

Production of Cowpea (*Vigna unguiculata* L.) Seed Powder by Spray Drying and Ingini (*Strychnos potatorum*) Seed Powder by Roasting

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Growth of vegan food market indicates the desire of consumers for vegan diets. As modern consumers are health conscious regardless of their busy lifestyles, this study focused on developing cowpea milk powder and *ingini* seed powder for possible incorporation in formulating vegan products. Cowpea seeds were sundried, dehulled and soaked in 1% NaHCO₃ (24 h). Swollen seeds were rinsed, hand-peeled, blanched (95 °C for 1 minute), cooled and ground with water in 1:3 (w/v). The resultant slurry was filtered through a muslin cloth, and consistency of the filtrate was adjusted by adding 1 fold of distilled water, followed by mixing with maltodextrin (3% - w/v). Cowpea milk containing maltodextrin (CM-MD) was spray dried at an inlet and outlet temperatures of 185 °C and 90 °C respectively, and 35-40 rpm of feed pump rate at 0.6 MPa constant compressed air pressure. Moisture content (MC) of $3.62 \pm 1.09\%$, bulk density of 0.55 ± 0.00 g/mL and particle density of 1.61 ± 0.17 g/mL were evident in spray dried CM-MD. Ingini seeds were roasted at 200, 220 and 240 °C for 20, 15 and 10 min, respectively, as treatments in triplicate, ground and sieved (200 µm). Physical properties of roasted ingini seed powder (RISP) revealed no significant effect ($P > 0.05$) of roasting on MC, colour and swelling index, and significant effect ($P < 0.05$) on yield and solubility. Among the three roasting conditions, roasting at 220 °C for 15 min was found to be the most suitable for obtaining RISP, in which moisture content of $6.66 \pm 0.07\%$, yield of $56.01 \pm 6.93\%$, colour of 89.7 ± 5.4 (lightness), swelling power of $47.94 \pm 2.53\%$ and solubility of $71.7 \pm 0.7\%$ were evident. Further research is necessary to find out the suitability of CM-MD and RISP for formulating plant-based milk alternatives, particularly for vegans.

Keywords: Cowpea milk powder, Ingini seed powder, Roasting, Spray drying

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