



KEY-MICROORGANISMS IN FOOD QUALITY / FOOD SAFETY OF TRADITIONAL DISHES AND DRINKS PRIORITISED WITHIN BASEFOOD PROJECT

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INTRODUCTION

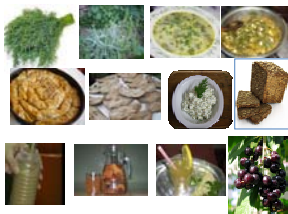


Prioritized dishes of plant origin from each BSAC in categories:

- 1) Cereals
- 2) Vegetables
- 3) Fruits
- 1) Oils
- 5) Herbs, spices
- 6) Fermented food and drinks

OBJECTIVES

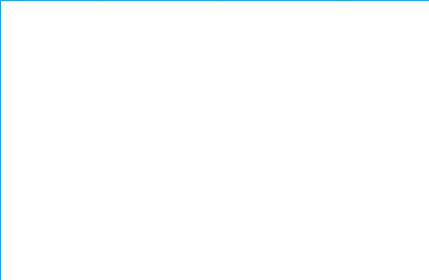
Preventive and therapeutic healthcare is closely associated with food safety issues via microbial food contamination



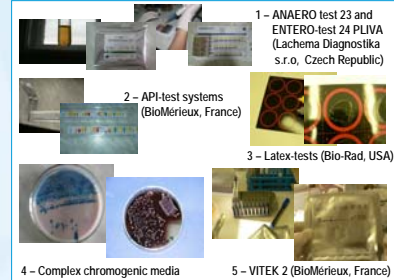
- A - "beneficial" – for food processes and for the human health
- B1 - contaminants from environmental sources
- B2 - human-relevant contaminants: food-borne and opportunistic pathogens

BUT: "Every medal has two sides"

LIST OF KEY MICROORGANISMS



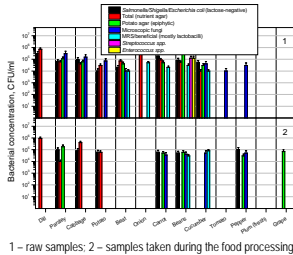
METHODS / DESIGN



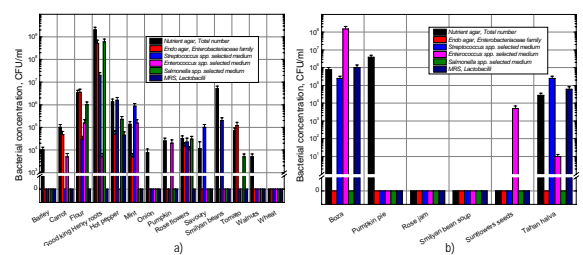
RESULTS

Group A was represented by *Lactobacilli* and *Bifidobacterium* spp. accompanied with enterococci, bacilli and Bacteroides. "Typical" environment originated microbiota (B1) included *Xanthomonas* spp., *Pseudomonas* spp. and *Erwinia herbicola* (*Pantoea agglomerans*). The etiological role of these "non-pathogenic" bacteria in human infectious diseases is noted. The compositions of "human originated" microflora (B2) dominantly contain representatives of *Staphylococcus*, *Klebsiella*, *Enterobacter*, *Proteus*, *Streptococcus*, *Escherichia*, *Clostridium*, *Bacteroides* Genera; *Candida* species and others microscopic fungi. *E. coli* (EPEC), *E. coli* O157:H7, *Shigella dysenteriae*, *Listeria monocytogenes*, *Campylobacter jejuni* were not detected. *Shigella flexneri* ABC and *Salmonella typhi* were obtained from sorrel (before) and potato (after) the washing procedure before cooking. This is an evidence for the human/water source of food microbial contamination. The most of ready-to-eat prioritized dishes were not contaminated or contaminated with very low amount (up to 10² CFU/ml) of *Bacillus subtilis*, *Staphylococcus epidermidis*, *S. aureus*, *Enterobacter cloacae*, *Pantoea agglomerans*.

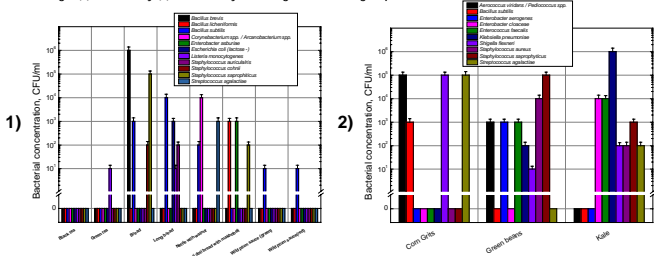
Ukraine: plant components, key microorganisms of all groups



Bulgaria: plant components (a) and dishes (b), key microorganisms of all groups

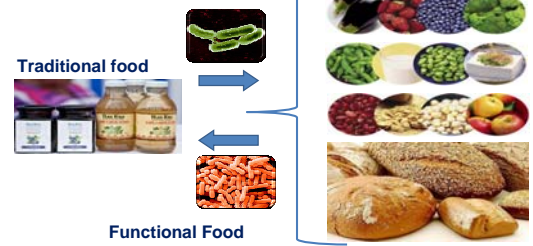


Georgia (1) and Turkey (2): dishes, key microorganisms of all groups



CONCLUSIONS

The major key-microorganisms of traditional foods prioritised within the BaSeFood project have been defined. Microorganisms with beneficial properties will be further used as industrially potential strains in the development of functional foods (fermented products) based on original traditional foods plant compositions.



non-vegetarian, non-smoker, non-pregnant women or men, 18-55 y old, not suffering from any other chronic pathology, their body mass index was under 30 kg/m². Blood samples were drawn and anthropometric measurements, systolic (SBP) and diastolic (DBP) blood pressure were evaluated at the beginning, at week 2, 4, and 8. Serum lipids, creatinine, uric acid, glucose and PCR levels were analyzed.

Results: Glucose (p=0.019), SBP (p=0.001), and DBP (p=0.001) decreased, HDL-cholesterol slightly increased, whereas the rest of the parameters remained similar.

Conclusions: FRCP may be considered part of a dietary approach or an ingredient for the functional food industry to improve cardiovascular health.

Key Words: Cocoa, cardiovascular health, hypertension, hypercholesterolemia, glucose

Conclusions: To recommend the use of the non alcoholic beer, due to its content in hop with sedative action, which increases the quality of night sleep.

Key Words: Hop, Nutrition, Sleep, Stress, Beer

27/715. Nutrition and Healthy Lifestyle

The sedative effect of Hop (*Humulus Lupulus*), a component of beer, in a stressed population

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Introduction: The hop (*Humulus lupulus* L.), as a component of beer, is a sedative plant which pharmacological activity is taken principally by its bitter acids, especially from component alpha acid: 2-Metil-3-buten-2-ol. The mechanism of action of the resin of hop consists of raising the levels of the neurotransmitter α -amino butyric (GABA) inhibiting the central nervous system (CNS).

Objectives: To analyze in a stressed population, the sedative effect of hop, component of non alcoholic beer, in the sleep/wake rhythm.

Method/Design: The experimentation was tested with healthy female nurses (n=15), in rotating and/or night shift, and with a stressful job from the Hospital Infanta Cristina (SES), Badajoz. The parameters of night sleep and chronobiology were analyzed by actigraphy (Actiwatch®), after moderate ingestion of non alcoholic beer (333 ml of San Miguel 0,0 % alcohol®) during dinner and for 14 days (Biweekly Treatment), in comparison with the Control group without beer during the dinner.

Results: The results in actigraphy demonstrated the improvement of the most important parameters of the quality night sleep; the Sleep Latency (time consumed in initiating the sleep) diminished (p<0.05) in the Biweekly Treatment with San Miguel 0,0 % alcohol® (12.01 ± 1.19 min) with respect to the Control (20.50 ± 4.21 min). As well as the Total Activity which diminished (p<0.05) in this group with San Miguel 0,0 % alcohol® (Biweekly Treatment= 5284.78 ± 836.99 pulses of activity vs Control= 7258.78 ± 898.89 pulses of activity). In addition the chronobiological analysis in this Biweekly Treatment, with non alcoholic beer for 2 weeks, increased the Interday Stability (0,51 ± 0,03) in comparison with the Control group (0,45 ± 0,03).

27/720. Nutrition and Healthy Lifestyle

Key-microorganisms in food quality / food safety of traditional dishes and drinks prioritised within basefood project

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Introduction: Preventive and therapeutic healthcare is closely associated with food safety and has recently become an important social and political issue.

Objectives: The plants and ready-to-eat prioritised traditional foods from Black Sea area countries have been analyzed for the presence of the microorganisms of three targeted groups: A ("beneficial" – for food processes and for the human health), B1 (contaminants from environmental sources – "epiphytic", air/soil/water originated) and B2 (human-relevant contaminants: food-borne and opportunistic pathogens).

Method/Design: Identification of isolated microorganisms was performed with complex biochemical and serological test systems.

Results: Group A was represented by Lactobacilli and Bifidobacterium spp. accompanied with enterococci, bacilli and Bacteroides. "Typical" environment originated microbiota (B1) included Xanthomonas spp., Pseudomonas spp. and Erwinia herbicola (Pantoea agglomerans). The etiological role of these "non-pathogenic" bacteria in human infectious diseases is noted. The compositions of "human originated" microflora (B2) dominantly contain representatives of Staphylococcus, Klebsiella, Enterobacter, Proteus, Streptococcus, Escherichia, Clostridium, Bacteroides Genera; Candida species and others microscopic fungi. E. coli (EPEC), E. coli O157:H7, Shigella dysenteriae, Listeria monocytogenes, Campylobacter jejuni were not detected. Shigella flexneri ABC and Salmonella typhi were obtained from sorrel (before) and potato (after) the washing procedure before cooking. This is an evidence for the human/water source of food microbial contamination. The most of ready-to-eat prioritized dishes were not contaminated or contaminated with very low amount (up to 100 CFU/ml) of Bacillus subtilis, Staphylococcus epidermidis, S. aureus, Enterobacter cloacae, Pantoea agglomerans.

Conclusions: The major key-microorganisms of traditional foods prioritised within the BaSeFood project have been defined. Microorganisms with beneficial properties will be further used as industrially potential strains in the development of functional foods (fermented products) based on original traditional foods plant compositions. The research leading to these results has received funding from the European Community's Seventh Framework Programme

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Key Words: Beneficial and detrimental microbes, food quality and safety, traditional foods, Black Sea region.

27/735. Nutrition and Healthy Lifestyle

Assessment of intake of antioxidant nutrients by physically active women

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Introduction: Currently, evidences have showed that the action of free radicals can result in tissue damage or production of toxic components to the tissues, a process called oxidative stress.

Objectives: Evaluate the intake of these nutrients in women who engage in regular physical activities in a Brazilian sports consultancy.

Method/Design: We included 33 physically active women in São Paulo city, Brazil. For assessing the intake of antioxidant nutrients, It was developed a food frequency questionnaire with the main food sources of vitamin C, vitamin A, vitamin E, beta carotene, zinc and selenium. For analysis of the antioxidant intakes, we performed a qualitative method for dietary assessment. From the measurement of nutrient intake in food frequency questionnaires, data were compared to values proposed by the Dietary Reference Intakes (2000).

Results: Anthropometric evaluation showed that most of women (86%) presented to eutrophic. It was observed that a high percentage of women with a antioxidant intake below the recommended intake (52% in relation to Vitamin C intake, 57% in relation to vitamin E intake, 52% in relation to vitamin A intake; 52% in relation to zinc intake and 24% in relation to selenium intake). Selenium is a nutrient analysis that showed the highest percentage of adequate intake (76%).

Conclusions: Because of the importance of these nutrients in human health, the prevention of oxidative stress and inflammatory process triggered by exercise, these results show that greater efforts by the nutrition team should be made to adjust the consumption of micronutrient antioxidants. In addition, more research is needed to evaluate the intake of these nutrients in other physically active populations, and nutritional strategies that can increase consumption.

Key Words: antioxidant, sports, nutrition

27/739. Nutrition and Healthy Lifestyle

Vitamin D deficiency/insufficiency and its association with bone metabolism in elderly women living on Rio de Janeiro. Brazil

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Introduction: Vitamin D insufficiency is common in elderly populations and different categories have been proposed to classify its status: vitamin D deficiency (<50 nmol/L) that leads to osteomalacia, with the ensuing histomorphometric changes; and, vitamin D insufficiency (50-80 nmol/L) that has an effect on calcium homeostasis, leading to secondary hyperparathyroidism.

Objectives: To evaluate the vitamin D deficiency/insufficiency and its association with bone metabolism in elderly women living on Rio de Janeiro (latitude south 22°:54:10S) – Brazil.

Method/Design: It was a cross-sectional study evaluated on spring with ambulatory elderly women over 60 years of age. Vitamin D (25(OH)D3), calcium, phosphorus and alkaline phosphatase activity plasma level were analyzed and vertebral density (L1-L4) was measured. Data were analyzed by linear regression (p<0.05) using GraphPad software version 5.0.

Results: In a total, were evaluated 30 women (69.4 ± 4.8 years of age) with vitamin D deficiency (40.4 ± 9.0 nmol/L of vitamin D) and 95 women (68.8 ± 5.6 years of age) with vitamin D insufficiency (66.0 ± 7.8 nmol/L of vitamin D). Calcium, phosphorus, alkaline phosphatase activity and vertebral (L1-L4) density did not show correlation with vitamin D deficiency (r² = 0.011; 0.046; 0.002; 0.0004, respectively) and insufficiency (r² = 0.017; 0.016; 0.0007; 0.001, respectively).

Conclusions: In this study were not observed correlation between vitamin D deficiency/insufficiency to calcium, phosphorus and alkaline phosphatase activity plasma level and vertebral (L1-L4) density in elderly women living on Rio de Janeiro - Brazil.

Key Words: Vitamin D, bone metabolism, elderly.