**ABSTRACT**

Sweet soy sauce (*kecap manis*) is a popular condiment around Indonesia and is utilized by Indonesian citizens as a meal companion. Commercialized sweet soy sauces are in a form of a thick and viscous liquid. This study was done to develop an alternative form of liquid sweet soy sauces by utilizing spray drying and analyze the effects of the conditions towards the physicochemical properties of sweet soy sauce powders including: yield of powder, color, bulk and tapped density, powder flowability, solubility, dissolution rate, moisture content, water activity, and hygroscopicity. Independent variables include inlet temperature (150°C and 200°C) and different ratios of gum Arabic to maltodextrin ratio (0:8, 1:7, 3:5). Overall, incorporating gum Arabic to maltodextrin under ratios of 3:5 treated with inlet temperatures of 200°C gave out the best and most consistent results among the independent variables. Samples from the aforementioned independent variables was able to produce a relatively high yield, more consistent color attributes, increases solubility, lowers water activity and possesses a rapid dissolution rate.

**Keywords:** sweet soy sauce, inlet temperature, maltodextrin, gum Arabic, physicochemical analysis