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Bucharest, Romania



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BOOK OF ABSTRACTS

International Summer School

FOOD SAFETY AND HEALTHY LIVING

FSHL – 2021

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Editors

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C14 DIETARY FIBERS: CLASSIFICATION, SOURCES AND IMPACT ON HUMAN HEALTH

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In the last decades the role of a balanced diet as the primary tool for the health maintenance is becoming increasingly evident. Several studies have shown that a high-quality dietary pattern, including the consumption of whole grains, fruits and vegetables, seafood, high biological value proteins and low-fat foods allows a significant reduction in morbidity and mortality. As a part of a healthy diet, fibers have long been recognized for their role in digestive and intestinal function.

Dietary fibers are defined as non-digestible carbohydrates present in fruits and vegetables that can be classified according to the molecular size, the water solubility or the capability to be fermented by the gut microbiota. On the basis of molecular size, fibers can be defined as oligosaccharides (3-9 monomers) and polysaccharides (≥ 10 monomers); according to the hydrophilicity, soluble (e.g. inulin, fructo-oligosaccharides) or insoluble fibers (e.g. lignin, cellulose) can be identified¹. Some soluble fibers, including fructo-oligosaccharides, galacto-oligosaccharides and inulin, can also stimulate the growth of specific bacterial strains providing potential health effects beyond the gastrointestinal function.

In particular, a certain number of studies have shown a positive impact of fibers or their metabolites on several metabolic parameters, such as insulin sensitivity and inflammation². However, currently, there is a scientific debate about the optimal intake, the essentiality in the human diet and its potential role in the improvement or modulation of chronic pathological conditions, including cardiovascular diseases, diabetes and obesity.

In the present study, an overview on the different aspects of dietary fibers will be presented, with particular attention on the scientific evidence about human health benefits and the risks associated with a diet lacking these dietary components.

¹ Slavin J.L. Dietary fiber: classification, chemical analyses and food sources. 1987. J. Am. Diet. Assoc., 87, 1164-1171.

² Barber T.M., Kabisch S., Pfeiffer A.F.H., Weickert M.O. 2020. The health benefits of dietary fibre. Nutrients, 12, 3209-3226.