Effects of heat-moisture and alkali treatment on the enzymatic hydrolysis of porous sago (Metroxylon sagu) starch

ABSTRACT

Pretreatment(s) of heat-moisture treatment (HMT) and alkali treatment was tested for the enzymatic hydrolysis of sago (Metroxylon sagu) starch. HMT was undergone by autoclaving the sago starch at 120°C for 60 min. While sodium hydroxide pellets (0.60% [w/w starch dry basis (d.b.)] to 50 g of sago starch) were applied as the alkali treatment. Dual pretreatments were also evaluated. The dextrose equivalent values of porous starch with alkali pretreatment (31%), HMT (37%), and dual pretreatments (42%) were significantly higher than those of non-pretreated porous sago starch (21%). Greater porosity of pretreated starch granules (0.91–5.19 μm) was also obtained. The thermal properties (gelatinization temperature) of porous starch with pretreatments were improved compared to the non-pretreated porous sago starch. In addition, the pretreatment(s) also improved the oil adsorption capacity of the porous starch. Dual pretreatments were an efficient way to facilitate enzymatic hydrolysis in preparing porous sago starch.