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Production of prebiotic xylooligosaccharide (XOS) from rice bran and finger millet

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Abstract

Prebiotic health benefits in potentiating the function of probiotics and promoting gut health is steadily gaining scientific substantiation. . Hemicellulose is rich in xylan, a polysaccharide that can be used for production of xylooligosaccharides (XOS), considering the potential market demand of XOS in food and pharmaceutical industry. Xylooligosaccharides (XOS) are sugar oligomers made up of xylose units. In the present investigation, water soluble polysaccharides (WSP) extracted from rice bran and finger millet CO 9 seed coat were 29.0% and 24.0% respectively. The hemicelluloses content in rice bran and finger millet seed coat were found to be 50.0% and 40.0% respectively. FTIR spectra of WSP were recorded to identify the functional groups. Thermal analysis of the WSP with thermal gravimetric analyzer and differential scanning calorimeter showed both WSP and standard beech wood xylan were highly thermostable. Morphology, particle size, crystal structure and H1 NMR studies of WSP indicated that rice bran and finger millet seed coat contain xylan. The presence of β linkages of XOS was evident on treatment of WSP with xylanase. We aim to characterize the XOS and study the prebiotic efficacy of these fractions of XOS.

Hence, research in this area has a high potential for generation of scientific information and development of viable methods for value-added functional food ingredients.

Biography

P. Ayyappan has completed M.Sc. Microbiology in the year of 2009 from Bharathiyar University, Coimbatore, Tamil Nadu, India. In 2010 he has joined Ph.D. program in the Department of Biotechnology, Anna University, Chennai, India, under the guidance of Dr. Usha Antony. His area of research is Food Science & Technology. Currently he is working as a Senior Research Fellow in the SERB/MOFPI funded project on Prebiotic Xylooligosaccharides.

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