

Abstract

Sweet soy sauce is a popular condiment in Indonesia, and it is mostly available in liquid form. Converting the product into powder form could provide several benefits, such as lower distribution cost and utilization in more types of product. In this study, sweet soy sauce was spray-dried in three different formulations (sweet soy sauce solids:maltodextrin ratio of 2:1, 1:1, and 1:2) and two inlet air temperatures (150°C and 200°C). The powders were analyzed in terms of yield, moisture content, water activity, hygroscopicity, flowability (Carr's index and Hausner ratio), dissolution time, solubility, and color. Higher inlet air temperature resulted in lower moisture content and water activity and higher solubility, but slightly lower yield and flowability. Sweet soy sauce powders with S:M ratio of 1:2 showed the best yield, hygroscopicity, and solubility, but the moisture content and water activity were relatively high. Sweet soy sauce powders with S:M ratio of 1:1 showed the lowest moisture content and dissolution time, but the powders were very hygroscopic. The powders had brownish yellow color with the highest color intensity observed on S:M ratio of 1:1. Sweet soy sauce powder with S:M ratio of 1:2 spray-dried at 200°C showed the best physical properties in general. The possible improvements are lowering the inlet air temperature to improve the yield and flowability, and reducing the maltodextrin concentration to improve the moisture content and dissolution time.