



Individual Highlights

**Organisation and management** 1

4th Coordination and Project management board meeting 1

**Plants and foods reports** 1

Bulgaria, August 2011 2

Ukraine, August 2011 3

Tsiteli Doli Bread is back on Georgian market 5

**Inspiring stories for intercultural comparisons** 6

The Italian pekmez: saba, savour and related facts 6

Herbs and salt: the salamoia bolognese and other aromatic salts 7

**Analytical and microbiological characterisation of prioritised foods** 8

Value documentation on nutritional composition of traditional foods from Black Sea Area countries 9

Microbial "portrait" of traditional foods: BaSeFood 2.4 and 3.1 tasks almost completed 9

Polyphenols richness in traditional foods: antioxidants and beyond 9

**Bioactivity of traditional foods** 10

Clinical trials at the Uzhhorod national University 10

**BaSeFood dissemination** 11

Dissemination events 11

9th International food data conference, Norwich, UK, September 14-16, 2011 11

Presentations at other meetings 11

## Organisation and management

### 4th Coordination and Project management board meeting

The meeting was held in Uzhhorod, Ukraine, with the organisation of Nadiya Boyko and co-workers, from the Uzhhorod National University. The meeting was focused at the evaluation of the results of mid term review, introducing necessary adjustments, and at the application for a project's time extension. It was agreed to apply for a 7 month extension, to October 2012,



Nadiya Boyko introduces new lab facilities to participants, with her usual enthusiasm.

extending the project's duration from the original 36, to 43 months. During the meeting the participants were pleased to attend at the inauguration of the new labs of prof. Nadiya Boyko, to which BaSeFood gave small contribution.

The meeting was also an occasion to taste traditional Transcarpathian and Ukrainian dishes, also in the nice context of the Uzhhorod castle.



A moment of wine and food degustation, Uzhhorod castle.

## Plants and foods reports

Survey missions were carried out during summer 2011, aimed at further on site exploration and documentation of local plant and food resources. As expected, this kind of activity is a real challenge: in the beginning, it seems that nothing could come out, and that all knowledge is faded and forgotten. Then information starts to emerge and it becomes clear that knowledge is still there, people only wait for the occasion to recover it, and the reason of oblivion is only the present tendency to uniform habits and likes all world round. But, at the same time, it is equally clear that the risk of knowledge loss is real. A project such BaSeFood could only give a small contribution to start or, better, to be in a strain of a potentially exciting work of recovery, well beyond what is allowed by the limited resources.



Sladko selling, road to Borovo, Bulgaria, August 2011.



Parsley kufte, Plovdiv, Bulgaria, August 2011.

## Bulgaria, August 2011

*L. Filippo D'Antuono (UNIBO) and Iordanka Alexieva (UFT)*

The surveys have been carried out in the area around Plovdiv, in the lower eastern Rodopi and southern Stara Planina. The focus was on primitive wheats, herbs and fruits, and related foods, that will represent relevant chapters of the work done on site.

**Primitive wheats.** Limetz is the Bulgarian word to indicate hulled wheats. We found limetz one year ago on the central Rodopi mountains, still grown by traditional farmers (see issue 3 of BaSeFood newsletters), and this was emmer wheat (*Triticum turgidum* L. subsp. *dicoccum* Schrank ex Shubler (Thell)). This year we visited a biological grower in the area of Rabovo, in the lower eastern Rodopi area. He told the story of seed recovered from a limetz crop old fields, largely grown until the sixties, that he is trying to reproduce and propose again for the market of biological products. This time limetz was einkorn wheat (*Triticum monococcum* L.). So it seems that both emmer and einkorn wheat are, or were, grown in Bulgaria until not so long time ago. This situation stimulated curiosity: a visit to a natural product store in central Plovdiv revealed that limetz is already marketed in commercial channels.



A limetz (*Triticum monococcum* L. - einkorn wheat) bunch, Rabovo, Bulgaria, August 2011.

In this case, however, it comes from central Europe, although likely grown somewhere in Bulgaria. Although not verified, this limetz is likely spelt (*Triticum spelta* L.). A rather confused situation, similar to what occurred in Italy 20 years ago. There is a real need to well document traditional uses of local limetz, to the benefit of its preservation and valorisation.

**Herbs.** Bulgarian herbs represent a key ingredient of many dishes. This summer's on site exploration and joint brainstorming sessions with local people suggested some preferential themes for the final steps of investigation and

reporting, and indicated some unexpected facts.

Chubritza (*Satureja hortensis* L.) is for sure the key dry herb of the Bulgarian tradition.

Samardala (*Nectaroscordum siculum* (Ucria) Lindl. ssp. *bulgaricum* Janka; syn. *Allium bulgaricum*) is very popular, allium-like plant. It is a very seasonal plant, which leaves are preserved dried and mixed with salt. The mixing with salt is also popular for annual savoury, thyme, oregano, lovage.



Young parsley and dill, central market, Plovdiv, Bulgaria, August 2011.



Samardala and salt packs, "Monday market", Plovdiv, Bulgaria, August 2011.

Preparations of herbs and salt are commonly sold on markets. About this, see also the report on "Salamoia bolognese". The dominant herbs for fresh use are dill and parsley. About parsley, we registered an unexpected use as main ingredient of specific dishes e.g. (parsley salad, parsley kufte), that will be adequately documented.

Another interesting point is that dill (locally kopr) and wild fennel (locally rezene) seem sometimes to be interchanged, whereas, in other cases, they are well discriminated. The use of all parts of dill plant finds a parallel in the use of fennel in Mediterranean Italy. The use of a campion (*Silene* sp.) was also registered and will be further documented. This is interesting since it can represent a parallel to the wide use made in the Romagna region of Italy of *Silene vulgaris* L., in the popular tradition.

**Fruits.** As for other parts for Black sea area, the focus was on two themes: a) local species and varieties and specific

properties and uses; b) ways of preservation based on local traditions. With respect to the first point, the work is still initial. Without any doubts, cornelian cherry is a strongly characteristic species of the area (see also the report for Ukraine), widely used also in Bulgaria.



Pine cone sladko, Borovo, Bulgaria, August 2011.

Sladko (literally "sweet", in Bulgarian) is a fruit preserve made of fruit pieces in a syrup obtained by sugar and water. Sladko can be prepared from almost any fruit, with also variations in the recipes. But sugar is a relatively new easily available product. So, it came out that, in some areas, sugarcane stems were boiled and pressed to obtain the sweet syrup. Or grape pekmez (condensed grape juice) was produced and, among other uses, also employed as a sweet syrup for sladko (see, about this, the report about Italian fruit products). A specific sladko, with also medicinal properties, is prepared with pine and spruce young cones or buds.

### Other highlights from Bulgaria.

Kachamak is a sort of Bulgarian corn polenta. Many variations of this dish are available. The history of corn does not seem to be different from that of other countries (e.g. Italy): a story of food of the poor and slow recovery in present times. Local corn varieties, with small vitreous kernel, were reported to be used for specific human food preparations.

Halva, the typical sweet produced with oilseeds pastes (tahin) and textured sugar, (reported for Ukraine in the National country specific documented traditional food files:

[http://www.basefood-fp7.eu/dissemination/public\\_deliverable/s/d\\_1\\_1\\_national\\_country\\_specific\\_documented\\_traditional\\_foods\\_files\\_1](http://www.basefood-fp7.eu/dissemination/public_deliverable/s/d_1_1_national_country_specific_documented_traditional_foods_files_1)) is also a flexible ingredient: it is used also as a filling of brioches.

## Ukraine, August 2011

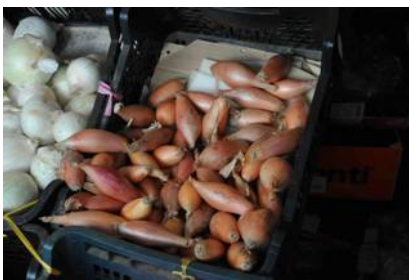
*L. Filippo D'Antuono (UNIBO), Mariia Mudryk (UZHNU), Nadiya Boyko (UZHNU), Katerina Fedosova (ONAFI)*

Ukraine is the second largest nation in Europe: no surprise that, going local, means finding diversity in food traditions, especially in the regions that share different cultures and are more physically characterised.

Without any doubt, the Carpathian area and the Crimea peninsula represent such cases. Local surveys have been carried out in summer 2011, jointly by local partners (UZHNU and ONAFI) and UNIBO, bringing out peculiarities, and the presence of some strikingly bridging and unifying plants and products.

In Transcarpathia, visits were carried out to industrial vegetable processors (Univer and Korado), supermarket Dastor, several open markets, the Dobrons'ka paprika factory, a cornelian cherry plantation, a corn miller, talking to local experts, among which also Mr. Myron Gyravets', the responsible of Transcarpathian farmers association. In Crimea, it was also met the responsible of Crimean farmers association, and visit were carried out to markets, supermarkets, a local fruit plant nursery, a sunflower oil pressing plant and a grower of Yalta onion, also actively interacting with local people.

**Ukrainian onions.** "Sladkiy-sladkiy" (sweet-sweet): this is the way road sellers advertise the Yalta onion. Yalta onion is a typical Crimean onion; its exact origin however is not very clear. It is a summer type, of medium storability, with red flat bulb. Best quality is claimed to be obtained from crops of Crimean slopes, facing the Black sea. The cultivated areas are very small there, so the onion is also extensively produced in large scale open fields in the Crimea and in the Kherson region plains. But locals say that it is not the same.



The elongated Transcarpathian onion, Mukachevo market, August 2011.

An elongated onion, with pink bulb was noted in the Mukachevo central market. Locals said that is a typical

Transcarpathian onion, but with apparently little consciousness of its peculiarity. The elongated bulb makes it somewhat similar to big shallots, or bunching onions. Bulb flesh can be white or light violet, revealing some variability. A first investigation seems to indicate that similar types are also grown in southern Poland.



Yalta onion road selling, Simferopol, August 2011.

Both Ukrainian onions seem to be good candidates to future actions for better exploitation as typical products, as it occurred for some onion types in Italy.

**The Transcarpathian paprika.** Many villages of southern Transcarpathia are ethnically Hungarian. People speak Hungarian and retain Hungarian habits; they also use central European time!



Pre-drying of paprika peppers, Mala Dobron', Transcarpathia, August 2011.



Paprika packs, Mala Dobron', Transcarpathia, August 2011.

The growing and drying of sweet peppers to make paprika is part of Hungarian culture. A local firm in Mala Dobron' upscaled the production of paprika to commercial level, still retaining the traditional scheme. The fruits are hand picked, pre-dried in the shade and then dried with hot air,

milled and packed. The market is internal Ukrainian. Paprika is a wonderful product, full of colour and carotenoids, adding flavour to several dishes. Perfect for a traditional-fusion cooking.

**Pressure seed oils.** Artisanal pressed sunflower oil can be found everywhere in Ukrainian open markets.



Small-scale pressed sunflower oils, Privoz market, Simferopol, August 2011.

The pressing plants are often very basic, certainly not in line with strict control standards. Some of them press the native seeds, other the roasted or the vapour heated seeds; oil quality, mostly non-refined, varies, by consequence. People search for these oils, because they are sometimes cheaper than industrial sunflower oils, but also since they retain flavour.



Variation of seed cold pressed oils in Ukraine, August 2011.

We visited Dastor supermarket, in Uzhhorod and Silpo, in Simferopol. An amazing array of pressure oils is available: sunflower, corn, rapeseed, linseed, pumpkin, sesame, walnuts, almonds, pine seed, sea buckthorn and olive, of course. Supermarket managers say that this is a recent fashion, a matter of image, rather than business. Indeed, most people consider only sunflower; apparently there is no memory of what was used before sunflower oil, that did not exist until 2 centuries ago. Do some of these niche pressure oils this memory? In the Mediterranean countries they are overwhelmed by king olive oil. But, for sure they represent interesting niche products, retaining the flavour of individual raw materials, and most of the substances that are extracted by

pressure with oil, some of which, perhaps, healthful. The sensory and analytical characterisation of these oils would be a challenge, for the future.

**Fruits.** The further exploration of fruit uses and perceptions confirmed a few points.

There seem to be a rather limited consideration for local varieties of major fruit plants, that are however sometimes mentioned. This may depend on the diffuse presence of fruit trees along road sides, in city gardens and other public places, that was highly encouraged during the soviet period to allow the availability of fruit for everybody.

Complementary to this, and in the same frame of the integration of diets, there is still a high use of wild and semi-wild fruit resources.

All possible ways of preservation are still practiced, generating an interesting diversity of products: from the reduction of the amount of water, to different degrees, to the addition of sugar or, more rarely, salt.

In all the Carpathian area (regions of Transcarpathia, L'viv, Ivano-Frankivsk, Ternopil' and Cehrniivtsy) it is established a system of exploitation of natural resources represented by wild berries ("fruits of the forest"). These are brought to local collection points and frozen, both for internal use or export. Ukraine is now among the major exporters of frozen wild berries. It is reported that this organisation arose from a need of the mountain people, who were the first who lost jobs after the social changes following independence. But this is almost surely based on a pre-existing tradition of using natural resources to integrate home food resources. The present commercial exploitation may pose some challenges in term of long term sustainability.



Cornelian cherry fruits road selling, Alushta, Crimea, August 2011.

The use of wild resources was further explained during a visit to a local cooperative in then village of Petrovo, Crimea. Besides collecting and partly growing a quite wide array of medicinal plants, then dried and sold to herbal and pharmaceutical firms, they also

collect and process wild fruits: during the period of the visit the harvest and processing of cornelian cherry fruits was in full development.



Exciting visit at a cornelian cherry old plantation, Cherna, Transcarpathia, August 2011.

**Cornelian cherry** is really a late-summer king, when its fruits are actively picked, sold fresh in every market and road sides, and processed in various ways. The documentation of cornelian cherry uses and foods will be a part of BaSeFood results.



Cornelian cherry fruits, var. Elegant, Donskoe nursery, Crimea, August 2011.

Cornelian cherry is however a real master plant of eastern Europe traditions. Its fruits are very little involved in the modern trade of "forest fruits", but at the same time, so strongly rooted in local uses. They are preserved in all possible ways: dried, in compote, with sugar, boiled until the paste is dense enough, sometimes pickled. The use is almost invariably associated with some putative benefit to health. It has also been used as a vitamin C supplier to seamen during war time.



Cornelian cherry fruits in a forced air drier, Petrovo, Crimea, August 2011.

Cornelian cherry has been also subject to selection and several improved varieties are available. Other two interesting examples of cornelian cherry exploitation were visited. An old plantation in Cherna, Transcarpathia, that is jealously managed by the people of the village, as a precious resource.



Cornelian cherry preserves, Alushta Crimea, August 2011.

Mr. Vasyli' Ivashko, the Head of village council, is a true fan of these and other plant resources. And a nursery in the Donskoe village, Crimea, where about 16 varieties of cornelian cherry are propagated and sold to national and foreign amateurs.

Other wild fruits that retain a prevailing local value are sand hawthorn, barberries, rose hips.



Home made cornelian cherry compote, Cherna, Transcarpathia, August 2011.

**Herbs.** The herb culture, especially in northern Ukraine, does not reach the peaks of the south Black sea region, where Georgian kitchen makes extensive uses of large amounts of fresh herbs.



Bunches of dill plants, wrapped in horseradish leaves, to be used for pickles, Mukachevo market, August 2011.

Dill represents again a staple. Very characteristic is the use of dill to flavour pickled vegetables (cucumbers, courgettes, zucchini squashes), together with horseradish leaves, in traditional preparations or, more commonly, mustard seeds, in the more industrially oriented productions. This tradition is being exploited by some industrial firms producing vegetable preserves. Horseradish leaves are reported to contribute also to crunchiness of pickles, besides flavour.



Pickles tasting, Univer factory, Fanchykovo, Transcarpathia, August 2011.

In Crimea whole dill plants still represent the dominant kind of summer herbs, sold in open air markets. However,

typical plants of the southern tradition, such as coriander leaves and tarragon, can be easily found.

Fresh, ready to eat dill and parsley are also available in supermarkets.

**Corn in Transcarpathia.** The central-European influence is also reflected in the wide use of corn in the Transcarpathian cuisine.



"Nachanka Koryachka", an over 20 ingredient corn appetiser, Cherna, Transcarpathia, August 2011.

Besides token and banosh, the two staples already described in the BaSeFood deliverable: National country specific documented traditional food files (see [http://www.basefood-fp7.eu/dissemination/public\\_deliverable/s/d\\_1\\_1\\_national\\_country\\_specific\\_doc](http://www.basefood-fp7.eu/dissemination/public_deliverable/s/d_1_1_national_country_specific_doc)

[documented traditional foods files\\_1\)](#)

several other dishes are prepared, especially by the Hungarian communities.

Corn is sometimes still milled in local plants, on behalf of individual small scale growers. The existence of a Konbinskaya (suitable to combine, industrial corn) and of a Transcarpathian corn sort is reported.



A proud corn miller, Thyachiv, Transcarpathia, August 2011.

This could suggest the opportunity of actions to better characterise the possible residual populations of corn for human food, as done in some areas of Northern Italy.

## Tsiteli Doli Bread is back on Georgian Market

**Mariam Jorjadze and Elene Shatberashvili (ELKANA)**

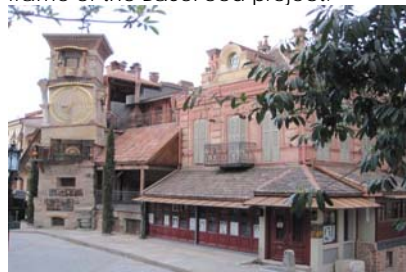
One of the BaSe Food priority traditional foods from Georgia: Tsiteli Doli Bread is already available at Georgian market! Georgia belongs to the Western Asian centre of the origin of the cultivated plants. Among others, according to the historical, archeological and botanical findings Georgia is considered to be one of the main genetic centers of origin of wheat species. Among two dozen of existing wheat species, 14 were spread in Georgia, out of which, 5 are endemic.



Georgian breads in a bakery.

However, with the replacement of local wheat varieties with industrial ones during the 20th century and especially

due to the Soviet agricultural politics of concentration and specialization local wheat disappeared from farmers' fields and was kept only as a research material in the scientific institutions. This contributed also to significant loss of a knowledge related to traditional bread baking. Since late 1990s Elkana works on reintroduction of traditional crops in farmers fields. Among many other crops restored in the frame of Elkana program is the local landrace of winter soft wheat - Akhaltsikhis (Meskhuri) Tsiteli Doli (*Triticum aestivum* L. var. *ferrugineum*). At present about 25 farmers are growing this wheat in their fields, what made possible bake a bread and provide it to the customers in Tbilisi regularly, though in small quantities. Tsiteli Doli Bread is also among 33 selected foods to be investigated in the frame of the BaSeFood project.



Café at Gabriadze Theatre, Tbilisi, Georgia.

In cooperation with Begeli Ltd Elkana restored the lost tradition of baking the bread from Tsiteli Doli flour. To make Tsiteli Doli Bread different baking technologies were tried with various bakeries' of Tbilisi in order to receive the product which would be traditional and oriented on modern consumer at the same time. It showed that the way of baking the traditional bread - "shoti" is the most suitable for the product from the marketing point of view. Indeed, after the first modest sales in a small organic shop "BioValley" today Tsiteli Doli bread is served as an exclusive product at one of the most picturesque restaurants of the capital of Georgia - "Café at Gabriadze Theatre".

To further promote Georgian cultivation of local wheat and traditional bread baking on October 1 the "Bread Festival" took place for the second time in the city of Akhaltsikhe, Samtskhe Javakheti region. The campaign "Safeguard World Cultural Heritage in Georgia!" recently launched by Elkana also aims to attract the public interest on the importance of the local agricultural biodiversity and cuisine.



## Inspiring stories for intercultural comparisons

One of the BaSeFood goals is the enhancement of the awareness of potential consumers of traditional foods. This is being carried out by the documentation of local foods and crops, but also by an attempt to cross cultural compare knowledges of

apparently very different areas. And things are slowly coming to the surface: the soft technologies that were available in traditional food systems had to rely on the same backgrounds and facts, so clear convergences are emerging about the uses of plant

resources in food production. But intercultural comparison does not have only a historic or folkloric documentation value. It may be also inspiring for stimulating new opportunities of valorisation of local resources.

### The Italian pekmez: saba, savour and related facts

*L. Filippo D'Antuono (UNIBO) and Cristina Bignami (UNIMORE)*

The traditional diet of many rural communities in the Black sea area and in the Mediterranean basin is characterized by fruit derivatives. Similar raw materials and home processing systems characterise these foods, which respond to common needs whatever the area of origin: to make the seasonal and perishable fruits available out of season and to obtain sugar substitutes for seasoning, preserving fruits or direct consumption.



Tasting white mulberry pelamushi, Aspindza, Georgia, August 2010.

Lowering water content, and increasing solute concentration, is an effective way to preserve fruit and vegetables. The typical example of this procedure are the different sorts of pekmez, largely prepared and used in Turkey, that will be the subject of in-deep documentation. Sometimes the fascination of exotic foods products may lead to forget domestic products.



Red grape (Lambrusco salamino and Lambrusco grasparossa) sughì, Modena and Reggio Emilia area, September 2011.

In this case, however, the wonderful sight of Turkish pekmez had the

opposite effect of suggesting a cross-cultural parallel to Italian situations. Grapevine is largely grown all over Italy and represents a very important crop in the plains and hills of the Emilia Romagna region, as well.



Jars of "savor", Montegelli, Italy, September 2010.

Grape use is rooted in tradition, not only for wine making. In the past, sugar was expensive and was not always available in the countryside. During grape harvest, part of the grape must was not fermented, but slowly boiled for 24-36 hours, until the volume was reduced by two thirds. The final product, with a sugar content of 50-60% was stable for long time. Its name is Saba or Sapa, the Italian pekmez, whose origin dates back to pre-Roman times.



Traditional preparation of savourett, Carpineti, Italy, October 2010.

Saba was used on bread, with polenta, as a seasoning of cooked beans, chickpeas and chestnuts, as a filling of pastries. Children used to put saba in snow during winter, to make a kind of grenadine. The use of saba was progressively lost, until some years ago, when its preparation was recovered in some places. Now saba is available in

limited amounts also in commercial channels, and is the subject of popular autumn festivals. But saba is also the base to prepare savour or savor (literally: taste), a particular dense and dark jam, used with cheese, roasted or boiled meat, bread and as ingredient of sweets (tortelli, sabadoni, Christmas sweets). To prepare it, saba is put to boil again, and pieces of any kind of fall fruits (mainly apples, pear, quinces), nuts, but also dried summer fruits, pumpkins, watermelon and melon peels are boiled into saba for several hours.



Different sorts of Italian "Saba", September 2011.

After all, it is a kind of sladko, where the sugar syrup is saba. In some mountain areas, where grapes are not available, the autumn fruits (apples and pears) were boiled for long time, in order to attain a concentration suitable for preservation, without any sugar addition.



Termarina grape (bottom), in comparison to "conventional" grape.

A procedure very similar to that used to prepare Transcarpathian lekvar. A only-pear variant of this is "savourett of Carpineti", in which a particular variety of pear (Spalér) is first boiled to prepare

the concentrated base (instead of saba), and then pieces of Nobile pear are added to complete the preparation. Similarly to the Muscadine grape lekvar, a thick jam without added sugar was prepared in the province of Reggio Emilia and Parma with the Termarina, an ancient seedless

grapevine cultivar with very small and sweet berries, also used to make 'saba'. Like savor and savurett, even Termarina jam is an ingredient of 'pesto', the sweet filling of the pastries 'tortellini dolci di Natale'. Finally, "sughi" are kinds of puddings prepared by cooking grape must with

flour, until a semi-solid texture is attained. Sughi were a popular sweet for children in the past, then were almost forgotten. Sughi are very similar to "pelamushi", that is prepared in Georgia mixing flour and the boiled juice of grape or other different fruits.

## Herbs and salt: the salamoia bolognese and other aromatic salts

### L. Filippo D'Antuono (UNIBO)

Add salt and dried herbs: a classical step for the preparation of recipes all around the world.

What is special with the Salamoia bolognese? First, it is traditional of the area of Emilia-Romagna. Second, the herbs are ground and mixed with salt when still fresh.

The typical ingredients are garlic, rosemary leaves and coarse salt.

Variants include sage leaves and black pepper. The herbs are finely chopped, the salt is ground in a mortar or by rolling a bottle, and the two ingredients are mixed. Then the salamoia can be kept for some months, retaining the fresh herb flavour. Well known: garlic, rosemary and sage are highly valued for their putative health promoting properties.

Salamoia is widely used mainly to flavour baked meat, fish and potatoes.



Jars of "Salamoia bolognese", September 2011.

Traditionally it was used with chicken. In the times when resources were exploited to the maximum, chicken was used on Sunday to prepare broth, boiling several hours. Then the chicken was baked in the oven, but lot of flavour was gone. So the salamoia was called to make the little miracle, that was first perceived by the aromatic smell from the oven.

Salamoia has been always prepared at

home, and also by small scale butchers, sometimes also offering it for free to customers.

Caber ([www.caber.org](http://www.caber.org)) is a small scale firm close to Bologna, that started her business with salamoia bolognese, in the sixties of last century.

The firm is grown, but the salamoia still remains the core product and the symbol of the local roots of the firm. On September 23, Caber inaugurated the "herb garden", a garden in which people can see the herbs that Caber itself started growing to assure a supply of fresh and safe product. A demonstration of the preparation of salamoia was also done.

Herbal salts are already commercial available also from Black sea are herbs. They may be bought on the internet, as well. But maybe that the example of Caber could enhance the idea of linking commercial products to the background traditions.



Preparing salamoia bolognese, Cadriano, Italy, September 2011.

# Analytical and microbiological characterisation of prioritised foods

## Value documentation on nutritional composition of traditional foods from Black Sea Area countries

*Ana Sanches Silva (INSA), Tânia Gonçalves Albuquerque (INSA), Paul Finglas (IFR) and Helena Soares Costa (INSA)*

Traditional foods are the key elements that differentiate the dietary patterns of each country. In most countries, there is limited information on the nutritional composition of such foods, therefore, there is a need to investigate, register and promote traditional foods. These foods are also a valuable contribution to the development and economic sustainability of rural areas and preservation of biodiversity. Therefore, the nutritional composition of thirty-three traditional foods from Black Sea Area countries (BSAC) is being carried out by INSA and IFR.

Prioritisation of the components to be analysed for each traditional food has been performed and the appropriate methods and number of analytical samples have been selected. The following components are being determined: water/moisture, ash, total fat and individual fatty acids, starch, total sugars, total dietary fibre, minerals and trace elements (Na, Fe, Zn) and vitamins A, E, C and B2. To assure the quality of analytical results accredited laboratories were chosen.

In order to include the new food data in Food Composition Databases (FCDB), it is essential to guarantee data quality

which is strictly dependent on the documentation of each sample. FCDB provide detailed information on the nutritional composition of foods and have different applications, such as public health and education, clinical practice, research, the food industry, food consumption surveys, sports nutrition.

Fig.1 summarizes the most important categories that should be taken into account to assure the full value documentation, which includes: Information on food description, sampling plan, sample handling, component identification, method specification, value and quality assessment was collected for each of the traditional foods for inclusion in the available national food composition databases.

### Categories included in full value documentation.

INSA and IFR have developed guidelines for the sampling and sample handling of primary and composite Traditional Foods of BSAC in order to establish a common approach for all countries and to ensure that representative food samples are analyzed and that they produce reliable and high quality data to include in FCDB. A form, prepared to harmonise the information collected by the partners in different countries and for the inclusion of relevant data was filled

in by BSAC partners with information on the traditional recipes and primary foods. This document contains information regarding Food description (including name in English and in the original language and the scientific name in the case of primary foods); Sampling plan (including date and time of collection, sampling point, process and preservation method and description of the ingredients) and Sample handling (including mixing/homogenization method, storage/container; information about pool preparation, storage and transport to the laboratory). For Method specification, in the labs another form was filled out, including information on the analytical methods for each component.

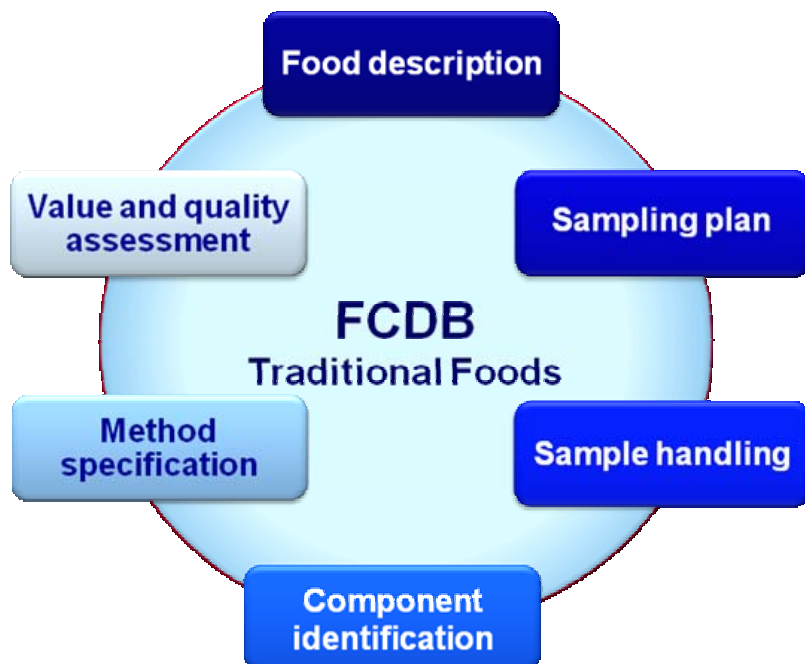
The use of a common methodology for the study of traditional foods will enable countries to further investigate their traditional foods and to continue to update their national food composition databases. Moreover, knowledge base of traditional foods from Black Sea Area countries will contribute to promote local biodiversity and sustainable diets, by maintaining healthy dietary patterns within local cultures.



We're on the Web!

See us at:

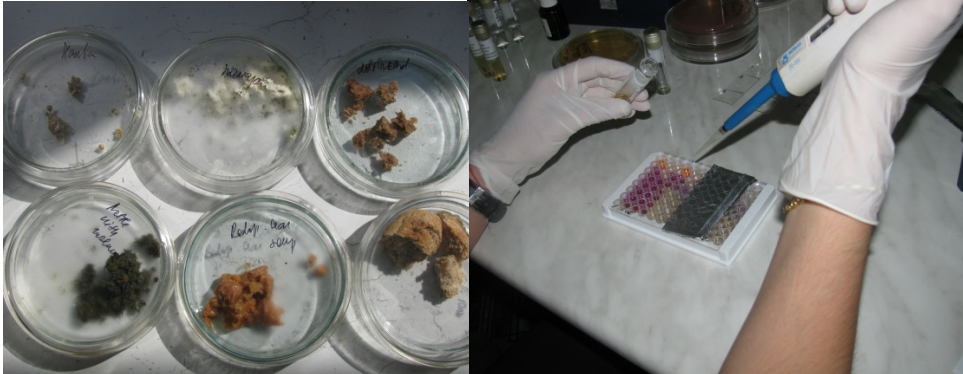
<http://www.basefood-fp7.eu/>



## Microbial "portrait" of traditional foods: BaSeFood 2.4 and 3.1 tasks almost completed

**Anzhela Dolgikh, Ivan Kutchak, Vitaliya Dutova and Viktor Petrov (LMMI, UzhNU)**

The aim of *in vitro* studies within task 2.4 is to find the key microorganisms which can be introduced to our organism, using traditional products as their possible carrier. The goal of task 3.1 is to



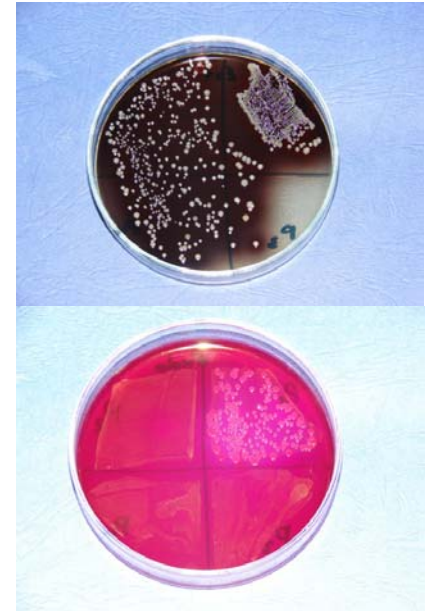
Tested dishes in both tasks: 1) microbial contamination and 2) *in vitro* effect on tested microbes

test whether prioritised foods and drinks as composite foods, or their major plant components can provide inhibitory properties on pathogenic or opportunistically pathogenic bacteria, or stimulating effects on species beneficial to human health. 36 prioritised traditional dishes within BaSeFood project, and their 45 major plant components have been twice examined: first – for their contamination with all the variety of bacteria and fungi

and then for their pro- and anti-microbial properties against 27 strains of 15 (16) bacterial species: 14 (16) pathogenic and opportunistic pathogens and 10 (11) beneficial (commensal) bacteria *in vitro* by using 4 different methods. *Strongly "positive" effect we observed in cases of:* Fresh

extracts – pure juices of: beet, garlic, and blue berries., and composite foods: Okroshka (Russia); Churchkhela (Georgia); Nettle with walnut (Georgia) all types of Georgian bread (Long loaf bread and Tsiteli doli bread with makhobeli), Black tea (Georgia), Smilyan bean soup (Bulgaria), Sunflower seed tahini halva (Bulgaria), and Pomazanka (Ukraine). *Slightly "negative" effect on gut microbes had been detected for pure plant extracts*

of: nettle, cucumber, tomato, onion (local) and barley (Bulgaria).



Samples of Hot Pepper are contaminated by *Enterococcus faecalis* and *Escherichia coli*.... but the Rose jam was sterile! (results of UzhNU and UFT teams during working visit of Ivan Kutchak to Plovdiv, Bulgaria).

Carrot, currants, cherries, and all fermented dishes: Socata (Romania), Boza (Bulgaria) and Sauerkraut (Ukraine) demonstrated complex effects.

## Polyphenols richness in traditional foods: antioxidants and beyond

**Francesca Danesi and Federica Pasini (UNIBO)**

Polyphenols are the biggest group among bioactive compounds. The biological, pharmacological, and medicinal properties of polyphenols are largely known. However little is still known about their distribution and content in traditional foods. The 33 traditional foods of the Black Sea area, prioritised in the BaSeFood project (see [http://www.basefood-fp7.eu/dissemination/public\\_deliverables/d\\_1\\_1\\_national\\_country\\_specific\\_documented\\_traditional\\_foods\\_files\\_1](http://www.basefood-fp7.eu/dissemination/public_deliverables/d_1_1_national_country_specific_documented_traditional_foods_files_1)), have been analysed at UNIBO for phenolic content and antioxidant capacity. The related potential bioactivity will be the subject of further investigation. The study demonstrates that the traditional dishes prepared with

vegetables, herbs, spices or fruits, like berries represent important sources of polyphenols. In particular, the foods from purple fruits, like plums and blueberries, the dishes prepared with nettles or large amount of spices, sunflower seeds showed high contents of phenolics.

In addition, a 200 mL serving of mursal tea – prepared with the Bulgarian *Sideritis scardica* - provides a very high amount of phenolics, *ortho*-diphenols, and hydroxycinnamic acids, comparable with a portion of green tea supplied by the Georgian partner. However, green tea exhibited the highest antioxidant capacity between beverages, 4-4.5 times higher than mursal tea. The quantification of polyphenols in foods consumed in Black Sea Area will contribute to the better

characterisation of these foods, as potential sources of useful dietary substances. It may also allow to contribute at the estimation of the availability of polyphenols in the diet of these Countries, in which some of the food examined represent basic staples.



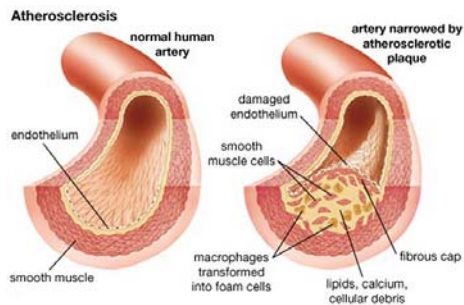
Images of some of the analysed foods.

## Bioactivity of traditional foods

### Clinical trials at the Uzhhorod national University

*Taras Chendey, Mykola Rishko, Olena Plyska, Tetyana Vasylovka (UZHNU)*

UzhNU team at Zakarpattya Regional Clinical Cardiology Dispensary carries out WP3 task 3.4 "Clinical trials to quantify the bioavailability and efficacy of selected BSAC foods".



The ambitious goal of over 80 enrolled patients had been set in clinical trial investigating effects of nettle and

mursal tea on flow-mediated vasodilatation (FMD) in population of patients at high cardiovascular risk. FMD is known to be a good surrogate marker of vascular/endothelial function which could be altered in the setting of cardiovascular disease.

The study had been launched in late June 2011 and is now in progress with 43 patients enrolled to date. End of enrolment is expected in late October 2011 and last patient last visit is to occur at the end of November 2011. The study will also explore the effects of these traditional Black Sea region food components on blood pressure and lipid profile.





**Editing**  
Lorenzo Cerretani

**E-mail**  
[basefood@gmail.com](mailto:basefood@gmail.com)



**We're on the Web!**  
See us at:  
<http://www.basefood-fp7.eu/>

## BaSeFood dissemination

### Dissemination events

See also the updated dissemination table at: [http://www.basefood-fp7.eu/dissemination/dissemination\\_table](http://www.basefood-fp7.eu/dissemination/dissemination_table)

Due to the courtesy of dr. Ruth Charrondi re, the link to BaSeFood newsletter will be communicated to the INFOODS listserver.

BaSeFood newsletters are also linked to the EuroFIR web site at: <http://www.eurofir.net/node/211>

### 9th International food data conference, Norwich, UK, September 14-16, 2011

The conference ([http://www.eurofir.net/9th\\_ifdc](http://www.eurofir.net/9th_ifdc)) took place at the Conference Facilities of the Norwich Bioscience Institute (NBI), Norwich Research Park. The Conference was a forum attended by more than 150 food and nutrition scientists. BaSeFood was represented by partners from Italy, Portugal and Ukraine. BaSeFood research found adequate space, with 3 oral and 4 poster presentations, which titles are reported here below. Find the .pdf of presentations in the BaSeFood web site at: [http://www.basefood-fp7.eu/dissemination/presentations\\_at\\_scientific\\_meetings](http://www.basefood-fp7.eu/dissemination/presentations_at_scientific_meetings)

1. Ferioli F., Manco M., Giambanelli E., D'Antuono L.F., Albuquerque T., Sanches-Silva A., Kocaoglu B., Hayran O. Variability of glucosinolates and phenolics in local kale populations from Turkey, Italy and Portugal. 9th International Food Data Conference, September 14-16, 2011. Norwich, UK. (oral presentation).

2. Soares Costa H., Albuquerque T., Sanches-Silva A., Vasilopoulou E., Trichopoulou A., D'Antuono L.F., Alexieva I., Fedosova K., Karpenko D., Kilasonia Z., Kocaoglu B., Boyko N., Stroia A.L., Finglas P. New nutritional data on selected traditional foods from Black Sea area countries. 9th International Food Data Conference, September 14-16, 2011, Norwich, UK. (oral presentation).

3. Dolgikh A., Pauk A., Buhyna L., Kutchak I., Rusyn Y., Mudryk M., Boyko N. The role of micro-organisms and their metabolites in determining functional properties of traditional foods. 9th International Food Data Conference, September 14-16, 2011, Norwich, UK. (oral presentation).

4. Pasini F., Danesi F., Caboni M.F., Bordoni A., D'Antuono L.F. Black Sea area traditional foods as a new, valuable source of antioxidant polyphenols. 9th International Food Data Conference, September 14-16, 2011, Norwich, UK. (poster presentation).

5. Finglas P., Roe M., Sanches-Silva A., Vasilopoulou E., Trichopoulou A., D'Antuono L.F., Alexieva I., Kapreliants L., Karpenko D., Kilasonia Z., Kocaoglu B., Mudryk M., Stroia A.L., Soares Costa H. Determination of total folate content in traditional foods from Black Sea Area countries. 9th International Food Data Conference, September 14-16, 2011, Norwich, UK. (poster presentation).

6. Soares Costa H., Albuquerque T., Sanches-Silva A., Mota C., Fontes T., Santos M., Vasilopoulou E., Trichopoulou A., D'Antuono L.F., Alexieva I., Fedosova K., Karpenko D., Kilasonia Z., Kocaoglu B., Koval N., Stroia A.L., Finglas P. Proximate composition of plant origin traditional foods from Black Sea Area Countries. 9th International Food Data Conference, September 14-16, 2011, Norwich, UK. (poster presentation).

7. Soares Costa H., Flores C., Sanches-Silva A., Albuquerque T., Santos M., Vasilopoulou E., Trichopoulou A., D'Antuono L.F., Alexieva I., Kaprelyants L., Karpenko D., Kilasonia Z., Hayran O., Koval N., Stroia A.L., Finglas P. Riboflavin content in selected traditional foods from Black Sea Area countries. 9th International Food Data Conference, September 14-16, 2011, Norwich, UK. (poster presentation).

### Presentations at other meetings

- Sanches-Silva, A., Soares-Costa H., Albuquerque T.G., Finglas P. Development of a chromatographic method for the simultaneous analysis of seven carotenoids and two vitamins in food samples. 36th International Symposium on High Performance Liquid Phase Separations and Related Techniques (HPLC 2011). June 19-23, 2011, Budapest, Hungary. (poster presentation).

- Danesi F., Pasini F., Mudryk M., Kocaoglu B., Karpenko D., Kapreliants L., Jorjadze M., Stroia A., Alexieva I., Caboni M.F., D'Antuono L.F., Bordoni A. Measuring bioactivity of Black Sea area traditional foods. 2nd International Conference on Food-Omics, June 22-24, 2011, Cesena, Italy. (poster presentation).

- Woodcock M., Needs P., Kemsley K., Dainty J., Mithen R., Kroon P. Early changes in vascular endothelial cell signalling in response to human quercetin metabolites: a phospho- array study. IFR 2011 Student Science Showcase, July 1, 2011, Norwich, UK. (poster presentation).

- Albuquerque T.G., Sanches-Silva, A., Finglas P., D'Antuono L.F., Soares-Costa H. Bioactive phytosterols and fatty acids profile of traditional foods from black sea area countries. EUROanalysis 16, European Conference on Analytical Chemistry, Challenges in Modern Analytical Chemistry. September 11-15, 2011, Belgrade, Serbia. (poster presentation).

- Albuquerque T.G., Sanches-Silva, A., Ribeiro T., Valente A., Finglas P., Flores A.C., Santos M., D'Antuono L.F., Soares-Costa H. Analysis of carotenoids, vitamins and folates in traditional foods from Black Sea Area. EUROanalysis 16, European Conference on Analytical Chemistry, Challenges in Modern Analytical Chemistry. September 11-15, 2011, Belgrade, Serbia. (poster presentation).