

Title Effects of anti-swelling agents on physicochemical properties of konjac glucomannan

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Abstract

Buk Nuea Sai or *Amorphophallus muelleri* is an indigenous crop found mostly in northern and western part of Thailand. Fresh konjac corm of *A. muelleri* contains 75-80% moisture and 20-25% total solids. In total solid portion, konjac corm consists of carbohydrates, especially glucomannan, insoluble starch, and cellulose and also some proteins and lipids. Konjac glucomannan is a useful hydrocolloid in many industries because its high capacity to absorb water. Extraction processes are needed to eliminate these impurities for producing purified konjac flour. Wet extraction method is widely used to produce konjac flour because it can provide high percentage of extraction and at the same time deliver good quality konjac flour. However, the capacity of glucomannan to absorb water becomes a problem during wet extraction by water because impurities are absorbed in molecules of glucomannan at the same time and are difficult to separate. This study attempted to use solutions of inorganic substances instead of water in wet extraction to improve glucomannan extraction. The effects of sodium tetraborate were compared with those of ethanol. The physicochemical properties of konjac flour were investigated including extraction percentage, water uptake percentage, whiteness index value, glucomannan content and viscosity. The results show that using ethanol can provide higher percentage of extraction than using sodium tetraborate. However, the whiteness index value, the glucomannan content and the viscosity of konjac samples obtained when using sodium tetraborate were higher than those extracted with ethanol.