

Topic I - DELIVERING FUNCTIONALITY IN FOOD: from structure design to food product engineering

CITRUS PECTIN SUPPLEMENTATION IMPROVED BIOMARKERS RELATED TO METABOLIC SYNDROME IN AN ANIMAL MODEL FED WITH A HIGH FAT DIET

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The food industry is one of the industries that generates the most waste, being a problem for many sectors, but at the same time, a research area of great interest. These residues, with proper management, can provide benefits both at an environmental level and at an economic level, since they can be a source of raw material for obtaining products of great interest. Compounds of great interest can be obtained from the by-products of vegetable origin, such as are pectins that can be used as both a functional ingredient for human health, but also as an additive (E-440) for the stabilization of food such as juices, jams and sweets. The interest of pectins used as food and pharmaceutical ingredient has increased in recent years due to their functional properties. In this work, a characterization of a commercial citrus pectin (CEAMSA 4400) has been carried out including its structure, rheological and functional properties. Subsequently, an in vivo study was carried out on the effect of the commercial pectin on biomarkers related to metabolic syndrome induced by a high-fat diet. The pectin analyzed showed the predominance of homogalacturonan and a presence of galacturonic acid, as well as good rheological and techno-functional properties and good antioxidant activity. Due to the good structural and techno-functional properties of pectin, improvements in metabolic syndrome markers were observed after 4 weeks of pectin supplementation: decrease in adipose tissue, improvement in insulin resistance and glycemia homeostasis, decrease in leptin levels and an improvement in hypertension levels. These results may be useful in the search for new bioactive ingredients, as well as the use of by-products in the improvement of obesity-related pathologies as a complement to the pharmacological treatments.