

Preparation of V-type cassava starch-coconut oil complexes using a combination treatment of enzymatic debranching and different complexation temperatures

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Abstract

The complexation of lipids with starch molecules is known to retard the digestibility of starch. In this study, enzymatic debranched cassava starch was used to complex with virgin coconut oil (VCO) by a simple thermal treatment process. The native cassava starch was debranched by using the pullulanase enzyme and further complexed with VCO. The effects of enzyme concentration and complexation temperature on the complex formation and the contents of rapidly digestible starch (RDS), slowly digestible starch (SDS) and enzyme-resistant starch (RS) were investigated. The results showed that by using the pullulanase enzyme at 30 PUN/g and a low complexation temperature at 70 °C, the debranched starch-VCO complexes showed a high complexing index (CI) value of 47.83%, indicating highly effective complex.

Keywords: Triglyceride, cassava starch, virgin coconut oil, in-vitro starch digestibility