Pectin from *Opuntia ficus indica*: Optimization of microwave-assisted extraction and preliminary characterization

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Description
Optimization of microwave-assisted extraction (MAE) of water-soluble pectin (WSP) from *Opuntia ficus indica* cladodes was performed using Response Surface Methodology. The effect of extraction time (X_1), microwave power (X_2), pH (X_3) and solid-to-liquid ratio (X_4) on the extraction yield was examined. The optimum conditions of MAE were as follows: X_1 = 2.15 min; X_2 = 517 W; X_3 = 2.26 and X_4 = 2g/30.6 mL. The maximum obtained yield of pectin extraction was 12.57%. Total carbohydrate content of WSP is about 95.5% including 34.4% of Galacturonic acid. Pectin-related proteins represent only the 0.66% of WSP mass. HPSEC and light scattering analyses reveal that WSP is mostly constituted of high molecular pectin and FTIR measurements show that the microwave treatment does not alter the chemical structure of WSP, in which Galacturonic acid content and yield are 34.4% and 4.33%, respectively …