 mL of HCl (Fig. 2A)
- Boiled for 20 min
- Filtered (Whitman n.4/40) (Fig. 2B)
- Extracted using a Soxlet with 75 mL petroleum ether (Fig. 2C)
- Residue was dried for 1 h 30 min at 100 ºC ± 2 ºC, until constant weight
- Centrifuged (5 min, 1500 rpm)

**DINITY ACIDS**

**Gas chromatography**

- Equipment: HP 6890 N
- Column: HP-8 (100 m x 0.25 mm I.D., 0.20 µm)
- Detector: MS
- Carrier gas: Helium
- Split: 50:1
- Injection volume: 1 µL


**REFERENCES**

**FINANCIAL SUPPORT**

This work was partially supported by the BaSeFood project. The study was also supported by a Research Project from the BaSeFood Project, within the framework of the European Project financed by the European Union’s Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 227718.

**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° 227718.

**CONCLUSION**

In general, there was a great variability of results with respect to the FA profile of the analysed traditional foods from BSAC, since there is a wide range of traditional foods from different countries and cultures. Some traditional foods from BSAC are a good source of unsaturated FA which are related to several health benefits.