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# 12th European Nutrition Conference (FENS)

Berlin, Germany, October 20–23, 2015

## Abstracts

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## **EDITORS ABSTRACT**

Every four years, the Federation of the European Nutrition societies (FENS) organizes a scientific conference that brings together European and Pan-European experts to discuss most recent scientific developments in the food, diet and health arena. The 12th FENS conference took place in Berlin, October 20 to 23, 2015, under the hospice of the German Nutrition Society with the motto “Nutrition and Health during life cycle – science for the European consumer”. Sessions were dedicated to latest research and outcomes of studies on the impact of diet into body functions, on dietary intake and dietary status of the population and of specific groups as well on the role of diets in disease occurrence and prevention. Translational research addressed strategies and approaches to change dietary behavior and policy measures. Four plenary sessions framed the program with distinguished speakers covering health aspects in the life cycle but also the global dimension of food security.

The present supplement comprises the 950 submitted abstracts and additional 320 abstracts of invited and selected speakers. The abstracts are ordered according to the scientific sessions of the conference, and the industry sponsored satellite activities, and posters. Within the program up to eight scientific sessions were held in parallel with thematic areas of (1) Food and nutrient intake, dietary patterns, dietary guidelines, (2) Advances in dietary studies, methodology and design, (3) Metabolic diversity, (4) Nutrition, public health, chronic diseases, and (5) Food quality, food safety, sustainability, consumer, behavior and policy.

The supplement can be searched with pdf-tools by using keywords such as authors, topics, specific compounds, etc.

Keywords: Nutrition, Nutrition policy, FENS, German Nutrition Society

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## **Index**

<b>PLENARY LECTURES.....</b>	<b>7</b>
<b>ABSTRACTS LECTURES SCIENTIFIC PROGRAM.....</b>	<b>10</b>
<b>ABSTRACTS LECTURES INDUSTRY SPONSORED PROGRAM.....</b>	<b>81</b>
<b>SUBMITTED ABSTRACTS FOR POSTERS AND ORAL PRESENTATIONS.....</b>	<b>103</b>
<b>AUTHORS LIST.....</b>	<b>563</b>

respectively. Increases in nutritional content were estimated using Swiss Food Composition data base (products), supplier information (micro-algae) and from literature (micro-algae). A consumer test (9 questions; 9-point hedonic scale, 63 panelists) was done on the algae-enriched muffins.

**Results:** Chlorella-enriched pasta and muffins were the most acceptable in preliminary trials. Addition levels of micro-algae were limited by strong coloring effects and by off flavors. This prevented significant increases in most nutrients; with exceptions, e.g.  $\beta$ -carotene was increased by 50 %. The consumer test showed 65% panelists liked the idea of micro-algae enriched food products. Overall liking of Chlorella-enriched muffins was 6/9; odor was scored highest (6.8/9), and appearance was lowest (4.1/9) largely due to the green color (38% panelists).

**Conclusions:** Consumers showed an openness towards micro-algae enriched products for nutritional reasons. Chlorella-enriched pasta and muffins were the most successful. Further studies should confirm the presence of a selected number of these (e.g. Lutein) in the enriched products.

**Keywords: (maximum 5):** micro-algae, functional Foods, enrichment

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## 149/1312. Do we need alternative solution for reducing anemia prevalence among adolescents in Indonesia? A literature review

**Author(s):** Ratri Ciptaningtyas.

**Affiliation:** *Community Nutrition Department SEAMEO REC-FON-Faculty of Medicine Universitas. Indonesia.*

**Introduction:** Introduction: Anemia in Indonesia remains public health problem with prevalence among adolescent girls 13 to 18 years is 22.7%. Based on UNICEF classification, anemia prevalence among adolescents in Indonesia categorized mild public health problem. Although iron supplementation and wheat flour fortification has been given since early 2000, no significant decreasing numbers yet. School health program can be one of the most cost effective investments a nation. However, evidences that underlying the policy to conduct school health program for reducing anemia prevalence are not conclusive.

**Objectives:** Objective: Review from literatures are needed to reveal the pros and cons of school health program implementation.

**Method / Design:** Method: Literature review from internet search database such as scholar google, cochrane, journal database from sciencedirect and pubmed and university libraried for unpublished studies.

**Results:** Results: More studies show the benefit of school health program to reduce anemia prevalence among adolescents than giving iron supplementation only. School health program can be sustainable if it is inserted in curriculum. A novel method of education delivery such as android application and computer game may be the choice for future program.

**Conclusions:** Conclusion: School health program implementation is a challenging pathway to reduce anemia among adolescents. Multisectors (policy makers in education, health and religion affairs as well as the school stakeholders and parents) should be involved in order to have a sustainable program.

**Keywords: (maximum 5):** Keywords: school health program, adolescent, anemia, nutrition

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## 149/1314. Stone Fruit Wines as a Sources of Antioxidants

**Author(s):** (1) Uros Cakar; (2) Aleksandar Petrovic; (3) Marijana Zivkovic; (3) Vlatka Vajs; (4) Brizita Djordjevic.

**Affiliation:** (1) *Pharmacist, Department for Bromatology, Faculty of Pharmacy, University of Belgrade, Belgrade, Serbia.*; (2) *Faculty of Agriculture, University of Belgrade, Belgrade, Serbia.*; (3) *Institute for Chemistry, Technology and Metallurgy, Belgrade, Serbia.*; (4) *Department for Bromatology, Faculty of Pharmacy, University of Belgrade, Belgrade, Serbia.*

**Introduction:** The consumption of fruit and their product is very important for balanced nutrition. They are rich source of natural compounds which show beneficial health effects on human organism. Fruit wines are rich sources of phenolic compounds which possess antioxidant properties and play role in health protection from oxidative stress.

**Objectives:** The aim of this study was to investigate the profile and in vitro antioxidant properties of fruit wines.

**Method / Design:** Total polyphenol content was conducted by using Folin-Ciocalteu method. Antioxidant capacity of samples was determined by DPPH method, by calculating the percent of inhibition of DPPH radical. Discoloration was measured on spectrofotometer at 518 nm. Also was used modern FRAP procedure for determination of antioxidant properties of wine samples. For identification and quantification of some antioxidant compounds HPLC TQ-MS/MS method was used.

**Results:** Wines were made from apricot, peach and plum in winery according to the wine making procedure. From each kind of fruit were made four different types of wine. All determinations were conducted in these 12 samples of wine. The total polyphenol content determined by Folin-Ciocalteu method was in range 358-1389 mg/L expressed through concentration of gallic acid. The results of DPPH analyze of samples were in range 35.69-68.50%. The results of antioxidant capacity analyzed by FRAP procedure were in range 21.75-45.15 mmol/Fe<sup>2+</sup>. Results of HPLC TQ-MS/MS analysis showed that our samples are sources of compounds such as catechin, epicatechin and phenolic acids. All those compounds have antioxidant properties.

**Conclusions:** The obtained results indicate that fruit wines are sources of antioxidant compounds. Antioxidant properties of fruit wines depend from which kind of fruit they were made. Natural compounds from fruit wines are particularly important in the prevention of non-communicable disease caused by oxidative stress.

**Keywords: (maximum 5):** Fruit wines, Antioxidants, Polyphenols

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## 149/1335. Sweet potato Bearegard composition evaluation grown in Fundetec, Paraná in Brazil

**Author(s):** (1) Sabrine Zambiasi da Silva; (2) Frederico Lovatto.

**Affiliation:** (1) Nutritionist, Faculdade Assis Gurgacz. Brazil.; (2) Engenheiro Químico. Fundetec. Brazil.

**Introduction:** Sweet potatoes are an excellent source of nutrients and energy due to carbohydrates, sugars, minerals, vitamins A, C and B complex. Also contains large amounts of methionine, which is an essential amino acid for the welfare of human beings. The Bearegard sweet potato is an American cultivar developed by Louisiana Agricultural Experiment Station in 1981, in Brazil, was identified by Embrapa in the BioFORT program, it has pulp orange-intense color, which is indicative of high content of beta-carotene (an average of 115mg/kg), which is essential for the development of vision organs, skin formation and body growth. When processed into flour, can replace all or partial or totally in a lot of recipes. Sweet potato have been grown and analyzed at Fundetec, a foundation of the city of Cascavel, Paraná in Brazil.

**Objectives:** Develop more nutritious agricultural products; Entering these nutritional products in school meals.

**Method / Design:** The research was an experimental field in Agrotec- Technological Agricultural School for planting and the production of sweet potato flour, physico-chemical and formulation development were made in the Physical-Chemical Laboratory of Fundetec

**Results:** The analysis of lipids, carbohydrates and proteins were performed in triplicate according to the methodology proposed by the Adolfo Lutz Institute obtained as results (%), 0.1; 23.36 and 1.77, respectively. These values are very close to those of regular cultivar.

**Conclusions:** The Bearegard is an effective alternative in the diet of Brazilian population, since will result in an increase in the consumption of vitamin A, without losing the original properties.

**Keywords: (maximum 5):** Enrichment, sweet potato Bearegard, vitamin A.

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## 149/1336. Technology quality of wheat flour integral germinated and no germinated

**Author(s):** Sabrine Zambiasi da Silva.

**Affiliation:** Nutritionist, Faculdade Assis Gurgacz. Brazil.

**Introduction:** Wheat is one of the main agricultural products in the world being used in food processing, presenting important economic role and nutrition. With the growth of world population, procedures that increase the nutritional quality of the food has been constantly studied, especially in this segment, the germination of the grain.

**Objectives:** Compare the nutritional characteristics of wheat germinated and not germinated.

**Method / Design:** Thus, this work aimed to compare the nutritional quality of wheat *Triticum aestivum*, BRS Tangará germinated and not germinated observing levels of iron, fiber and protein. During the experiment has been performed to test for germination vigor in small sample of wheat seeds and then the seeds were conducted the experiments and analyzes of germination, resulting in whole wheat flour and whole wheat germinated, which were analyzed when their nutritional characteristics.

**Results:** The results demonstrated that the protein content was 10% lower in germinated wheat flour. To the iron content of the flour has not germinated to over 97% of the mineral when compared with the non-germinated wheat flour. The index fibers sprouted wheat was 17% higher than reported for wheat not germinated.

**Conclusions:** With that, contrary to expectations, it was found that the germinated wheat flour does not have superior nutritional quality compared to whole wheat flour does not germinated.

**Keywords: (maximum 5):** *Triticum aestivum* L., nutritional quality, germination of grains

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## 149/1348. Culinary Preparation of Giant Waterbug *Lethocerus americanus* for Customer Intake

**Author(s):** (1) Virginia Melo Ruiz; (2) Karina Sanchez-Herrera; (3) Concepcion Calvo-Carrillo; (4) Maritza García-Nuñez; (5) Rafael Díaz-García.

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**Introduction:** Giant water bug insect adequate preparation is required to satisfy the demand of customers in the market, this related with different factors such as appearance, food health, nutrient components like proteins, carbohydrates, fats, minerals and sensorial aspects, specially taste and flavor. It is difficult to evaluate the importance of these parameters, but from the consumer point of view quality mainly means, food good to eat, therefore sensorial characteristics play an important role in the consumptions of insects, thus one of the most important parameters are flavor and appearance responsible for pleasing factors when intake giant water bug insect. Customers perceive sensorial value, but not identify healthy and diet aspects.

**Objectives:** The aim of this study is to design different culinary preparations and presentations with giant water bug *Lethocerus americanus* in relationship to the taste and acceptability available at high class restaurants.

**Method / Design:** Different culinary presentations in this study were: giant water bug *Lethocerus americanus* boiled and crush lightly