Recent achievements in food composition information of traditional foods from Europe

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EuroFIR Nexus 2nd Annual Meeting & Conference
4th - 8th March 2013, Ljubljana, Slovenia
Outline

Traditional foods

EuroFIR NoE and BaSeFood project

Documentation

Nutritional composition

Bioactive compounds

Dissemination

Output and benefits
Definition of Traditional

**EuroFIR definition of TRADITIONAL**

Means conforming to established practice or specifications prior to the Second World War.


**COUNCIL REGULATION (EC) No 509/2006 on agricultural products and foodstuffs as traditional specialities guaranteed**

‘Traditional’ means proven usage on the Community market for a time period showing transmission between generations; this time period should be the one generally ascribed to one human generation, at least 25 years.
Definition of Traditional

REGULATION (EU) No 1151/2012
on quality schemes for agricultural products and foodstuffs

‘Traditional’ means proven usage on the domestic market for a period that allows transmission between generations; this period is to be at least 30 years.
Definition of Traditional Foods

EuroFIR definition of TRADITIONAL FOOD

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”.


http://www.eurofir.org
EU Quality Schemes

Protected Designation of Origin (PDO)
Covers agricultural products and foodstuffs which are produced, processed and prepared in a given geographical area using recognised know-how.

Protected Geographical Indication (PGI)
Covers agricultural products and foodstuffs closely linked to the geographical area. At least one of the stages of production, processing or preparation takes place in the area.

Traditional Speciality Guaranteed (TSG)
Highlights traditional character, either in the composition, means of production or processing.
Quality Schemes Registrations (1996-2012)

PDO (Total = 553)
PGI (Total = 534)
TSG (Total = 42)

Countries:
- Italy
- France
- Spain
- Portugal
- Greece
- Germany
- United Kingdom
- Poland
- Austria
- Slovakia
- Belgium
- Hungary
- Netherlands
- Sweden
- Denmark
- Finland
- Ireland
- Luxembourg
- Cyprus
- Lithuania
- Bulgaria
- Romania
- Estonia
- Latvia
- Malta
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.
BaSeFood
Sustainable exploitation of bioactive components from the Black Sea Area traditional foods
Coordinator – L. Filippo D’Antuono

WP2 - Bioactive components, nutritional and microbiological characterization of traditional foods

Overall objective: Health claims for selected traditional foods in the Black Sea Area by producing data for chemical and microbiological characterization of selected foods
EuroFIR and BaSeFood
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), dietary fibre, total sugars and starch

### Minerals
- Sodium, iron, potassium, calcium, magnesium, phosphorus, iron, zinc, selenium and manganese

### Vitamins
- Vitamin A (all-trans-retinol), vitamin C, vitamin E (α-tocopherol) and vitamin B₂ (riboflavin), total folate

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

BaSeFood

Components

According to quality requirements

Accredited laboratories

Bioactive compounds

Laboratories participating in Proficiency Testing schemes

Laboratories that have expertise in quantifying these compounds
List of foods per country were evaluated based on the EuroFIR definition of traditional food.

Prioritised list of traditional foods per country was elaborated.

From the prioritised list, 5 Traditional Foods per country were selected to represent a full meal course:

- Starter
- 2 Main dishes
- Dessert
- One other special traditional food.
Nutritional composition of 55 traditional foods
Results

Traditional foods: a science and society perspective
Antonia Trichopoulou, K. Geor, S. Soukara and V. D. Department of Hygiene and Epidemiology, Technological National University of Athens, Athens 174 53, Greece
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Introduction

Traditional foods reflect cultural inheritance: their origins and preparation, dietary patterns and related diseases, the role of the specific food ingredients and preparation in the diet. Despite the importance of traditional foods in human nutrition, their consumption in the Western world has decreased over the last decades due to the increase in processed foods and the adoption of more Western dietary habits.

Background and Objectives

The main objectives of this study were to determine the nutritional value of traditional foods from different regions of the world, and to compare them with the dietary guidelines provided by the World Health Organization (WHO) and the European Union (EU). The study was conducted using food composition databases from various regions of the world, including Europe, Asia, Africa, and the Americas. The results showed that traditional foods were rich in nutrients, such as vitamins, minerals, and antioxidants, which are beneficial for human health. The study also highlighted the importance of preserving traditional foods as a source of cultural heritage and as a means of maintaining healthy diets.

Conclusion

Traditional foods are important for maintaining a healthy diet and preserving cultural heritage. Countries should promote the consumption of traditional foods to improve public health and cultural diversity. Future research should focus on the nutritional and cultural aspects of traditional foods in different regions of the world.

Original Article

New nutritional data on traditional foods for European food composition databases

H. Bischoff, E. Vasiopoulou, A. Trichopoulou, and F. Finglas on behalf of the participants of the EuroFIR Traditional Foods Work Package

Background and Objectives

The aim of this study was to provide new nutritional data on traditional foods for the European food composition databases. The study was conducted using food composition databases from various regions of the world, including Europe, Asia, Africa, and the Americas. The results showed that traditional foods were rich in nutrients, such as vitamins, minerals, and antioxidants, which are beneficial for human health. The study also highlighted the importance of preserving traditional foods as a source of cultural heritage and as a means of maintaining healthy diets.

Conclusion

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Black Sea Area countries

Food groups

- 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
Nutritional composition and bioactive compounds of 33 traditional foods
Cereal or cereal based foods

**Tsiteli doli bread**
A light blue tinged bread of oblong or oval shape, containing a small amount of flour makhobeli

**Baked layers of pastry stuffed with pumpkin**
A dessert made of layers of pastry with pumpkin, sugar, cinnamon and walnuts

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**Energy**
- **Tsiteli doli bread**: 996 kJ (238 kcal)
- **Baked layers of pastry**: 1219 kJ (292 kcal)

**Composition**
- Moisture
- Ash
- Total protein
- Total fat
- Available carbohydrates
- Total dietary fibre

**Nutrients per 100 g of edible portion**
- **Tsiteli doli bread**
  - Energy: 996 kJ (238 kcal)
  - Moisture: 8.6 g
  - Ash: 1.7 g
  - Total protein: 35.8 g
  - Total fat: 2.5 g
  - Available carbohydrates: 44.6 g
  - Total dietary fibre: 6.8 g

- **Baked layers of pastry**
  - Energy: 1219 kJ (292 kcal)
  - Moisture: 11.0 g
  - Ash: 1.2 g
  - Total protein: 30.1 g
  - Total fat: 47.7 g
  - Available carbohydrates: 4.6 g
  - Total dietary fibre: 3.0 g

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Fruit or fruit based foods

**Churchkhela**

A delicacy made of walnuts sewn onto a string, dipped in thickened grape juice and dried in the shape of a sausage

**Plums jam**

A traditional plum paste, obtained by boiling the plums without sugar

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**Energy**

Energy 1632 kJ (390 kcal)

Energy 732 kJ (175 kcal)

**Components**

- **SFA**
  - Saturated fatty acids
- **MUFA**
  - Monounsaturated fatty acids
- **PUFA**
  - Polyunsaturated fatty acids
- **Moisture**
- **Ash**
- **Total protein**
- **Total fat**
- **Available carbohydrates**
- **Total dietary fibre**

**Content**

- 2.8
- 16.9
- 1.3
- 6.6
- 13.7
- 58.8
- 1.2
- 40.1
- 3.3
- 53.4
- 0.2
- 1.5
- 1.4
- 5.5

**Conversion**

- 1632 kJ = 390 kcal
- 732 kJ = 175 kcal

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Oilseeds or oilseed products

A dessert prepared with sugar or sugar syrup, sunflower seeds and tahini

Halva

Roasted sunflower seeds

Roasted sunflower seeds (Helianthus annuus L.)

<table>
<thead>
<tr>
<th>Moisture</th>
<th>Ash</th>
<th>Total protein</th>
<th>Total fat</th>
<th>Available carbohydrates</th>
<th>Total dietary fibre</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.6</td>
<td>5.5</td>
<td>11.0</td>
<td>11.0</td>
<td>47.7</td>
<td>30.1</td>
</tr>
<tr>
<td>0.8 SFA</td>
<td>7.9 MUFA</td>
<td>19.9 PUFA</td>
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</table>

Energy 2150 kJ (514 kcal)

<table>
<thead>
<tr>
<th>Moisture</th>
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<th>Total protein</th>
<th>Total fat</th>
<th>Available carbohydrates</th>
<th>Total dietary fibre</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>11.3</td>
<td>3.9</td>
<td>3.3</td>
<td>58.2</td>
<td>20.8</td>
</tr>
<tr>
<td>6.03 SFA</td>
<td>10.6 MUFA</td>
<td>38.8 PUFA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Energy 2675 kJ (640 kcal)

SFA – saturated fatty acids
MUFA – monounsaturated fatty acids
PUFA – polyunsaturated fatty acids

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The two foods with highest levels of total folate were roasted sunflower seeds and nettles with walnut sauce.
The highest α-tocopherol value was found for roasted sunflower seeds, followed by churchkhela and plums jam.
Roasted sunflower seeds presented the highest riboflavin concentration followed by baked layers of pastry stuffed with pumpkin, and halva
The highest ascorbic acid value was found for fruits of the evergreen cherry laurel (29.9 mg/100 g of edible portion)
Three of the analysed foods presented Na content higher than 500 mg/100 g, which were herbal dish, wild plum sauce and tsiteli doli bread.

Sodium (Na)

- Sauerkraut
- Sautéed pickled green beans
- Kvass southern
- Cottage cheese with dill and garlic
- Herbal dish
- Wild plum sauce
- Ukrainian borsch
- Transcarpathian green borsch
- Kale soup
- Nettle sour soup
- Nettles with walnut sauce
- Rodopian dried beans
- Sour rye bread
- Bulgur pilaf
- Buckwheat porridge crumbly
- Cornmeal mush
- Nettles with walnut sauce
- Baked layers of pastry stuffed with pumpkin
- Cornmeal mush
- Tsiteli Doli Bread
- Baked layers of pastry stuffed with pumpkin

Three of the analysed foods presented Na content higher than 500 mg/100 g, which were herbal dish, wild plum sauce and tsiteli doli bread.
Potassium (K)

Sauerkraut
Sautéed pickled green beans
Millet ale
Cottage cheese with dill and garlic
Herbal dish
Wild plum sauce
Roasted sunflower seeds
Halva
Uzvar
Fruit of the evergreen cherry laurel
Watermelon juice
Plums jam
Churchkhela
Ukrainian borsch
Transcarpathian green borsch
Kale soup
Vegetable okroshka
Nettle sour soup
Nettles with walnut sauce
Rodopian dried beans
Sour rye bread
Bulgur pilaf
Buckwheat porridge crumbly
Tsiteli Doli Bread
Baked layers of pastry stuffed with pumpkin

Potassium (mg/100 g of edible portion)
The highest phosphorus content (681.794 mg/100 g) was found in roasted sunflower seeds followed by tsiteli doli bread.
Nettles with walnut sauce was the sample with the highest iron content followed by roasted sunflower seeds.
From the 33 analysed traditional foods, zinc was found in 39% of them and the richest source was roasted sunflower seeds.
The sample with highest β-carotene content was plums jam followed by kale soup and nettles sour soup.
The foods with highest lycopene content were watermelon juice, sautéed pickled green beans and Ukrainian borsch.
**β - cryptoxanthin**

<table>
<thead>
<tr>
<th>Food Item</th>
<th>β-cryptoxanthin (µg/100 g of edible portion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbal dish</td>
<td></td>
</tr>
<tr>
<td>Wild plum sauce</td>
<td>63.8</td>
</tr>
<tr>
<td>Plums jam</td>
<td></td>
</tr>
<tr>
<td>Kale soup</td>
<td></td>
</tr>
<tr>
<td>Rodopian dried beans</td>
<td></td>
</tr>
<tr>
<td>Cornmeal mush</td>
<td></td>
</tr>
</tbody>
</table>

Wild plum sauce was the sample that presented the highest β-cryptoxanthin content (63.8 µg/100 g of edible portion).
The highest level was found for rodopian dried beans, followed by vegetable okroshka and nettle sour soup.
The samples that presented the highest total polyphenol content were halva and roasted sunflower seeds.
Value documentation

FCDB
Traditional Foods

Food description
Sampling plan
Value and quality assessment
Sample handling
Method specification
Component identification

Value and quality assessment
Sampling plan
Method specification
Component identification
Output and benefits

Enhanced knowledge of traditional foods composition

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
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National Nutrition Centre (NNC) – LT
National Food and Nutrition Institute (NFNI) – PL
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BaSeFood

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THANK YOU!

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