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Alkaline extraction of xylooligosaccharide from corncob and orange peel waste and determination of their prebiotic properties *in vitro*

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Agricultural wastes can be potentially used to produce various value-added products like biofuels, animal feeds etc. and can be utilized to manufacture several such products including xylooligosaccharide (XOS) which may exhibit prebiotic effect when consumed regularly. The objectives of this study were to quantify the XOS present in selected agro waste namely corncob and orange peels and to determine their prebiotic properties *in vitro*. The alkaline enzymatic extraction method was used to extract XOS from these agro wastes followed by assay of XOS using HPLC. The prebiotic properties of XOS were determined using acid and bile test, production of butyrate and propionate as a result of fermentation by *Lactobacillus plantarum* and *Bifidobacterium adolescentis*. 60g of powdered corncob and orange peel yielded 9.60g and 7.50g of crude xylan and the XOS yielded was 3% and 2.35% from the xylan. No degradation of XOS was observed on exposure of XOS to bile at 0h, 1.5h and 3h whereas; acid test resulted in 91%, 94.93% and 97% recovery of XOS on exposure to 1.5, 2 and 3 pH at 0h, 1.5h and 3h respectively. *Lactobacillus plantarum* and *Bifidobacterium adolescentis* produced 405.62mMol and 408.67mMol propionate and 340.72mMol and 343.28mMol butyrate respectively. It can be concluded that it was possible to extract XOS from both the agro wastes with almost equal yield and it also showed the properties of a prebiotic by showing resistance towards bile and acid and by producing propionate and butyrate as a result of fermentation by the probiotic bacteria.

Biography

Abnita Thakuria is pursuing her PhD in Foods and Nutrition from The Maharaja Sayajirao University of Baroda, Vadodara, India. She has won the best poster award at Probiota Americas, San Diego in 2015 for her MSc research work. She has also published 4 papers from her MSc research work in reputed journals and is keen in the field of research.

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