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Importance of Bio Compounds Naturally Present in Food with Functionality in Animal Metabolism

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Editorial
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Editorial

Biocompounds naturally present in food have been the subject of several different studies, aiming at their participation in metabolic processes, related to the prevention of several chronic non-trasmissible diseases and inflammation [1,2].

Inflammatory process is usually initiated by oxidation by reactive oxygen species (ROS), represented by peroxides and superoxide ions, hydroxyl radical and singlet oxygen and nitrogen (RNS) and sulfur (RSS). These compounds can be formed by the normal metabolism of the animal organism and also induced by environmental factors, such as sunlight, pollution, cigarettes, ionizing radiation, alcohol among others, and also by intrinsic factors such as: infection by bacteria, viruses and parasites. Pathologies induced by microorganisms involve oxidation and inflammation and are related to the activation of several pro-inflammatory and anti-inflammatory mediators such as cytokines (IL-b; IL-6; IL-10; IL-12; INF 8 and TNF-a) and enzymes such as iNO3 and COX-2 [1]. These compounds are regulated by the transcription factor NF-KB, which is responsible for the control of the entire process and is activated by the increase in reactive oxygen species [3].

The body is able to react against the oxidative process through different enzymes, such as superoxide dismutase (SOD), glutathione peroxidase (GTX), catalase (CAT) and also through vitamins C, D, E, A, carotenoids and phenolic compounds [4].

Phenolic compounds naturally present in fruits and vegetables are called phytochemicals that have the ability to act as antioxidants and anti-inflammatories, through the donation of one or more hydrogen atoms, neutralizing free radicals, sequestering pro-oxidant metals and increasing the gene expression of the enzymes SOD, GTX and CAT, interfering in the production of eicosanoids and pro-inflammatory cytokines [5,6].

Oxidation-reduction potential of the molecules of phenolic compounds also has the ability to react with active sites and cellular receptors of the body, responsible for the inflammatory process, preventing its triggering. It is worth noting that the relationship between phenolic compounds and the reduction in the concentrations of prostaglandins E2 (PGE4), IL-6, NF-alpha and COX2 presents a dose-dependent characteristic. They also have the capacity to reduce the recruitment of inflammatory cells to the inflamed site. The relationship between inflammation and aging is closely related to the induction of pathologies such as rheumatoid arthritis, cardiovascular diseases, diabetes, Parkinson's, Alzheimer's and cancer, which is well defined by different publications [7,8].

Studies have demonstrated a positive association between increasing the number of antioxidants through diets and reducing chronic inflammatory diseases and oxidative stress, highlighting the importance of implementing the bioavailability of dietary antioxidants [9].

The consumption of fruits and vegetables through diets should be increasingly encouraged by the presence of vitamins, minerals, fibers and phenolic compounds in them, as they are directly related to health by stimulating the protection of the organism against pathological processes [10]. These stand out when present in diets as biocompounds

that have the property of influencing the metabolism of the organism, adequately promoting its functionality when present in diets.

Conclusion

In a global landscape where non-transmissible diseases like diabetes, circulatory problems, cancer, and neurological conditions (including Parkinson's, Alzheimer's, epilepsy, and dementia) are on the rise and intrinsically linked to the diet, promoting dietary balance is more than a recommendation-it's a vital urgency, as emphasized by the World Health Organization (WHO) [11]. This is imperative adopt WHO guidelines to reduce the consumption of sodium, sugars, saturated and trans fats acids, while actively encouraging the intake of fruits, vegetables, and tubers. These indications are the just preferences and the key to nourishing the organism with essential biocompounds that act as guardians of the health, strengthening the body defenses promoting optimized functionality and actively investing in a healthier life.

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