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From Farm to Fork – Applications of Pectin and Cellulose Residues Across the Food Industry

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Abstract

Food waste is a global issue of concern from two perspectives – firstly the loss of edible portions of food impedes the ability for current agricultural practices to feed a growing population with the United Nations estimating that 3 in 10 people faced moderate or severe food insecurity in 2023. Secondly the generation of inedible portions of food crops presents issues with disposal – with many conventional means, such as landfill and burning, contributing severely to the climate crises and other air pollution issues. One of the key parts of rendering crops and plants inedible for human consumption is the high presence of indigestible lignocellulosic material – comprising primarily of lignin, cellulose, hemicellulose and pectin tied together. Fractionation of this material can yield the pectin and cellulose for further usage. Both are well established as functional food ingredients, namely as a thickening or bulking agent or as dietary fibre. However their potential usage spans many other fields across the food manufacturing sector. From hydroponic media for growing plants, through to smart films for packaging, this talk will explore the many ways in which these materials can be utilised to both reduce waste in the food supply chain and boost productivity simultaneously.

Keywords: Pectin, Cellulose, Waste Valorisation, Microwave Technology

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