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Abstracts

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on behalf of the German Nutrition Society

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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 Paneuropean 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 distinquished 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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healthy and appropriate menus using foods respecting the nutritional references, habits, culture and tradition of the school. In this context, students who have some Food Special Need (FSN) as diabetes, lactose intolerance or allergy to gluten should be differentiated food treatment because the need for dietary modifications that are currently provided for in national legislation.

Objectives: Analyze the menu provided by schools in a South Metropolitan Region of Brazil, as the presence of food or products with sucrose, lactose or gluten.

Method / Design: Cross-sectional descriptive study with a quantitative approach based on secondary data provided by the State Department of Education of Paraná. The instrument used were the menus offered by schools based on the year 2014 the Metropolitan Region of Curitiba, which is composed of 28 cities, with 162,697 students in 245 schools spread. Were identified by the presence of food or products with sucrose, lactose and gluten present nutritional information through the packaging or the Internet.

Results: Were identified 80 menus with 39 food or processed food products, 30.7% had lactose, 51.7% gluten and 66.6% sucrose in its composition.

Conclusions: Thus, students with diabetes, lactose intolerant to gluten sensitivity or have difficulty in school feeding since at least 1/3 of the food provided to them can cause impairment its pathological condition. As a signatory of the Universal Declaration on Bioethics and Human Rights, it is established that the government should promote health by ensuring adequate food to all its citizens regardless of their life situation and that everyone should be treated fairly and equitably, without decriminalization.

Keywords: (maximum 5): School feeding, gluten, sucrose, lactose, food allergies and intolerances

149/1118. Relationship between abdominal obesity and inflammatory profile in post acute myocardial infarct patients

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Introduction: Different abdominal obesity indexes have been proposed instead to waist circumference to detect a worse inflammatory profile in general population. However, they have been poorly tested in patients with cardiovascular disease.

Objectives: To investigate the relationship between serum concentrations of C-reactive protein (CRP) , fibrinogen, obesity and visceral adiposity in patients with previous heart attack.

Method / Design: This is a baseline crosssectional analysis from a randomized clinical trial conducted in Southern Brazil. Individuals with previous heart attack and ≥40 years of age were enrolled. Demographic, clinical and anthropometric data [weight, height – in order to calculate body mass index (BMI, in Kg/m2) and waist circumference (WC), in cm] were collected and plasma C-reactive protein (CRP) and fibrinogen were assessed by ELISA. Lipid Accumulation Product Index (LAP Index, in cm.mmol.l) and Deep-Abdominal Adiposity Tissue Index (DAAT, in cm2) were calculated according to gender. Nonparametric data were log-transformed and Pearson correlation and multiple linear regression were used for statistical analyses.

Results: In total, 64 patients (73.4% men) were evaluated with a mean age 56.2 ±16.0 years and 39.1% with obesity according to BMI ≥30 kg/m2. In men, CRP was significantly correlated with LAP (r= 0.30, P= 0.04), DAAT (r= 0.39, P= 0.007) and WC (r= 0.44,

P=0.002) and fibrinogen with DAAT (r= 0.34, P= 0.02) and WC (r= 0.35, P=0.02); in women, CRP was significantly correlated with DAAT (r= 0.56, P= 0.02) and WC (r= 0.57, P=0.02) and fibrinogen with LAP (r= 0.49, P=0.04), DAAT (r= 0.63, P= 0.006) and WC (r= 0.59, P=0.01). However, when adjusted for age and BMI, none of these abdominal obesity indexes were associated with the inflammatory profile in both genders.

Conclusions: Overall obesity seems to strongly influence the levels of inflammatory markers in patients with previous heart attack

Keywords: (maximum 5): abdominal obesity, inflammatory profile, myocardial infarct

149/1132. Chemical composition and nutritional quality of wholegrain bread from Belgrade market

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Introduction: There is a growing number of epidemiological evidences that wholegrain products may reduce the risk of cardiovascular diseases, type 2 diabetes, some forms of cancers, as well as obesity. The beneficial health effects are due to the presence of many biologically active compounds, which are located in the outer layer and germ fraction of the grain. Therefore, the higher intake of wholegrain foodstuffs is recommended. Wholegrain bread, locally known as brown bread, is the most common foodstuff of this type in Serbian diet.

Objectives: The objective of this paper was to assess the quality indicators, basic chemical composition, and fiber profile of wholegrain breads sampled from Belgrade supermarkets and bakeries.

Method / Design: In total 8 different samples of wholegrain bread were analyzed. The nutritional quality of samples was evaluated by common physicochemical analyses (contents of protein, ash,

water, crude fiber, acid degree, sodium chloride, starch). Enzymatic methods were used for determination of fiber profile (resistant starch, beta-glucan, fructans, and arabinoxylan). Also, sensory characteristics were assessed.

Results: During evaluation of the sensory quality all samples fulfilled the regulatory requirements. All analyzed samples received high marks for each individual property of quality. However, the variability of acid degree, as well as some nutrient content (protein, crude fiber, starch) among samples was great. On the other hand, other parameters were similar between different bread samples (content of water, ash, sodium chloride). The fiber fractions that were analyzed in wholegrain bread samples revealed that resistant starch, fructans and arabonoxylan were the major fiber fractions, while cellulose content was unexpectedly low.

Conclusions: Obtained results indicated that wholegrain bread from Belgrade market is of the standard quality and could be an important source of specific fiber fractions in everyday diet.

Keywords: (maximum 5): wholegrain, bread, Serbia, market

149/1134. Optimization of microwave-assisted extraction of natural antioxidants from spent black coffee grounds by response surface methodology

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Introduction: In the Balkan region, including Serbia, traditional black coffee is consumed more frequently than other types of coffee. It is served mainly at homes and pubs, so called "kafana", and is often referred to as Turkish or Greek coffee. Spent coffee grounds (SCG), by product of black coffee consumption abundantly produced in cafeterias and in domestic environment, could be used as a low-cost and rich source of valuable polyphenol compounds with high antioxidative properties.

Objectives: The overall objective of this study was to examine an optimal range of extraction conditions for extraction of natural antioxidants from spent black coffee.

Method / Design: Optimization of the extraction process from SCG was carried out using response surface methodology (RSM). Microwave-assisted extraction (MAE) has been used as a potential alternative to conventional solvent extraction for the isolation of polyphenol compounds from SCG. A complete central composite 23 factorial experimental design has been used to monitor the extraction characteristics, as affected by different variables, extraction time (ET), liquid-to-solid ratio (LSR), and microwave power (MWP). Low concentration ethanol in aqueous solutions was employed as non-toxic extracting media.

Results: With 180s and more ET, 400W MWP and and 12mg/g LSR, the polyphenols extract with high antioxidant activity can be achieved. The obtained experimental values were in solid agreement with predicted values.

Conclusions: The sustainability of the coffee processing system can be substantially improved through the use of by-products, by adoption of new technologies that maximize process profitability. The presented data could be reliable guidelines for development of a full-scale project and good business opportunities for SMEs, producing functional foods or nutraceuticals.

Acknowledgements: This work is funded by the Ministry of Education, Science and Technological Development, Republic of Serbia, Projects TR31035 and III 41030.

Keywords: (maximum 5): Spent coffee grounds, Microwave-assisted extraction, Response surface methodology, Polyphenols, Natural antioxidans

149/1153. Health outcomes and greenhouse gas emissions from varied dietary patterns – is there a relationship?

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Introduction: Greenhouse gas emissions (GHGEs) and health outcomes are both major consequences of dietary choices. Assessments of dietary patterns that vary in their content of plant and animal contents are emerging at the intersection of nutrition, environment and public health.

Objectives: Compare the GHGEs associated with a variety of dietary patterns consumed by a large population across North America and simultaneously assess mortality according to the same dietary patterns in the same population.

Method / Design: SimaPro Life Cycle Assessment software was used to calculate GHGEs for each of the 200+ food items in the food frequency questionnaire of the Adventist Health Study-2 cohort. GHGEs were then calculated for 5 dietary patterns derived from the food intake data of the cohort, which varied in the quantity and type of animal and plant foods: vegan, lacto-ovo vegetarian, pesco vegetarian, semi vegetarian, and non-vegetarian. All-cause mortality rates for the 73,000+ subjects were adjusted for a range of lifestyle and sociodemographic factors and estimated according to dietary pattern.

Results: Using the non-vegetarian diet as a reference, the mean reductions in GHGEs for the semi vegetarian, pesco vegetarian, lacto-ovo vegetarian and vegan diets were 20%, 24%, 28% and 42%