SERBIAN NUTRITION SOCIETY

BOOK OF ABSTRACTS

14th INTERNATIONAL CONGRESS ON NUTRITION:

„A PLACE WHERE SCIENCE MEETS PRACTICE“

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A HYBRID FORAMAT

A. ONLINE & B. IN PERSON

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Preface

Serbian Nutrition Society (SNS) was established in1956 as an independent non-profit society. SNS has a tradition of gathering established experts and young ones from human and veterinary medicine, pharmacy, biology, chemistry, biochemistry, agriculture, food technology, food microbiology and others with the similar areas of interests. Every year SNS organizes seminars for national experts and students on actual topics and every four years a congress on nutrition. Recently, SNS, together with the Federation of European Nutrition Sciences (FENS), successfully organized three summer schools for young Ph-students. SNS has been elected to be a host of the next, 14th FENS' European Conference on Nutrition, in Belgrade 2023.

The mean themes of the 14th international congress on nutrition were:

1. Food, Nutrition and Health
2. Public Health Nutrition;
3. Food Quality and Safety;
4. Food Technology
5. Emerging Issues in Food and Nutrition

These themes were covered by XV sessions, one symposium and one round table. The congress was organized in hybrid format: *ad personam* and *online* attendance. A special pleasure was that the congress participated many internationally recognized scientists, domestic and foriner ones, and , as well as, young researches from verious countries. So, at the congress were presented: 6 planary, 78 oral and 55 poster presentations. Having in mind that the 14th congress on nutrition is the primary domestic one, opened for fernier experts, it is reasonable that the great majority of the abstract's authors come from the national research institutions and acddademia.

The programme of the congress has been accreditated as the international one by the Health Council of the Ministry of Health of the Republicof Serbia No B 32/21.

The authors were asked to submitte abstracts on line with good scientific practice and the follow statements of the *Instruction on the method of cooperation between the Serbian Nutrition Society and business and/or other entities in the prevention of conflicts of interest.* This document has been available on the congress and SNS website. The abstracts were reviewed by the Scientific Committee.

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Co-chairs of the 14th Congress on Nutrition

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type of cancer in Serbia. It seems that n6/n3 and AA/EPA ratios could be tissue or blood biomarker of this disease depend above all of food intake.

Aim: The aim of this study was to investigate content of various fatty acids between colorectal cancer tissue and adjacent healthy intestinal tissue in adult and aged patients.

Methods: 52 subjects participated in this study. Healthy colon mucosa and tumor tissue samples were obtained from patients previously diagnosed with colorectal carcinoma by standard procedures. Simplified method of Berstad et al. was used for direct transesterification of total lipids in tumor and healthy mucosa tissue samples and separations of the methyl esters was carried out using a gas chromatograph equipped with a split/split less injector and a flame ionization detector.

Results: Saturated fatty acids (SFA), polyunsaturated fatty acids (PUFA), n6, n3 and arachidonic acid/eicosapentanoic acid (AA/EPA) were significantly higher in tumor tissue, while monounsaturated fatty acids (MUFA), n6/n3 ratio were significantly higher in healthy tissue.In this study, we showed a significant increase more reliable indicator of inflammatory status in certain tissue is AA/EPA ratio which confirms that tumor inflammatory environment is an indispensable factor in the neoplastic process, fostering proliferation, survival and migration of malignant cells.

Conclusion: Our study demonstrated significant differences in fatty acid profiles between tumor tissue and healthy mucosa. Parameters, such as gender, age, stage and mucinous component didn't influence altered fatty acid (FA) content

Key words: fatty acids content, colorectal cancer, arachidonic acid

Substances with cancerogenic potential in processed meat*

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Meat represents an important food in human nutrition as a source of essential amino acids, fatty acids, and micronutrients, but in recent years the emphasis is given to the carcinogenic potential of red meat and processed meat. Red meat includes the meat of pigs, ruminants, and horses, and its color is proportional to the iron-rich myoglobin content. Hem-iron is attributed to show pro-carcinogenic effect due to N-nitroso compounds catalysis, food lipids oxidation, and pro-oxidative action in the body. But these reactions could be reduced by slowing its resorption, nitrosylation, and oxidation with calcium (milk products) and antioxidant (plants) rich food. As meat is consumed after the heat treatment which could lead, to a greater or lesser extent, to the formation of heterocyclic aromatic amines (HAA) as potentially carcinogenic substances, which occurs extensively during bak-

* Oral presentation proposed by the Scientific Committee: proposals are based on the submitted abstract

ing and roasting, but negligible during boiling. So, it is important to choose an appropriate method for meat heating, but also is it possible to reduce the bioavailability of HAA and modify their metabolism in the body after ingestion through plant antioxidants, dietary fiber, fermented food (yogurt, sauerkraut) intake, as well as the bioactive substances from the meat itself (conjugated linoleic acid), which can significantly reduce harmful effects of HAA. By meat products, the most important harmful substances are N-nitrosamines (NN) in cured (preserved with nitrate/nitrite), as well as polycyclic aromatic hydrocarbons (PAH) in smoked meat products. NN content differs in meat products and is influenced by the nitrate/nitrite amount used, but also by the heat treatment and ripening process. Frying and baking of cured meat products lead to the highest NN content, especially in fried cured bacon. Although there are many studies about nitrite replacement in meat products with plant-based ingredients, nitrites are still indispensable, especially because of their antimicrobial effect on *Clostridium botulinum*. PAH content could be controlled by adequate wood pyrolysis temperature, construction of the smoking chamber, smoke density and purification, the product composition (fat reduction, artificial casings), and even reduced by the activity of some lactic acid bacteria strains as well as some spices. Considering that the formation of carcinogenic ingredients could be reduced during production, and their availability, absorption, and expression reduced by well-balanced meals during consumption, red meat and meat products should not always and unconditionally be characterized as harmful, especially if we are aware of the valuable nutritive and bioactive compounds originating from the meat itself.

Key words: meat, meat products, carcinogenic potential, prevention

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When herbs meets cancer; how to undersrtand and surmout the limitid achievement of high-grade tumor chemotherapy by natural occurring compunds

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Multidisciplinary approach and intertwining between technology, medicinal chemistry and molecular biology is a markof a new era of biomedicine and pharmacology. Built on this platform,vigorous success of highlyspecific onco-therapiestowardcertain malignant phenotype as well as tumor microenvironment constituents from stromal to endothelial and immune infiltrating cells, was expected. Inadequateachievement and unclear correlation between individual response to applied treatment and expression of relevant molecules in tumor tissue, remind us that despite all biotechnological improvements, understanding of this pathologyis still vastly limited. This especially refers to high grade tumors, with anaplastic