

Akrachai Parakkamakul 2012: Process Development for Industrial Production of Inulin Flour and Inulooligosaccharides. Master of Science (Biotechnology), Major Field: Biotechnology Department of Biotechnology. Thesis Advisor: Associate Professor Wirat Vanichsriratana, Ph.D. 82 pages.

The industrial production of inulin flour and inulooligosaccharides from Jerusalem artichoke (*Helianthus tuberosus*) were the new choices for added value of Jerusalem artichoke. This work reported the study of suitable processes for making of inulin flour and inulooligosaccharides from Jerusalem artichoke.

The wet process for inulin flour production with using hot water extraction and mixed with alcohol until the final concentration was 70 % for precipitation gave higher yield than that using only water. It was also found that enzymatic production of inulooligosaccharides using mixed enzymes showed higher yield of oligosaccharides (DP = 3-5) than those using either enzyme from *Aspergillus niger* TISTR 3570 or *Candida guilliermondii* TISTR 5844. Inulooligosaccharide syrup can be prepared by evaporation at 45 °C under 27 mmHg_g vacuums. On the other hand, Inulooligosaccharide powder was prepared with using the spray dryer (adding 30 % (w/v) maltodextrin as carrier) and controlled of air inlet temperature 160 °C and air outlet temperature between 75-86 °C.

Jerusalem artichoke (*Helianthus tuberosus*) can be partially used as for producing inulin flour and inulooligosaccharides which are value added products. Inulooligosaccharides can be further developed as concentrate syrup or powder for suitable use in food industries.

Student's signature

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