

Optimization of Black Grass Jelly Formulation to Reduce Leaching and Increase Floating Rate

Authors : M. M. Nor, H. I. Sheikh, M. F. H. Hassan, S. Mokhtar, A. Suganthi, A. Fadhlina

Abstract : Black grass jelly (BGJ) is a popular black jelly used in preparing various drinks and desserts. Food industries often use preservatives to maintain the physicochemical properties of foods, such as color and texture. These preservatives (e.g., phosphoric acid) are linked with deleterious health effects such as kidney disease. Using gelling agents, carrageenan, and gelatin to make BGJ could improve its physicochemical and textural properties. This study was designed to optimize BGJ-selected physicochemical and textural properties using carrageenan and gelatin. Various black grass jelly formulations (BGJF) were designed using an I-optimal mixture design in Design Expert® software. Data from commercial BGJ were used as a reference during the optimization process. The combination of carrageenan and gelatin added to the formulations was up to 14.38g (~5%), respectively. The results showed that adding 2.5g carrageenan and 2.5g gelatin at approximately 5g (~5%) effectively maintained most of the physicochemical properties with an overall desirability function of 0.81. This formulation was selected as the optimum black grass jelly formulation (OBGJF). The leaching properties and floating duration were measured on the OBGJF and commercial grass jelly for 20 min and 40 min, respectively. The results indicated that OBGJF showed significantly ($p < 0.0001$) lower leaching rate and floating time ($p < 0.05$). Hence, further optimization is needed to increase the floating duration of carrageenan and gelatin-based BGJ.

Keywords : cincau, Mesona chinensis, black grass jelly, carrageenan, gelatin

Conference Title : ICFSN 2023 : International Conference on Food Science and Nutrition

Conference Location : Zurich, Switzerland

Conference Dates : July 24-25, 2023