

Production and characterization of enzyme-treated spray-dried soursop (*Annona muricata* L.) powder

ABSTRACT

Easily perishable soursop (*Annona muricata* L.) fruit was converted into powder for value-addition. Soursop puree obtained from fruit pulp that had been treated with different concentrations (0–2% v/w) of Celluclast 1.5 L at fixed (1.5% v/w) concentration of Pectinase Ultra SP-L were spray-dried at various inlet temperatures (130–160 °C) after mixing the puree with maltodextrin (20–40% w/w). Multiple responses optimization from Response Surface Methodology (RSM) indicated puree that was pretreated with 1.3% (v/w) cellulase and incorporated with 37% w/w maltodextrin and spray-dried at an inlet temperature of 156 °C could be transformed into powder that had the following physicochemical properties: moisture content, 2.03% (wb); A_w , 0.18; hygroscopicity, 29.02 g/100g; stickiness, 173.02 g and yield 70.56% of powder. The glass transition temperature (T_g) was found to range between 46.53 and 58.25 °C, indicating the spray-dried powder was an amorphous material. Surface morphology of the powder particles, viewed using Scanning Electron Microscopy, showed they exhibited spherical in shape and possessed a continuous wall (crust) without surface cracks.