EuroFIR
European Food Information Resource

Recent achievements in food composition information of traditional foods from Europe

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EuroFIR Nexus 2nd Annual Meeting & Conference

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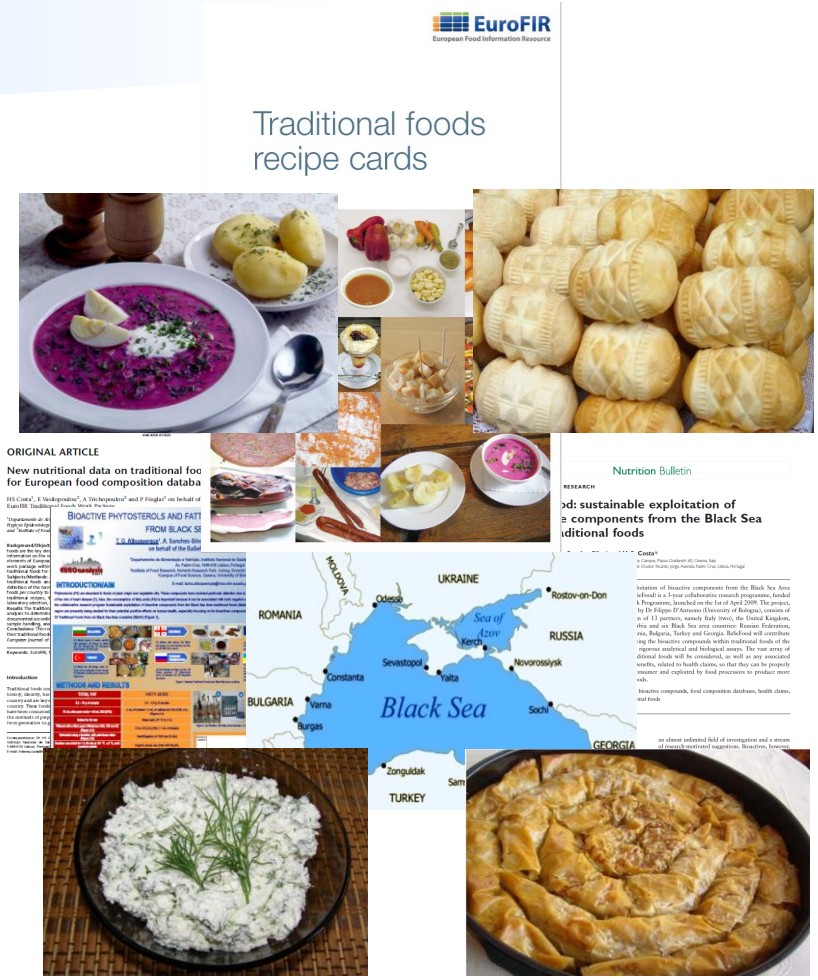
Outline

- 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.

Trichopoulou, A. et al. (2007). Trends in Food Science & Technology 18, 420-427.

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".

Trichopoulou, A. et al. (2007). Trends in Food Science & Technology 18, 420-427.

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.

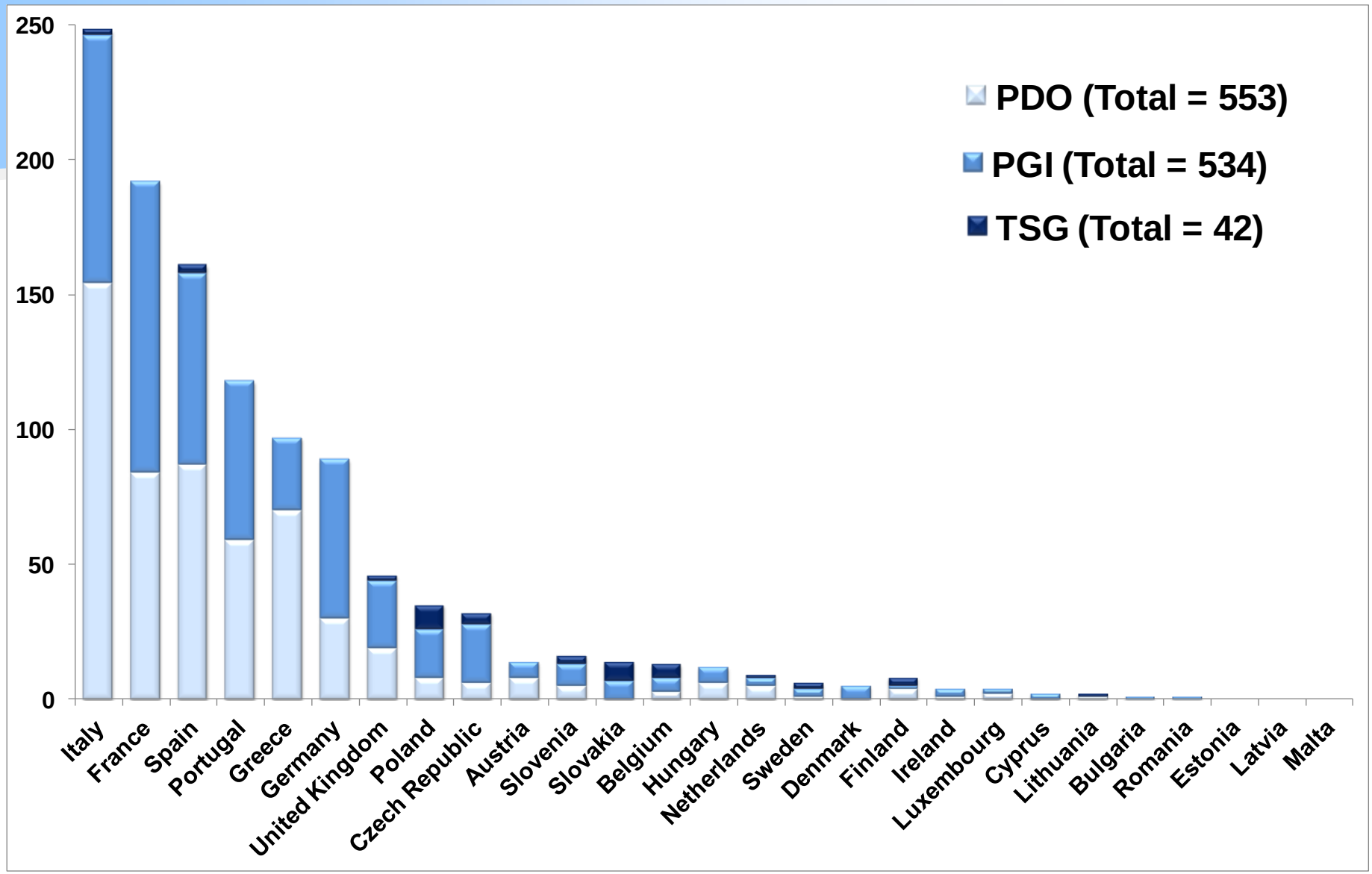
Protected Geographical Indication (PGI)

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)



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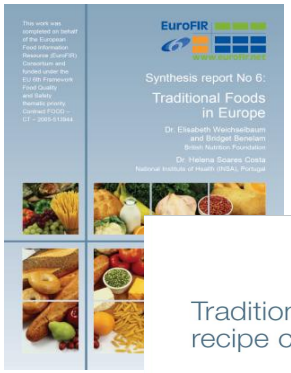
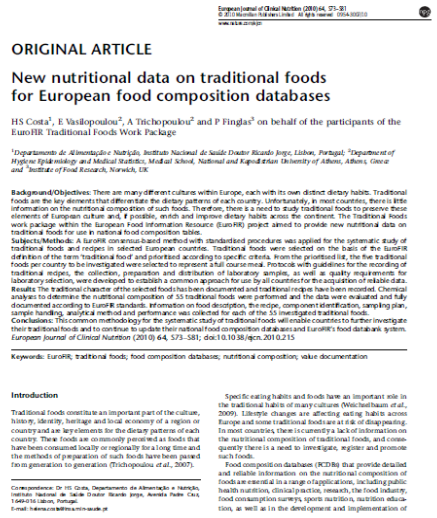
EuroFIR Network of Excellence

Coordinator – Paul Finglas

A story of success....





ORIGINAL ARTICLE

New nutritional data on traditional foods for European food composition databases

HS Costa[1], E Vasilopoulou[2], A Trichopoulou[2] and P Finglas[3] on behalf of the participants of the EuroFIR Traditional Foods Work Package

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Background/Objectives: There are many different cultures within Europe, each with its own distinct dietary habits. Traditional foods are the key elements that differentiate the dietary patterns of each country. Unfortunately, in most countries, there is little information on the nutritional composition of such foods. Therefore, there is a need to study traditional foods to preserve these elements of European culture and, if possible, enrich and improve dietary habits across the continent. The Traditional foods work package within the European Food Information Resource (EuroFIR) project aimed to provide new nutritional data on traditional foods for use in national food composition tables.

Subjects/Methods: A EuroFIR consensus-based method with standardised procedures was applied for the systematic study of traditional foods and recipes in selected European countries. Traditional foods were selected on the basis of the EuroFIR definition of the term 'traditional food' and prioritised according to specific criteria. From the prioritised list, the five traditional foods per country to be investigated were selected to represent a full course meal. Protocols with guidelines for the recording of traditional recipes, the collection, preparation and distribution of laboratory samples, as well as quality requirements for laboratory selection, were developed to establish a common approach for use by all countries for the acquisition of reliable data.

Results: The traditional character of the selected foods has been documented and traditional recipes have been recorded. Chemical analyses to determine the nutritional composition of 55 traditional foods were performed and the data were evaluated and fully documented according to EuroFIR standards. Information on food description, the recipe, component identification, sampling plan, sample handling, analytical method and performance was collected for each of the 55 investigated traditional foods.

Conclusions: This common methodology for the systematic study of traditional foods will enable countries to further investigate their traditional foods and to continue to update their national food composition databases and EuroFIR's food databank system.

European Journal of Clinical Nutrition (2010) 64, 573–581; doi:10.1038/ejcn.2010.215

Keywords: EuroFIR; traditional foods; food composition databases; nutritional composition; value documentation

Introduction

Traditional foods constitute an important part of the culture, history, identity, heritage and local economy of a region or country and are key elements for the dietary patterns of each country. These foods are commonly perceived as foods that have been consumed locally or regionally for a long time and the methods of preparation of such foods have been passed from generation to generation (Trichopoulou *et al.*, 2007).

Specific eating habits and foods have an important role in the traditional habits of many cultures (Weichselbaum *et al.*, 2009). Lifestyle changes are affecting eating habits across Europe and some traditional foods are at risk of disappearing. In most countries, there is currently a lack of information on the nutritional composition of traditional foods, and consequently there is a need to investigate, register and promote such foods.

Food composition databases (FCDBs) that provide detailed and reliable information on the nutritional composition of foods are essential in a range of applications, including public health nutrition, clinical practice, research, the food industry, food consumption surveys, sports nutrition, nutrition education, as well as in the development and implementation of

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

SEVENTH FRAMEWORK PROGRAMME

Nutrition Bulletin

NEWS FROM EU RESEARCH

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

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†Departamento de Alimentação e Nutrição, Instituto Nacional de Saúde Doutor Ricardo Jorge, Avenida Padre Cruz, Lisboa, 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'Antuono (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, phytochemicals, traditional foods

Introduction

Bioactive components are defined as 'inherent non-nutrient constituents of food plants with anticipated health promoting/beneficial and/or toxic effects when ingested' (Gry *et al.* 2007, p. 434). The definition is rather dynamic and a list of components and associated properties is available in the literature (Goldberg 2003). 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-motivated suggestions. Bioactives, however, are typically not perceived by consumers; in fact, few are aware of their precise nature and role (Grunert & Wills 2007). Globally, the literature on the identification, characterisation and specific sources of plant bioactives is vast. State-of-the-art reviews are available that clearly summarise 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 (Lindsay & Clifford 2000; Denny & Buttriss 2007).

Historically, food habits have been determined by the availability of local resources, evolving with similar trends in different geographic areas. The flux of plant domestication started from easily storable, energetic cereals, pulses and oilseeds, followed, at a later stage, by

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E-mail: dantuono@agrsci.unibo.it

[1]On behalf of the BaSeFood partners.

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

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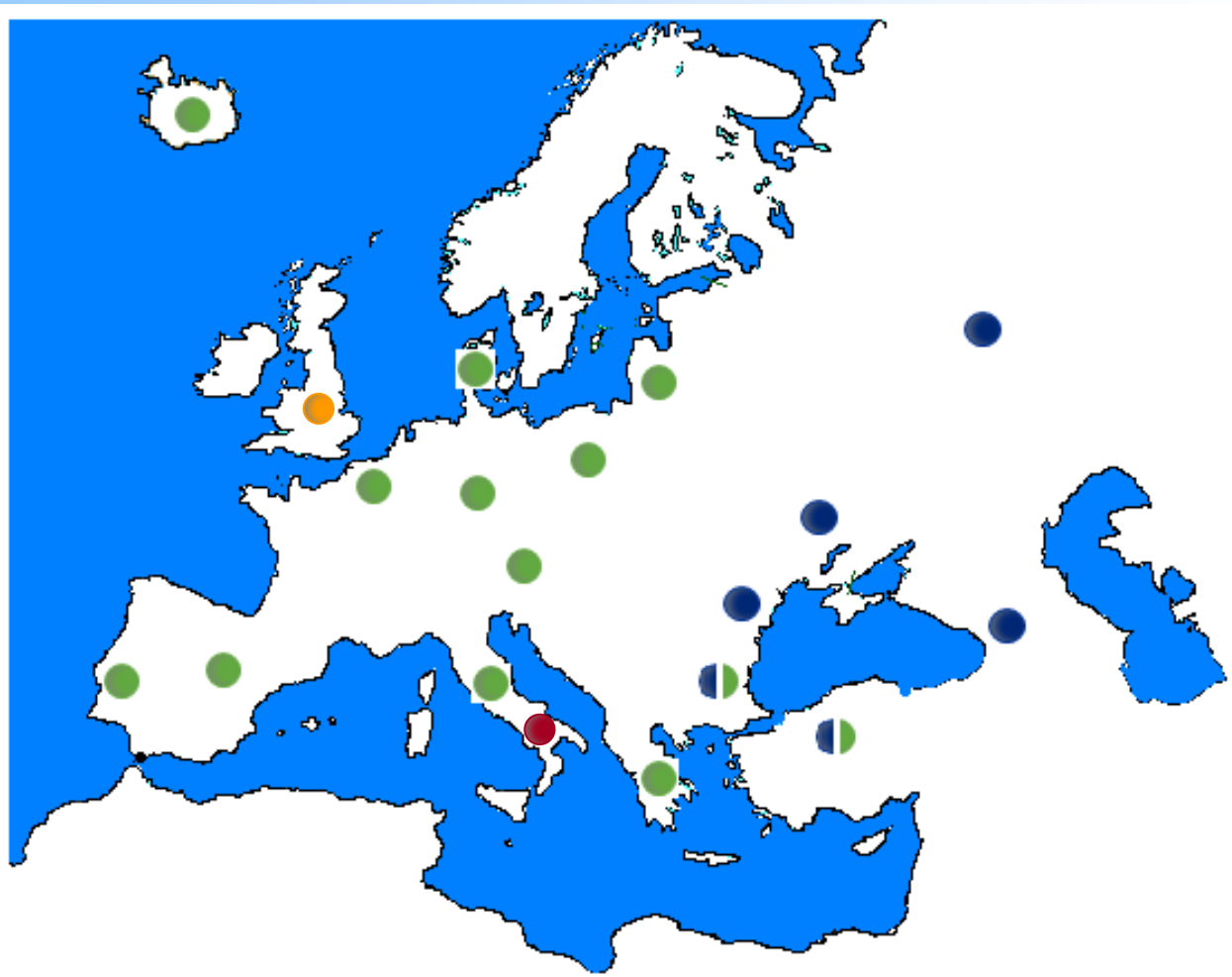
EuroFIR and BaSeFood



IFR

EuroFIR

UNIBO

BaSeFood

EuroFIR and BaSeFood

EuroFIR

Traditional foods definition

Documentation

Nutritional compositon

Traditional character

Recording

Health benefits

+

BaSeFood

Bioactive compounds

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

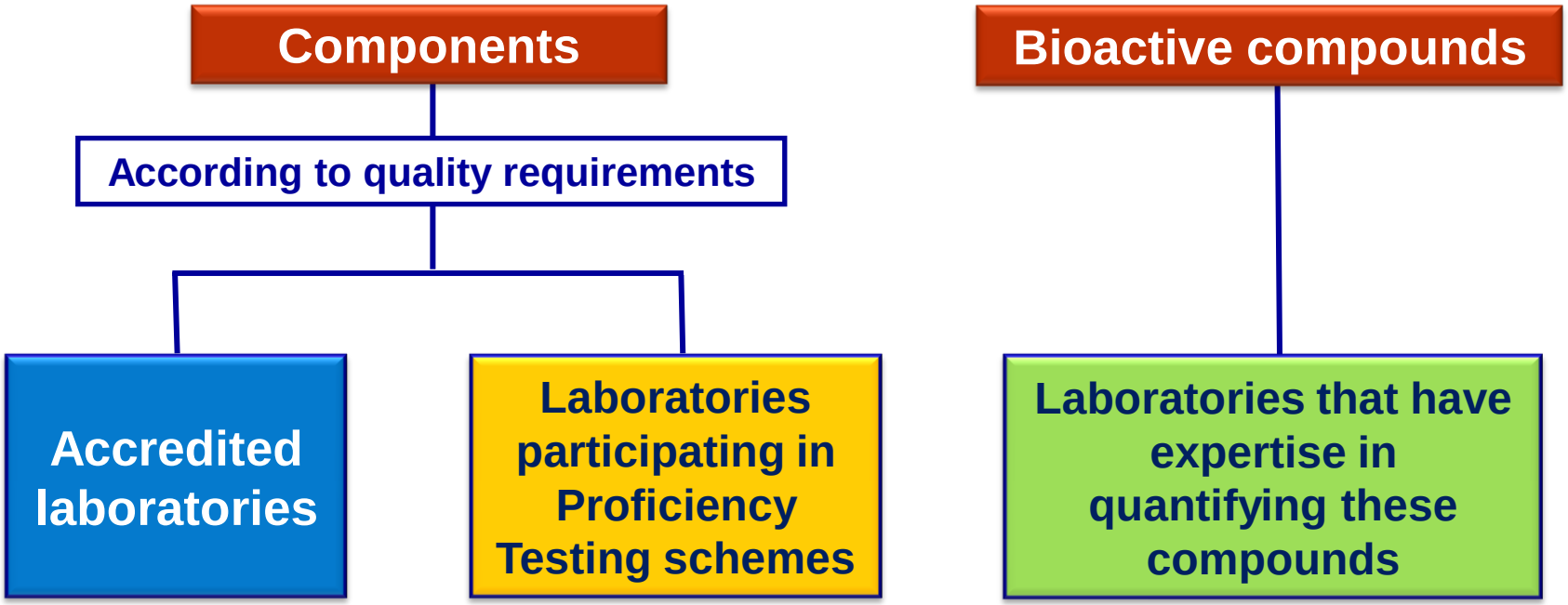
EuroFIR

BaSeFood

Proximates	Moisture, ash, total nitrogen (for protein), total fat (individual fatty acids), dietary fibre, total sugars and starch
Minerals	Sodium, iron, potassium, calcium, magnesium, phophorus, iron, zinc, selenium and manganese
Vitamins	Vitamin A (all-*trans*-retinol), vitamin C, vitamin E (α-tocopherol) and vitamin B_2 (riboflavin), total folate
Bioactive compounds	Phenolics, glucosinolates and carotenoids

Selection of laboratories

BaSeFood



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13 European countries

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 and One other special traditional food.

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Nutritional composition of 55 traditional foods

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Results

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Traditional Foods Dissemination

http://www.eurofir.org/

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2007

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2008

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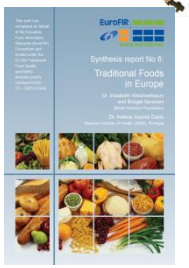
2009



EuroFIR
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2010

EuroFIR
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2011

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

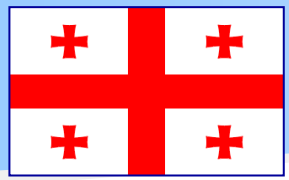
Black Sea Area countries

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

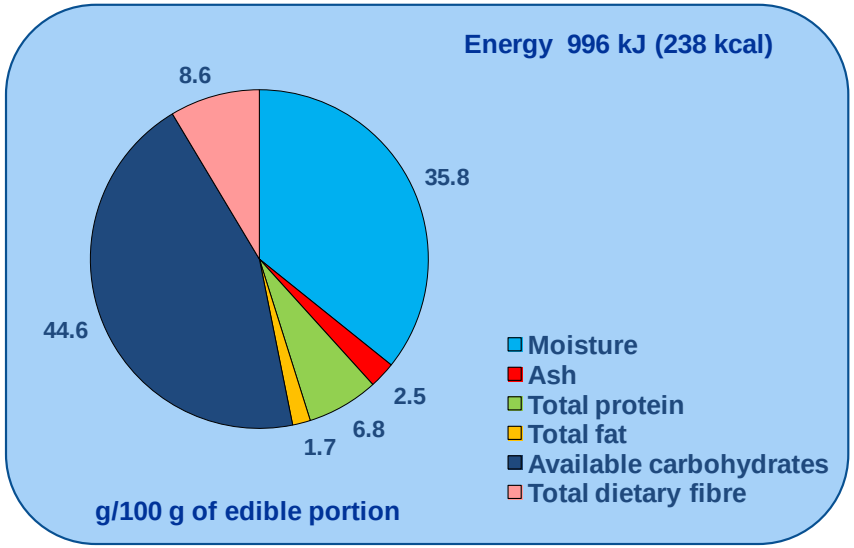


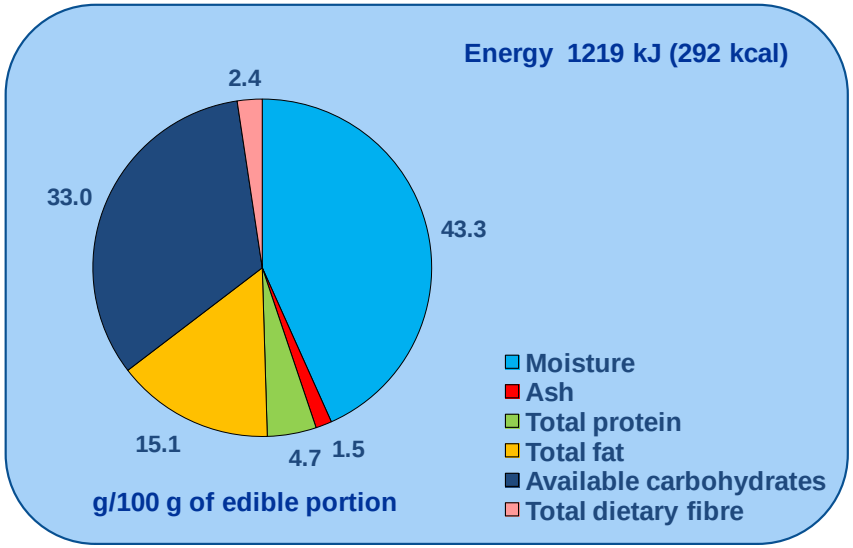
Tsiteli doli bread

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

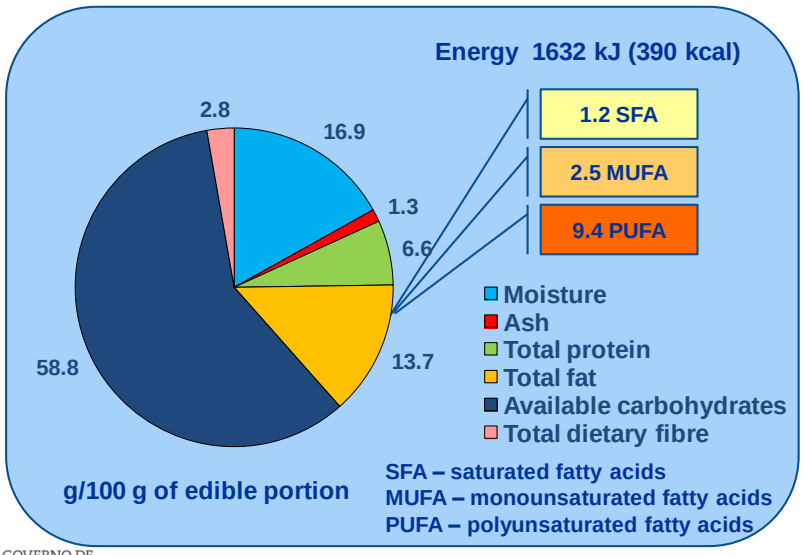




Fruit or fruit based foods

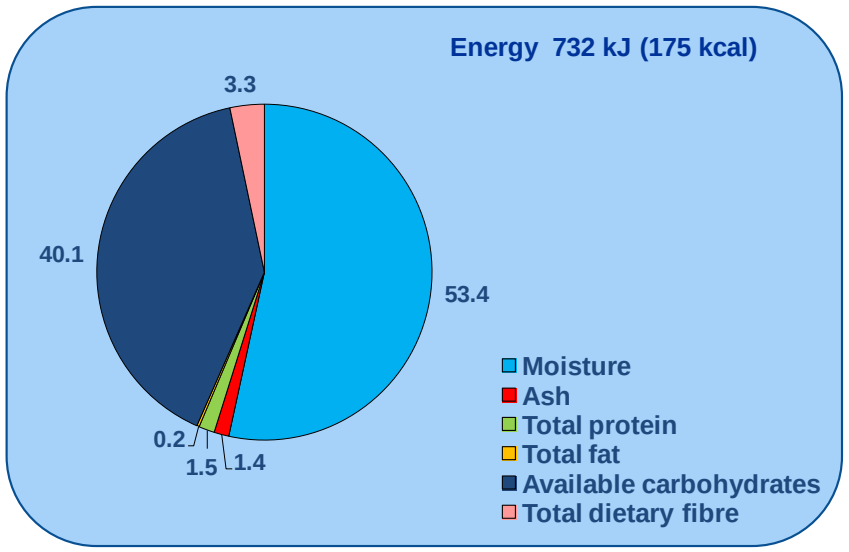
Churchkhela

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

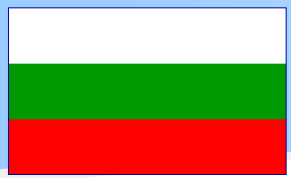


Plums jam

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



Oilseeds or oilseed products

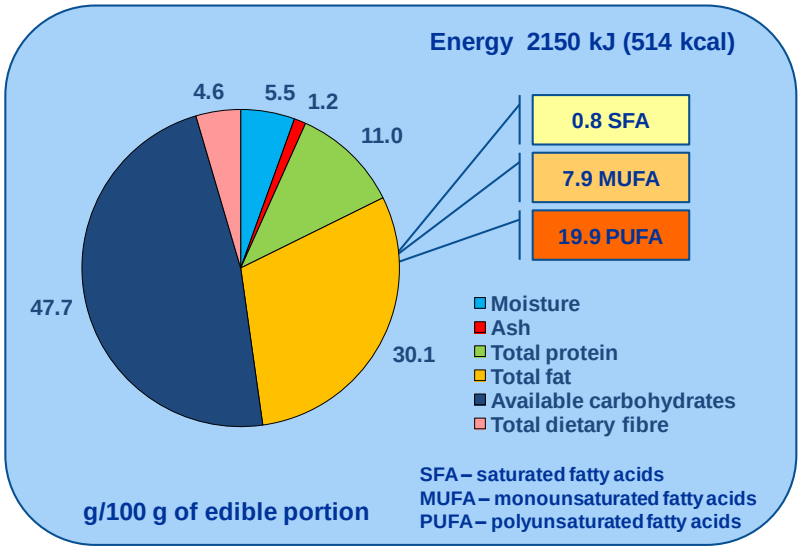


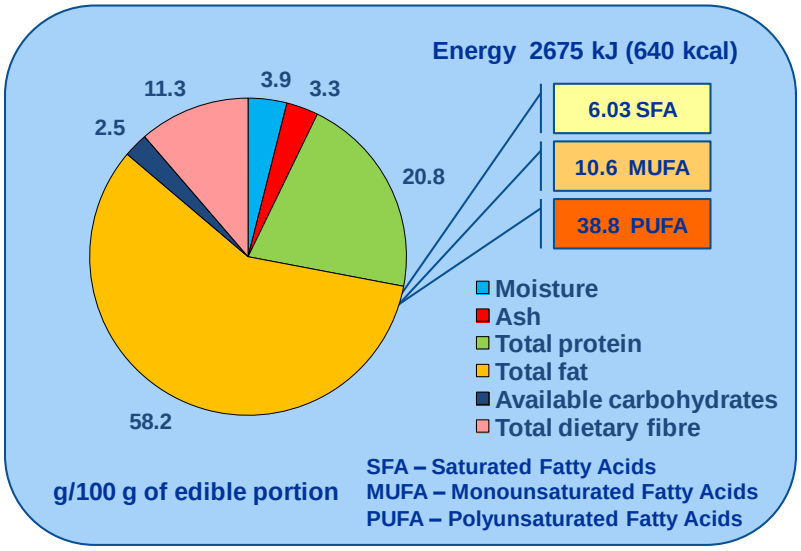
Halva

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

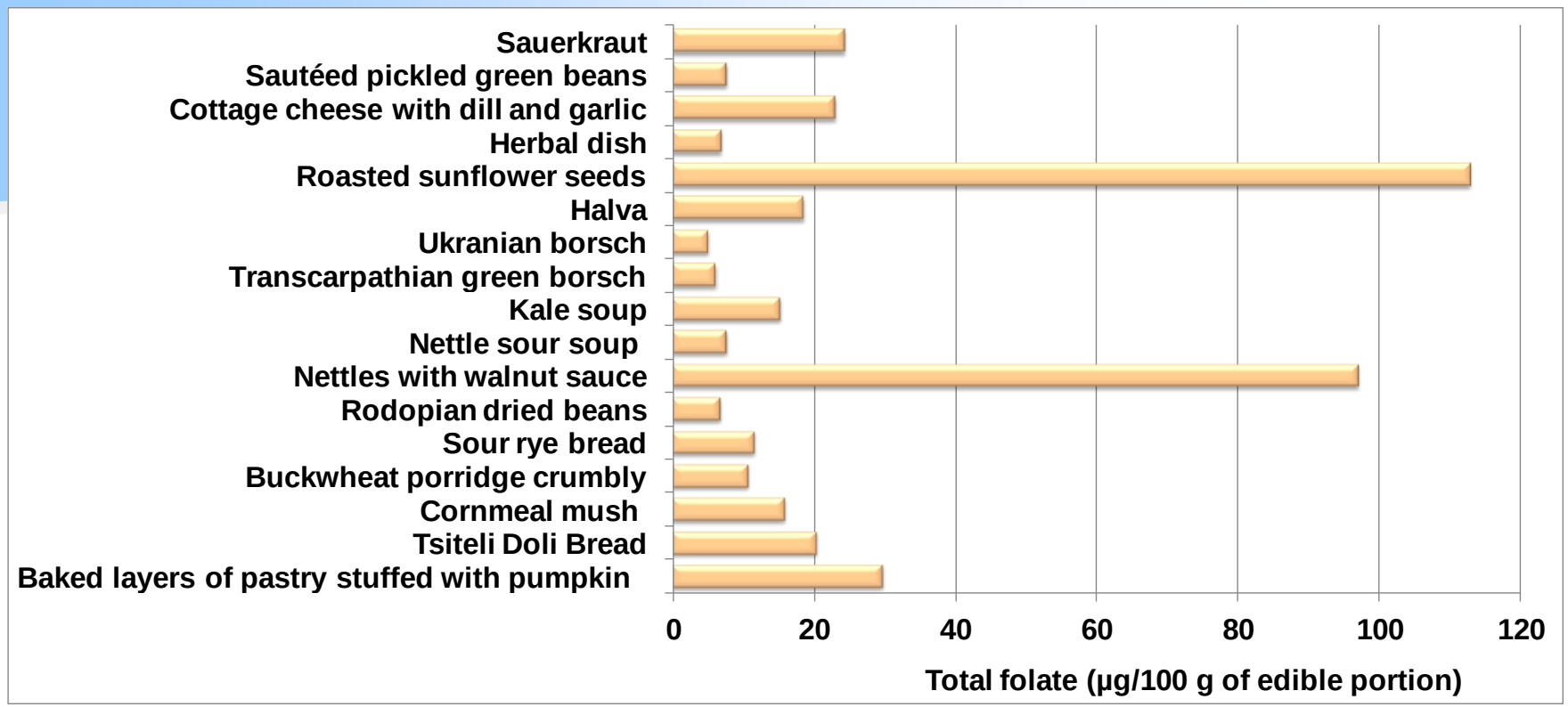
Roasted sunflower seeds

Roasted sunflower seeds (*Helianthus annuus* L.)



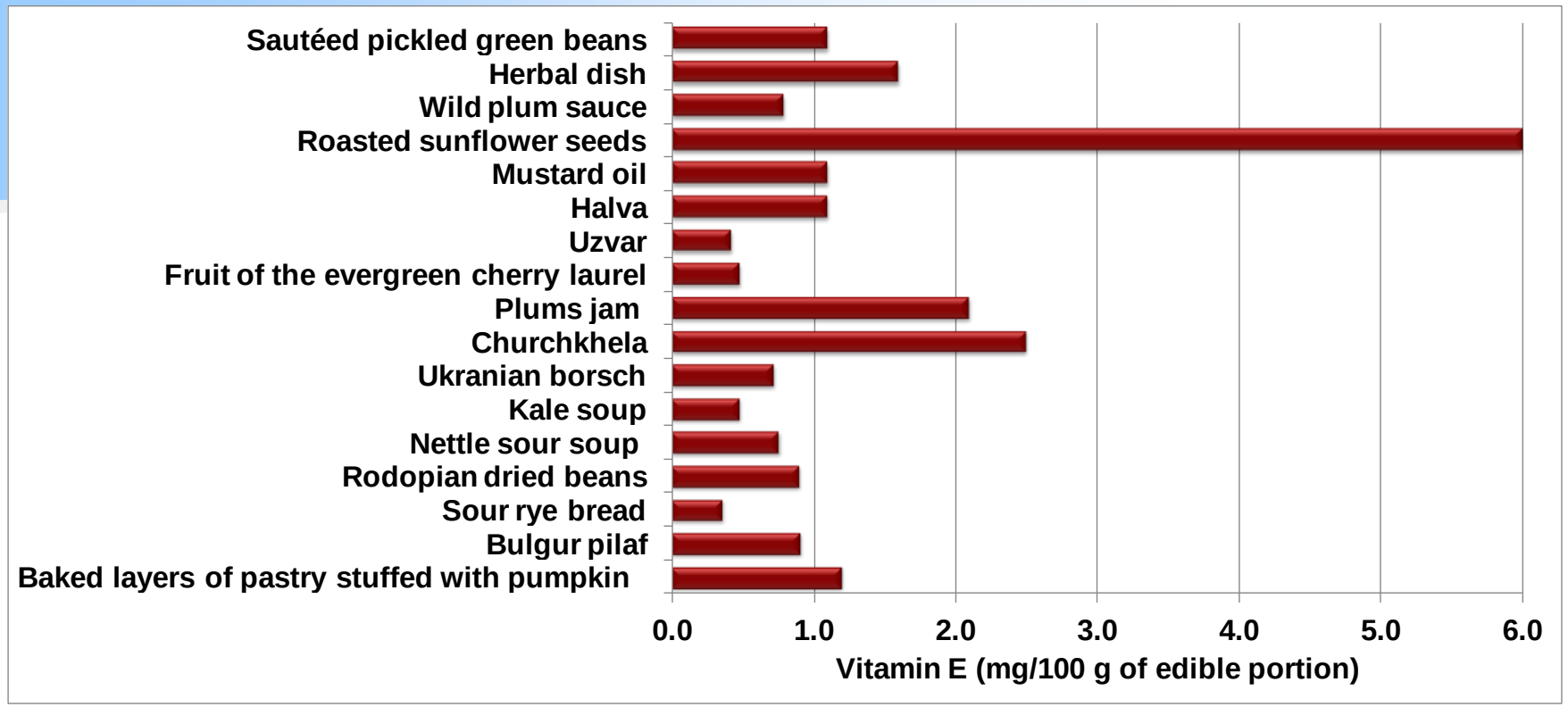


Total folate



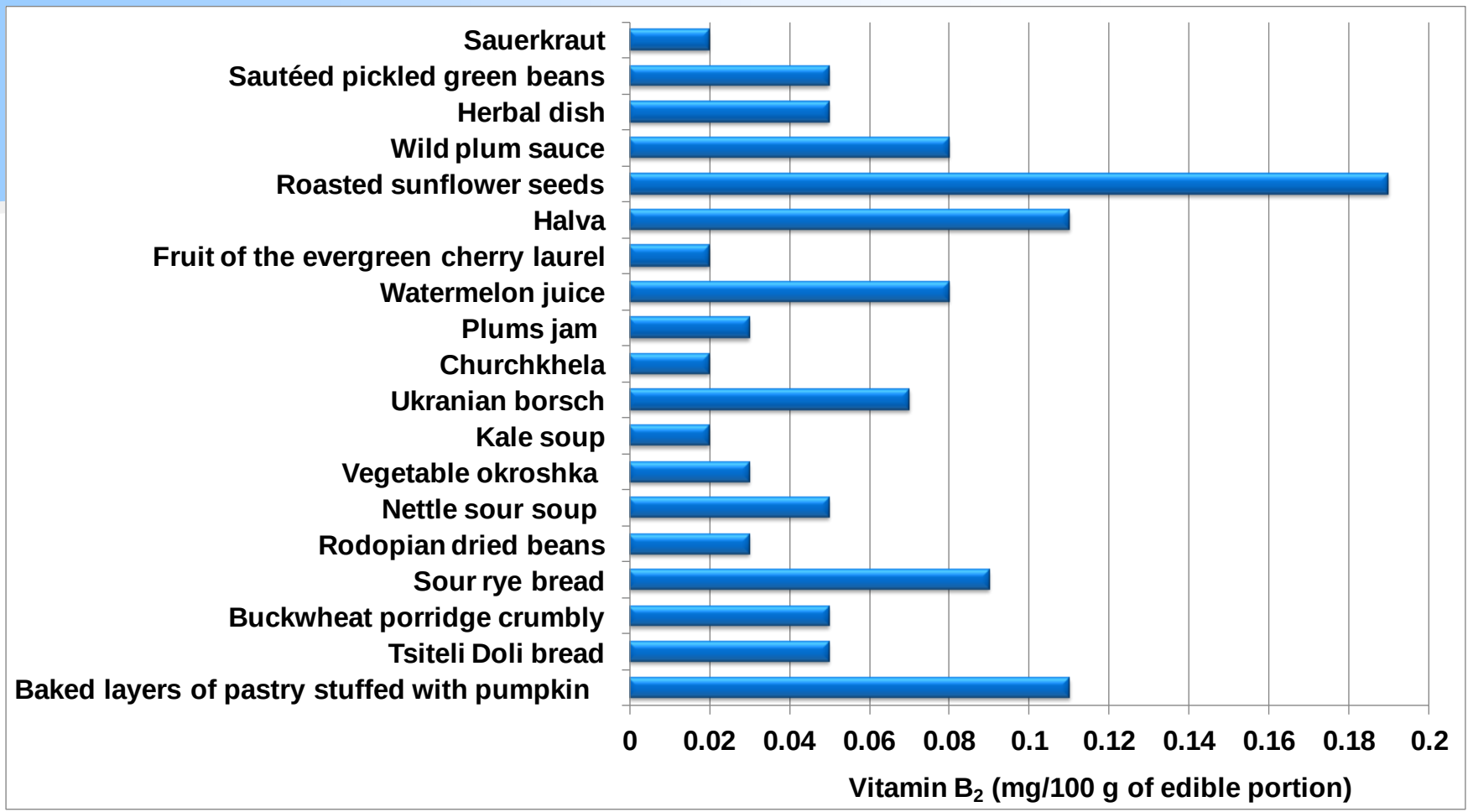
The two foods with highest levels of total folate were roasted sunflower seeds and nettles with walnut sauce

Vitamin E (α-tocopherol)



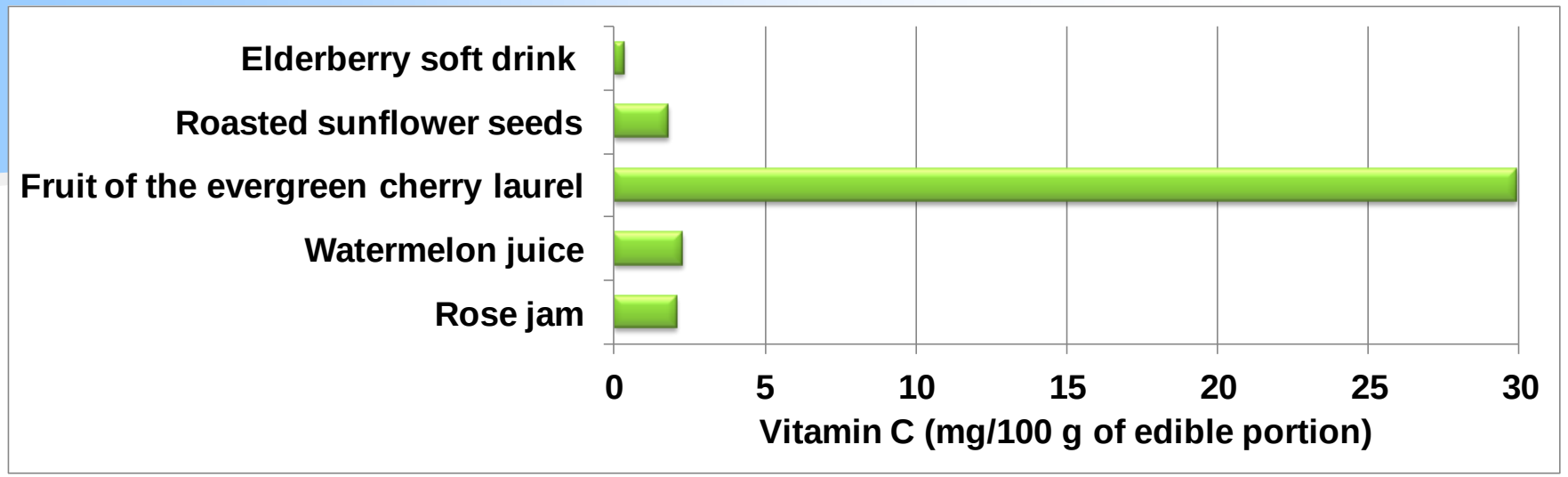
The highest α-tocopherol value was found for roasted sunflower seeds, followed by churchkhela and plums jam

Vitamin B_2 - Riboflavin



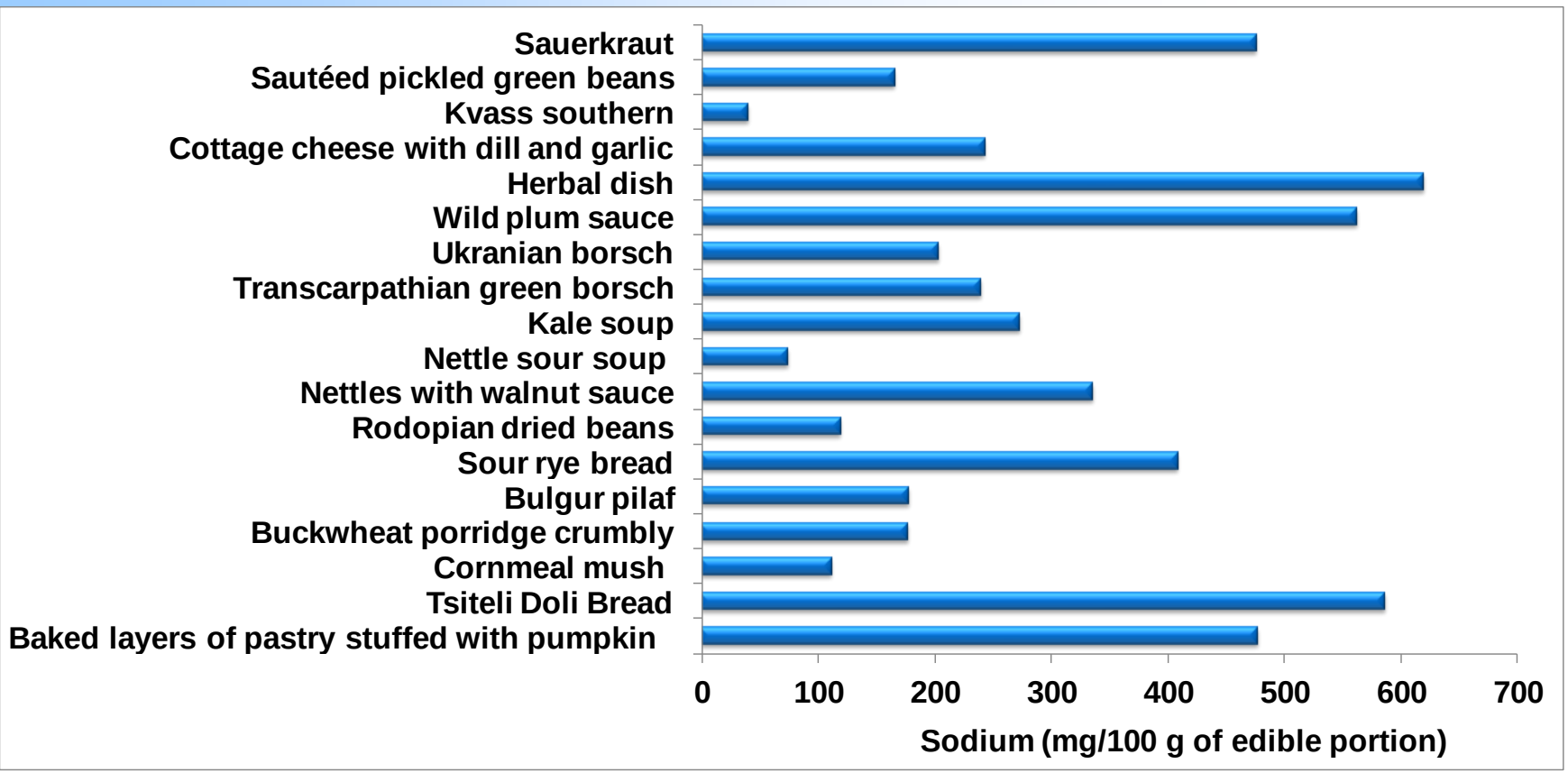
Roasted sunflower seeds presented the highest riboflavin concentration followed by baked layers of pastry stuffed with pumpkin, and halva

Vitamin C – Ascorbic acid



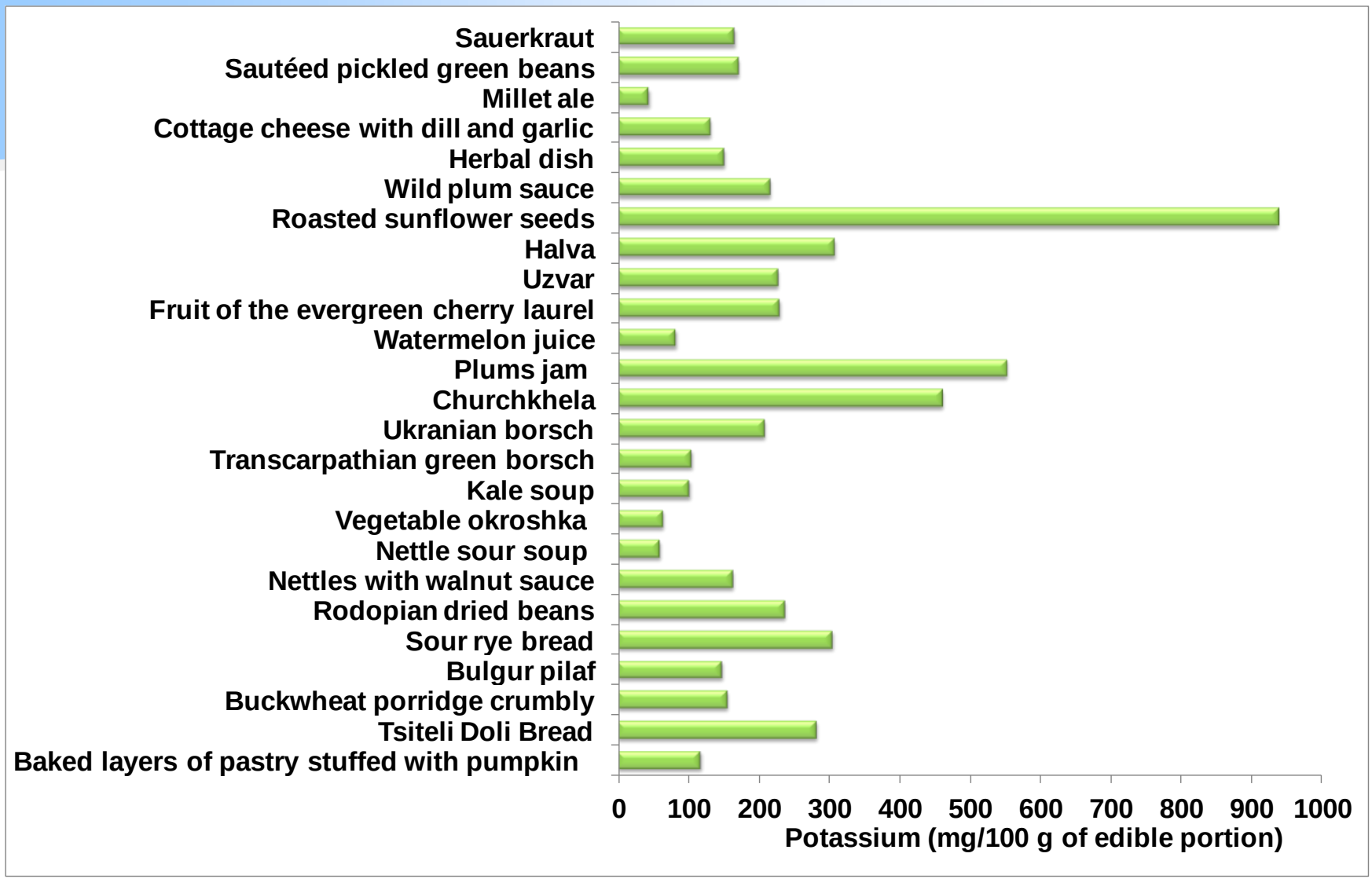
The highest ascorbic acid value was found for fruits of the evergreen cherry laurel (29.9 mg/100 g of edible portion)

Sodium (Na)

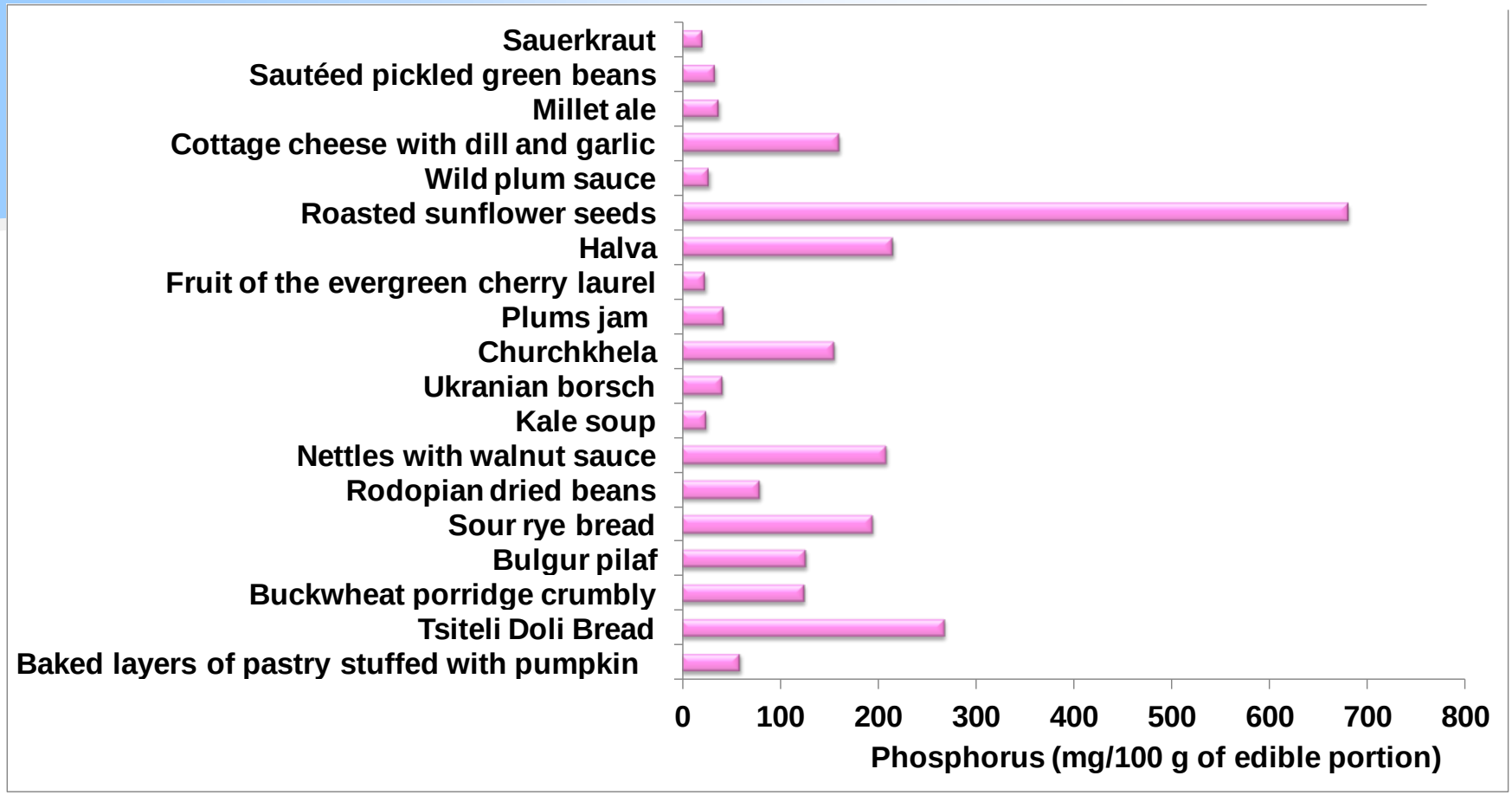


Three of the analysed foods presented Na content higher than 500 mg/100 g, which were herbal dish, wild plum sauce and tsiteli doli bread

Potassium (K)

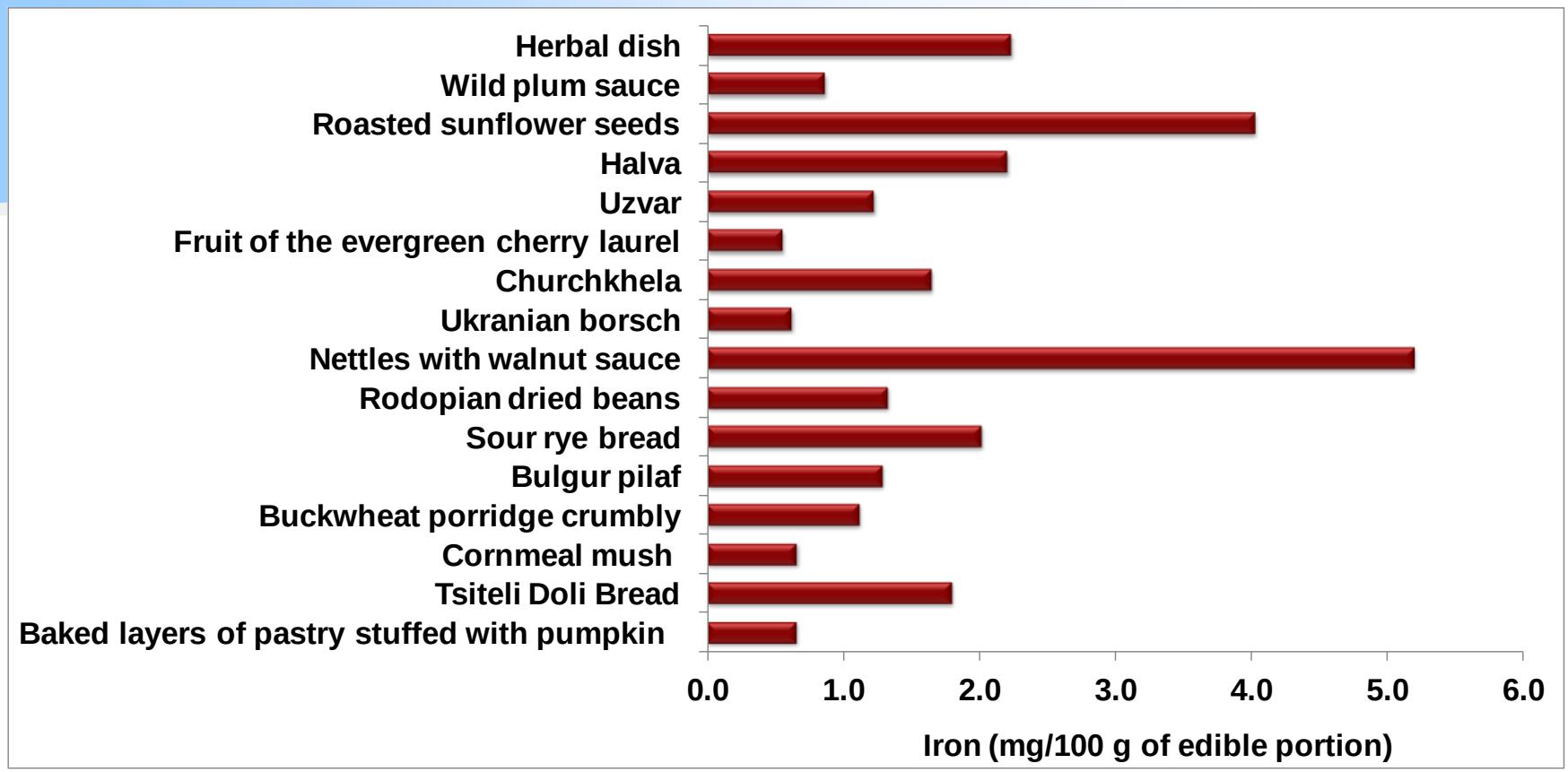

Sauerkraut
Sautéed pickled green beans
Millet ale
Cottage cheese with dill and garlic
Herbal dish
Wild plum sauce
Roasted sunflower seeds
Halva
Uzvar
Fruit of the evergreen cherry laurel
Watermelon juice
Plums jam
Churchkhela
Ukranian borsch
Transcarpathian green borsch
Kale soup
Vegetable okroshka
Nettle 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
0
100
200
300
400
500
600
700
800
900
1000
Potassium (mg/100 g of edible portion)

Phosphorus (P)



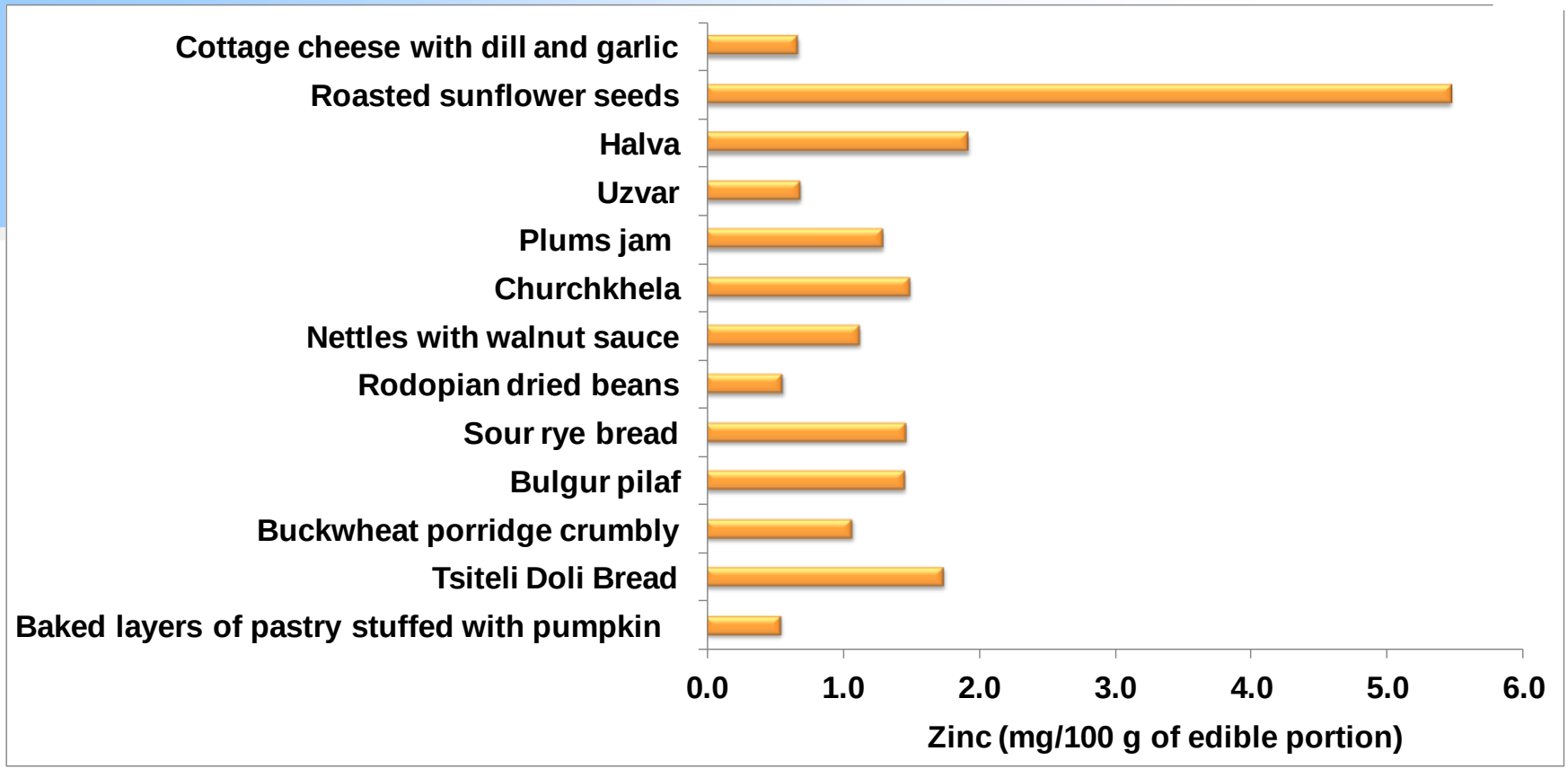
The highest phosphorus content (681 7.94 mg/100 g) was found in roasted sunflower seeds followed by tsiteli doli bread

Iron (Fe)



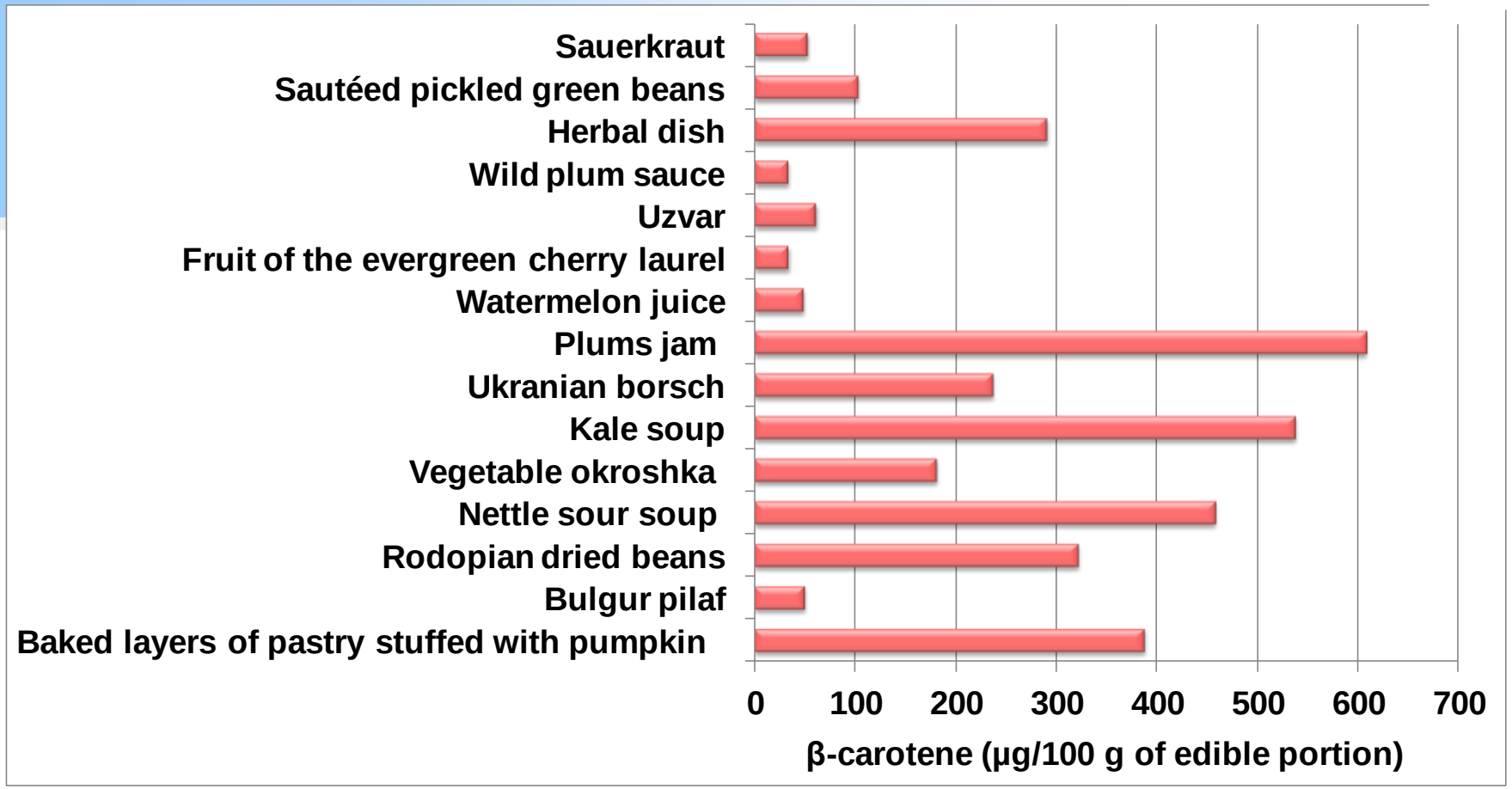
Nettles with walnut sauce was the sample with the highest iron content followed by roasted sunflower seeds

Zinc (Zn)



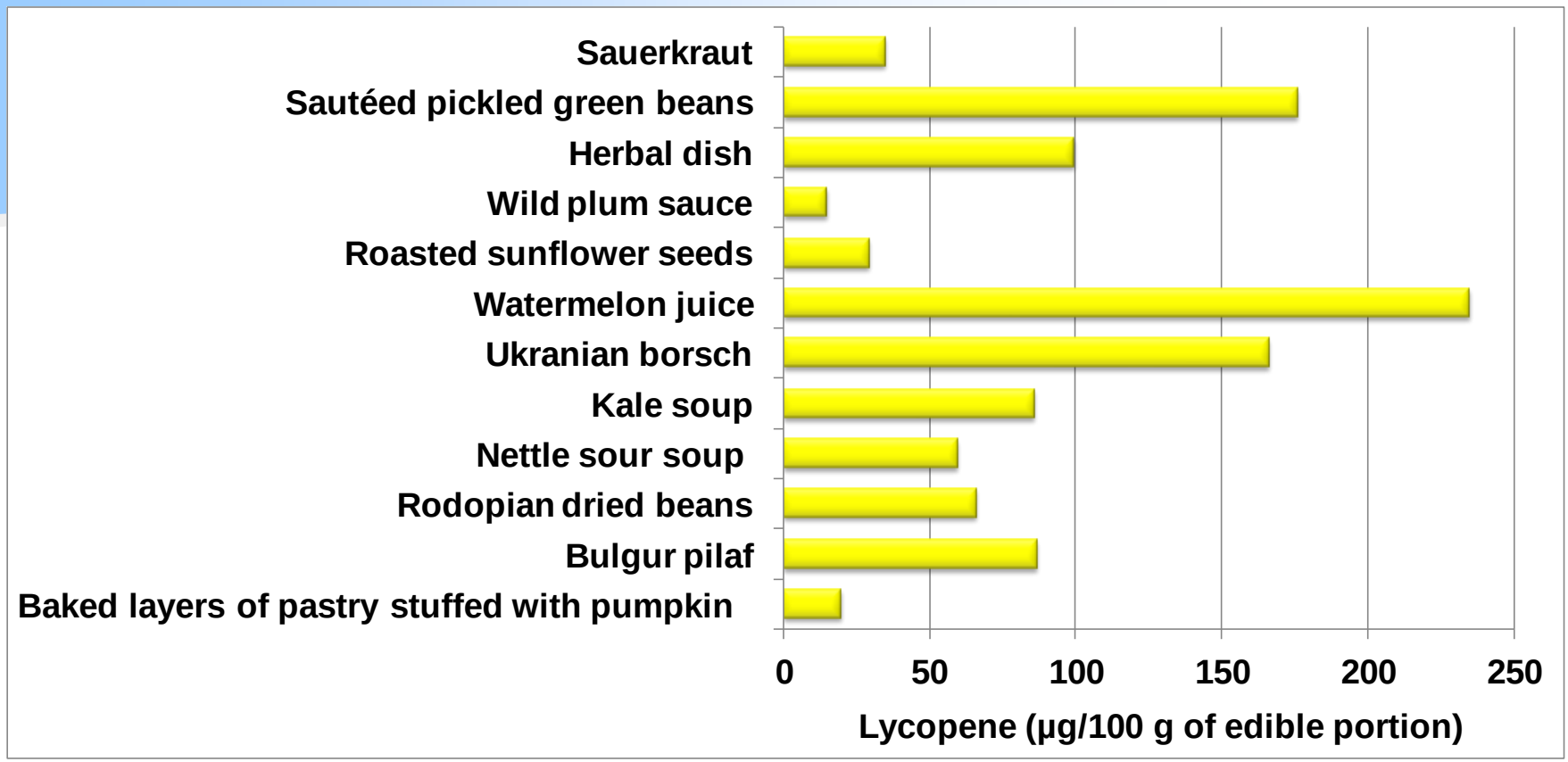
From the 33 analysed traditional foods, zinc was found in 39% of them and the richest source was roasted sunflower seeds

β - carotene



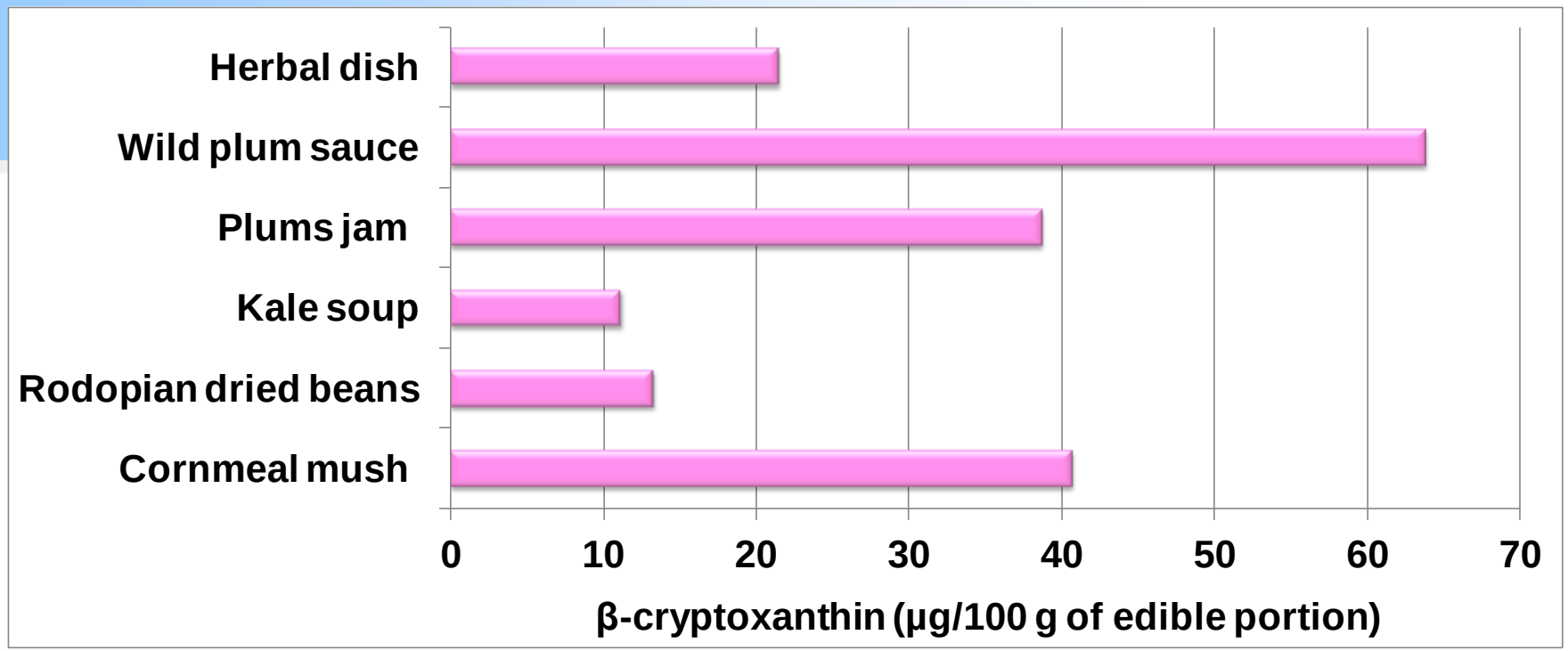
The sample with highest β-carotene content was plums jam followed by kale soup and nettles sour soup

Lycopene



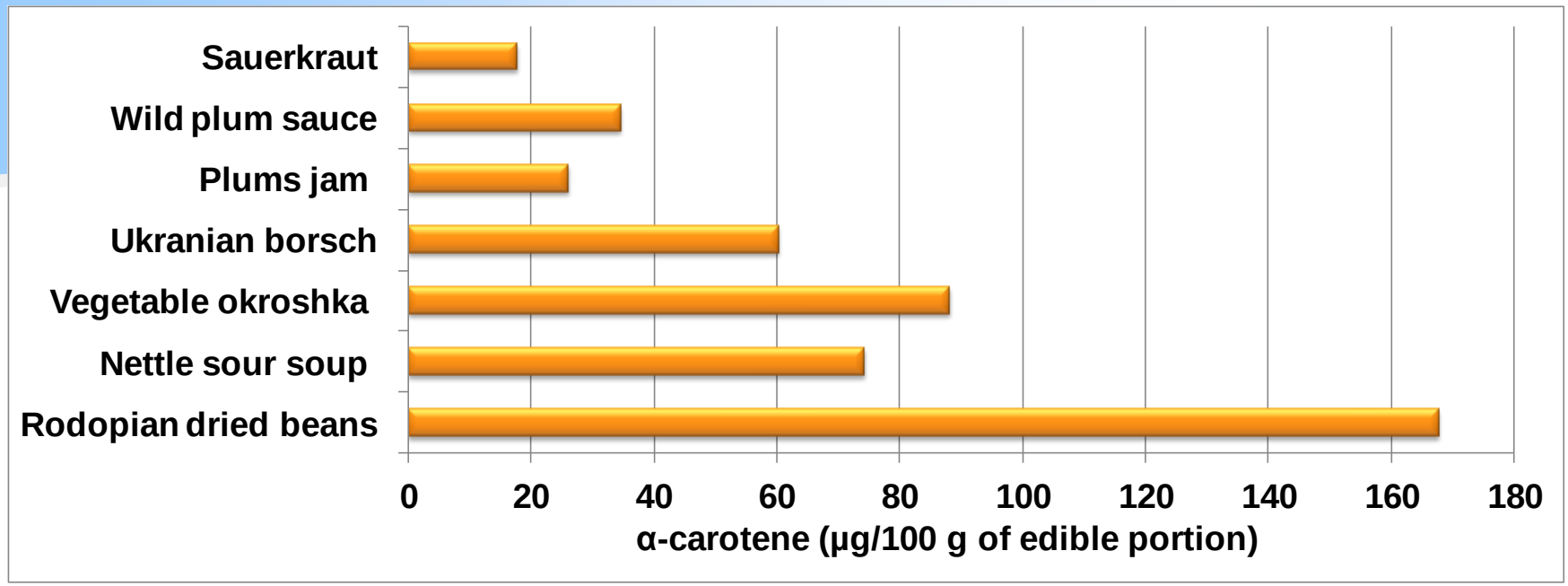
The foods with highest lycopene content were watermelon juice, sautéed pickled green beans and Ukrainian borsch

β - cryptoxanthin



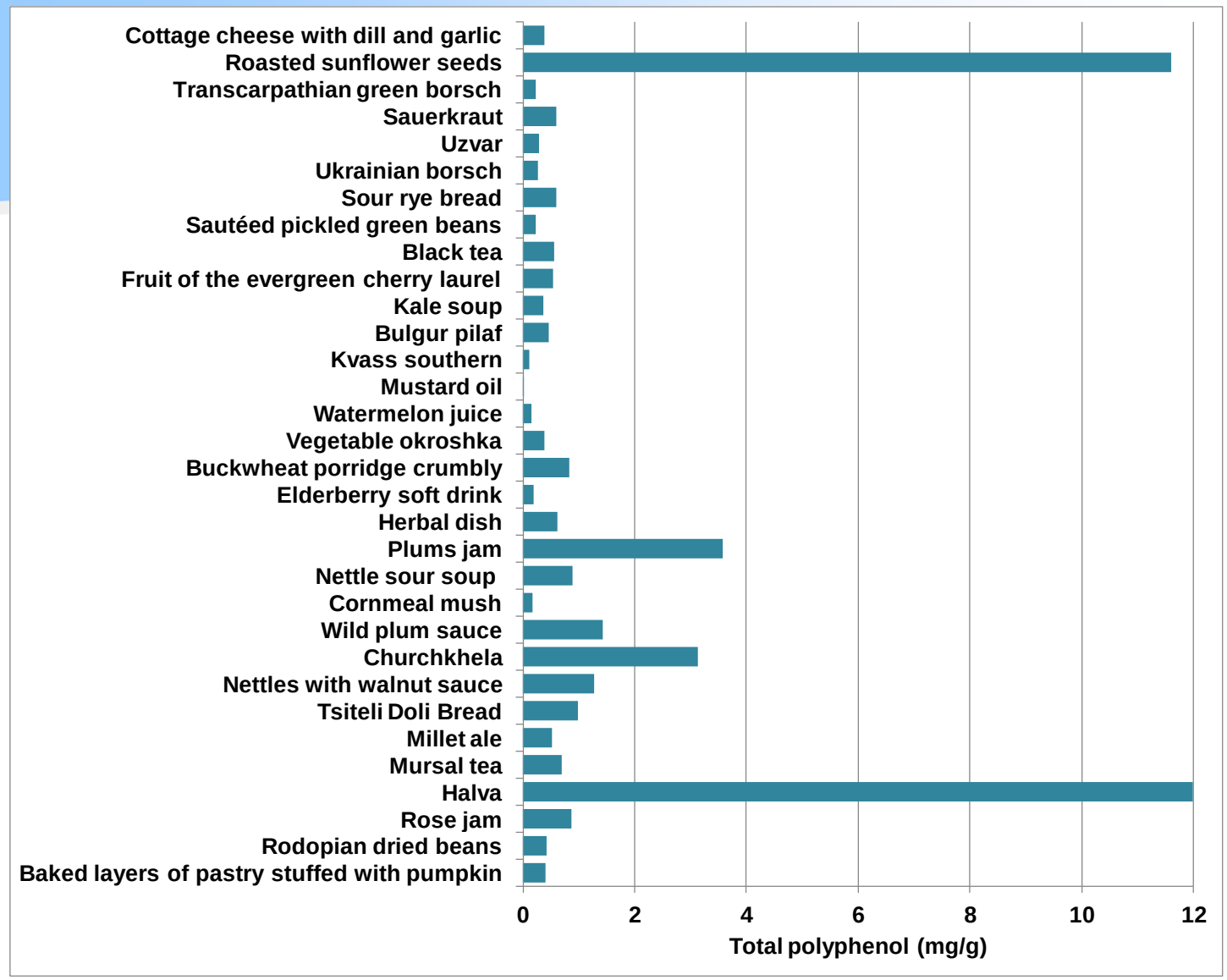
Wild plum sauce was the sample that presented the highest β-cryptoxanthin content (63.8 µg/100 g of edible portion).

α - carotene



The highest level was found for rodopian dried beans, followed by vegetable okroshka and nettle sour soup

Total polyphenol



The samples that presented the highest total polyphenol content were halva and roasted sunflower seeds

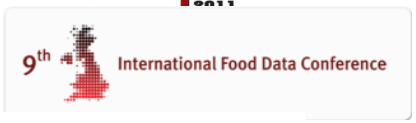
BaSeFood Traditional Foods Dissemination

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

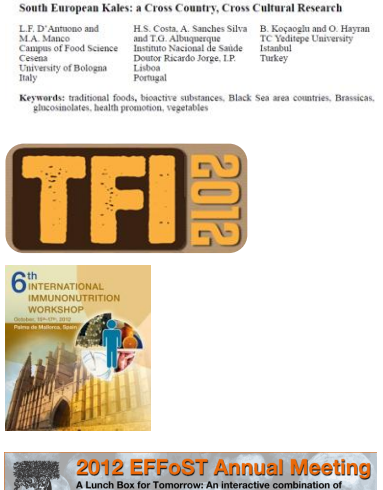
2009

2010

2011



2012



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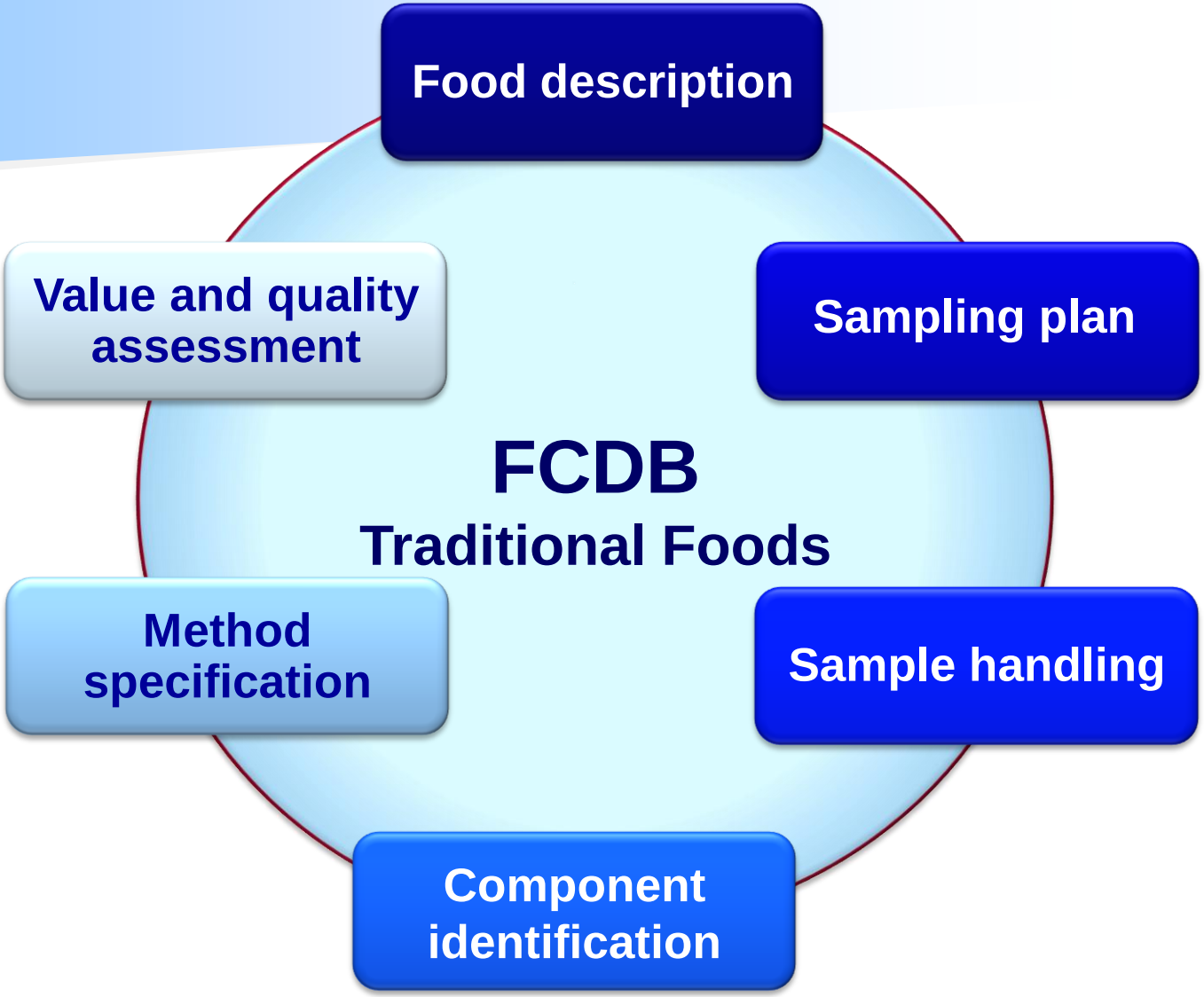
Value documentation



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Output and benefits

EuroFIR and BaSeFood Traditional Foods

- 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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