Optimization of extraction conditions for ginseng polysaccharide using red ginseng marc

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Abstract

The conditions for the extraction of ginseng polysaccharide, which can be used for anti-cancer and immunostimulatory agents, were optimized polysaccharides. Red ginseng and red ginseng marc were respectively extracted by hot water at 80°C for 4 hours. Carbazole-sulfuric acid method[1,2] was used for the determination of acidic polysaccharide. The recovery yield of acidic polysaccharide from red ginseng marc was slightly lower than that from red ginseng, however the red ginseng marc, the by-product of red ginseng saponin product, was selected as a raw material for polysaccharide production in terms of economical aspect. The effect of pH on the recovery yield was investigated: the optimum pH range was 6.5~7.0. In order to investigate the effect of -amylase treatment during the extraction, various -amylases including thermostable enzymes (BAN 480L and Termamyl 120L) were tested. There was no significant difference between the enzyme treatment and the control (without enzyme treatment). The effect of organic solvent on the precipitation of polysaccharide was also examined. The recovery yield was highest when the volume ratio of water and ethanol was 1 : 5. In addition, other extraction conditions such as raw material concentration, extraction time and extraction temperature were determined for the development of polysaccharide extraction process.

Reference

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