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Production and applications of bio-based fiber gum and Z Trim from agricultural biomass

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Bio-based fiber gums (BFGs) and Z Trim are water soluble arabinoxylan (Hemicellulose B) and water insoluble fibrous cellulose rich arabinoxylan respectively, isolated from various low value agricultural residues (corn stover, wheat straw, etc.), agricultural processing by-products (corn fiber, wheat bran, rice fiber, sorghum bran, sugar cane bagasse, etc.) and energy crops (switch grass and miscanthus) by alkaline treatment. The BFGs, isolated from different agricultural materials are purified, characterized and their functionalities are studied. They appear to have useful properties as emulsifiers, antioxidants, dietary fibers and other food ingredients. Like corn fiber gum (CFG), these polysaccharides are unique in making low viscosity solutions, even at high concentrations. Z Trims, prepared from the residues left over after BFG isolation, are also characterized and their water holding capacity, rheological behavior and ORAC values are determined. The rheological studies of these gels show that they make very viscous gels at low concentrations in water. They are completely non-digestible to humans and therefore make an excellent non-caloric food bulking agent and become helpful in replacing fat with healthy fiber and water without changing taste but improving mouth feel. Due to their high water absorbance, fiber addition, oil emulsification, and the reduction of calories, cholesterol, trans-fat and saturated fat, they become very useful ingredient in bakery products, dairy products, meats, dressing, mac and cheese etc. Understanding the functional properties of BFG and Z Trim will be beneficial from their commercialization point of view for their use in food industries.

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Brazilian fish certification program: An instrument of food safety

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Global and national aquaculture is growing rapidly. The expansion is due to the rising of global demand for fish and byproducts, and increased awareness of the fact that aquatic resources, although renewable, are finite. Therefore, they need to be managed properly. Aquaculture's importance is an undeniable fact, but intensive and disorganized practices can lead to a variety of problems. Product quality can be cited as one of them, for the possibility of contamination by pesticides and microbiological agents. In this context, the past few years have seen many efforts to answer public perceptions and market requirements. Food security standards were increased and international commerce regulations became more strict. Many countries have created policies and regulations. Markets acknowledge that certification is the way to assure that aquaculture products are safe to consume and come from farms that adopt sustainable management practices. In Brasil, the National Institute of Metrology, Quality and Technology (Inmetro) has been developing the Brazilian Fish Certification Program (PCPB). This program aims at fostering and collaborating to the sustainable development of the sector through the increase of fish value added and competitiveness, contributing to the country's financial development.

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