New nutritional data on selected traditional foods from Black Sea area countries

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14th to 17th September 2011, Norwich, United Kingdom
Outline

BaSeFood Project

Traditional foods

Prioritisation of components

Selection of laboratories

Nutritional composition

Dissemination

Output and benefits
EuroFIR Network of Excellence
Coordinator – Paul Finglas

A story of success....

WP2.3.1 - Traditional Foods

Overall Objective: To provide new data on the nutritional composition of traditional foods in Europe for inclusion in national food composition tables with representative raw ingredients and recipes.
Sustainable exploitation of bioactive components from the Black Sea Area traditional foods (FP7-KBBE-227118)  
Coordinator - L. Filippo D’Antuono
Traditional Foods

Expression of culture, history and lifestyle

Key elements that differentiate dietary patterns of each country

Development and economic sustainability of rural areas

Preservation of biodiversity

Is a food of a specific feature or features, which distinguish it clearly from other similar products of the same category in terms of the use of “traditional ingredients” (raw materials or primary foods) or “traditional composition” or “traditional type of production and / or processing method”.

BaSeFood Project
2009-2012

To identify and characterise bioactive compounds in traditional food products that can be beneficial for human health and are typical for the diet of EU neighbouring regions.

EXPECTED IMPACT

To increase knowledge of nutrients, food components and/or bioactive compounds effects on human health, substantiating health and nutritional claims.

Enhance the cooperation between scientific disciplines and stakeholders (nutrition, practitioners, local food companies, etc.).

Assist EU food industry to increase its innovation potential and competitiveness, in particular regarding traditional foods and SMEs.
Work Packages

WP1
Surveying, recording and describing traditional foods

WP2
Bioactive components, nutritional and microbiological characterization of traditional foods

WP3
Health-promoting properties, absorption and bioactivity of target components

WP4
Technological-chain effects on bioactives in traditional foods

WP5
Chain development and consumer issues in health-promoting traditional foods

WP6
Dissemination

WP7
Management
Black Sea Area Countries (BSAC)

Bulgaria  Georgia  Romania  Russian Federation  Turkey  Ukraine

WP1 - Prioritisation of Traditional Foods

Cereal or cereal based foods

Fruit or fruit based foods

Vegetable or vegetable based foods

Herbs, spices and aromatic plants

Low or non-alcoholic fermented products

Oilseeds or oilseed products
Prioritisation of components and bioactive compounds

- Inclusion relevant data in national food composition databases
- Most relevant components to be analysed for each food
- Their importance in relation to the increased risk of diet-related chronic diseases

### Proximates
- Moisture, ash, total nitrogen (for protein), total fat (individual fatty acids, cholesterol), dietary fibre, total sugars and starch

### Vitamins
- Vitamin A (all-trans-retinol), vitamin C, vitamin E (α-tocopherol) and vitamin B$_2$ (riboflavin), total folate

### Minerals & trace elements
- Sodium, iron, zinc and selenium

### Bioactive compounds
- Phenolics, glucosinolates and carotenoids
Selection of laboratories

According to quality requirements

- Accredited laboratories
  - INSA, IFR

- Laboratories participating in Proficiency Testing schemes
  - Bioactive compounds
    - Laboratories that have expertise in quantifying these compounds
      - IFR, UNIBO
Nutritional composition of 33 Traditional Foods
## Cereal or cereal based foods

<table>
<thead>
<tr>
<th>Traditional Food (English name)</th>
<th>Traditional Food (National language)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baked layers of pastry stuffed with pumpkin</td>
<td>Tikvenik</td>
</tr>
<tr>
<td>Tsiteli Doli Bread</td>
<td>Makhobeliani dolis puri</td>
</tr>
<tr>
<td>Cornmeal mush</td>
<td>Mămăligă</td>
</tr>
<tr>
<td>Buckwheat porridge crumby</td>
<td>Каша гречневая рассыпчатая</td>
</tr>
<tr>
<td>Bulgur pilaf</td>
<td>Bulgur pilavî</td>
</tr>
<tr>
<td>Sour rye bread</td>
<td>Хліб житній</td>
</tr>
</tbody>
</table>

### Tsiteli doli bread
- A light blue tinged bread of oblong or oval shape, containing a small amount of floured makhobeli

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<table>
<thead>
<tr>
<th>Traditional Food (English name)</th>
<th>Traditional Food (National language)</th>
<th>Vegetable okroshka</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rodopian dried beans</td>
<td>Rodopski fasul</td>
<td>A cold soup with shredded vegetables and bread kvass.</td>
</tr>
<tr>
<td>Nettles with walnut sauce</td>
<td>Chinchris mkhali nigvzit</td>
<td></td>
</tr>
<tr>
<td>Nettle sour soup</td>
<td>Ciorbă de urzici</td>
<td></td>
</tr>
<tr>
<td>Vegetable okroshka</td>
<td>Овощная окрошка</td>
<td></td>
</tr>
<tr>
<td>Kale soup</td>
<td>kara lahana corbasi</td>
<td></td>
</tr>
<tr>
<td>Transcarpathian green borsch</td>
<td>Zelenyj borshch Zakarpats'kyj</td>
<td></td>
</tr>
<tr>
<td>Ukrainian borsch</td>
<td>Борщ український пісний</td>
<td></td>
</tr>
<tr>
<td>Traditional Food (English name)</td>
<td>Traditional Food (National language)</td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Rose jam</td>
<td>Dko ot rozi</td>
<td></td>
</tr>
<tr>
<td>Churchkhela</td>
<td>Churchkhela</td>
<td></td>
</tr>
<tr>
<td>Plums jam</td>
<td>Magiun de prune</td>
<td></td>
</tr>
<tr>
<td>Watermelon juice</td>
<td>Арбузный сок</td>
<td></td>
</tr>
<tr>
<td>Fruit of the evergreen cherry laurel</td>
<td>Karayemiş</td>
<td></td>
</tr>
<tr>
<td>Uzvar</td>
<td>Узвар</td>
<td></td>
</tr>
</tbody>
</table>

Fruit of evergreen cherry laurel

Prunus laurocerasus L.

- Moisture: 82%
- Ash: 4%
- Total Protein: 1%
- Total Fat: 1%
- Starch: 1%
- Total sugars: 1%
- Total dietary fibre: 1%
<table>
<thead>
<tr>
<th>Oilseeds or oilseed products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional Food (English name)</strong></td>
</tr>
<tr>
<td>Halva</td>
</tr>
<tr>
<td>Flax oil</td>
</tr>
<tr>
<td>Mustard oil</td>
</tr>
<tr>
<td>Roasted sunflower seeds</td>
</tr>
</tbody>
</table>

**Roasted sunflower seeds** *(Helianthus annuus L.)*

![Pie chart showing the composition of roasted sunflower seeds]

- **Moisture**: 11%
- **Ash**: 4%
- **Total Protein**: 3%
- **Total Fat**: 21%
- **Starch**: 57%
- **Total sugars**: 4%
- **Total dietary fibre**: 4%
<table>
<thead>
<tr>
<th>Traditional Food (English name)</th>
<th>Traditional Food (National language)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mursal tea</td>
<td>Mursalski chai</td>
</tr>
<tr>
<td>Wild plum sauce</td>
<td>Tkhemlis satsebeli</td>
</tr>
<tr>
<td>Herbal dish</td>
<td>Mâncărică de verdeață</td>
</tr>
<tr>
<td>Black tea</td>
<td>Çay</td>
</tr>
<tr>
<td>Pomazanka</td>
<td>Pomazanka</td>
</tr>
</tbody>
</table>

**Herbal dish**

- Onions, green dill, green parsley, mint leaves, sweet basil leaves, sage leaves, tomato paste, peppers paste, sunflower oil, salt, black peppercorns, wheat flour
### Low or non-alcoholic fermented products

<table>
<thead>
<tr>
<th>Traditional Food (English name)</th>
<th>Traditional Food (National language)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millet ale</td>
<td>Boza</td>
</tr>
<tr>
<td>Elderberry soft drink</td>
<td>Socata</td>
</tr>
<tr>
<td>Kvass southern</td>
<td>Квас южный</td>
</tr>
<tr>
<td>Sautéed pickled green beans</td>
<td>Fasulye турşusu кавурамası</td>
</tr>
<tr>
<td>Sauerkraut</td>
<td>Капуста білокацанна квашена</td>
</tr>
</tbody>
</table>

**Millet ale**

A thick, fermented cereal based beverage with a sourish or sweetish taste.
Value documentation

FCDB
Traditional Foods

- Food description
- Sampling plan
- Value and quality assessment
- Method specification
- Component identification
- Sample handling
More analytical results
BaSeFood - Dissemination

http://www.basefood-fp7.eu/

Newsletters
BaSeFood: sustainable exploitation of bioactive components from the Black Sea Area traditional foods

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Department of Nutrition and Functional Foods, University of Palermo, Italy
Department of Nutrition, University of Coimbra, Portugal

Summary

The Sustainable exploitation of bioactive components from the Black Sea Area traditional foods (BaSeFood) is a 3-year collaborative research programme, funded by the 7th Framework Programme, launched on the 1st of April 2009. The project, which is coordinated by Dr. Filippo D’Antonino (University of Bologna), consists of a research consortium of 13 partners, namely Italy (two), the United Kingdom, Greece, Portugal, Serbia and six Black Sea area countries: Russian Federation, Ukraine (two), Romania, Bulgaria, Turkey and Georgia. BaSeFood will contribute scientifically by studying the bioactive compounds within traditional foods of the Black Sea area using rigorous analytical and biological assays. The vast array of characteristics of traditional foods will be considered, as well as any associated consumer-perceived benefits, related to health claims, so that they can be properly understood by the consumer and exploited by food processors to produce more healthy traditional foods.

Keywords: BaSeFood, bioactive compounds, food composition databases, health claims, physicochemical, traditional foods

Introduction

Bioactive components are defined as ‘inherent non-nutrient constituents of foods with anticipated health-promoting/beneficial and/or toxic effects when ingested’ (Key et al. 2007, p. 434). The definition is rather dynamic and a list of components and associated properties is available in the literature (Goldberg 2001). Bioactive components are intrinsic, measurable characteristics of foods and food ingredients. These components have attracted the attention of scientists, opening an almost unlimited field of investigation and a stream of research-oriented suggestions. Bioactive, however, are typically not perceived by consumers, in lack of awareness of their precise nature and role (Grunert & Wills 2007). Globally, the literature on the identification, characterization and specific sources of plant bioactives is vast. State-of-the-art research available that clearly summarises the nature, occurrence and potential function of major plant bioactive substances. Among these, some intermediate steps of European Union (EU)-funded projects can be cited (Bischoff & Clifdown 2000; Donny & Burtens 2007). Historically, food habits have been determined by the availability of local resources, evolving with similar trends in different geographic areas. The time of plant domestication started from easily storable, energetic cereals, pulses and oilseeds, followed, at a later stage, by...
Introduction

Background

The health promoting properties of carotenoids, notably their antioxidant and antipromoted cancer properties, led health-conscious people to consume them actively. Since, the scientific community shared a common consensus on their antioxidant and anti-carcinogenic properties, the evaluation of their health promoting effects, mainly on cardiovascular health, became a matter of great interest.

Aim of the study

The aim of the study is to analyse the total carotenoid content of traditional foods from Black Sea Area Countries by using the HPLC method. The results on total carotenoids are expressed as total 

Materials and methods

The carotenoids were separated by the HPLC method, where the mobile phase gradient was: 1:1 (acetonitrile:water) for 3 min at 50 °C, followed by a linear gradient (99.9% acetonitrile:0.1% water) for 15 min at 50 °C. The detection wavelength was 450 nm.

Results

The total carotenoid content of the traditional foods from Black Sea Area Countries is presented in Table 1. The results show that the highest total carotenoid content is found in the traditional food from Bulgaria, followed by Romania and Ukraine. The lowest total carotenoid content is found in the traditional food from Georgia.

Discussion

The results indicate that traditional foods from the Black Sea Area Countries have a high total carotenoid content. This is important for public health, as carotenoids are known to have health-promoting effects. The traditional foods from the Black Sea Area Countries can be used as a source of carotenoids for dietary purposes.

Conclusions

The study has shown that traditional foods from the Black Sea Area Countries have a high total carotenoid content. This is important for public health, as carotenoids are known to have health-promoting effects. The traditional foods from the Black Sea Area Countries can be used as a source of carotenoids for dietary purposes.
Output and benefits

Enhanced knowledge of traditional foods composition of Black Sea area countries

Harmonized procedures to continue to update national food composition databases

Nutritional composition data for successful promotion of traditional foods

Development and economic sustainability of rural areas

To promote local biodiversity and sustainable diets by maintaining healthy dietary patterns
Acknowledgements

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6. Uzhhorod National University (UZHNU), Ukraine
7. State Educational Institution of the High Professional Education “Moscow State University of Food Productions” (MSUFP), Russian Federation
8. Spread European Safety – European Economic Interest Grouping (SPES-GEIE), Italy
9. Bucharest University of Economics (ASE), Romania
10. Biological Farming Association – Elkana (ELKANA), Georgia
11. Institute of Medical Research (IMR), Serbia
12. University of Food Technologies (UFT), Bulgaria
13. T C Yeditepe University (YEDITEPE), Turkey