

ABSTRACT

The Effects of Salt Concentration and the Length of Spontaneous Fermentation on the Swelling Power, Solubility, Rehydration Value, Concentration of Gel Formation, Color, and Aroma of White Sweet Potato Flour

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This study was aimed to determine the effect of salt concentration, fermentation length, and interaction of salt concentration and fermentation length on swelling power, solubility, rehydration value, concentration of gel formation, color, and aroma of fermented white sweet potato flour. The 2-factorial experiment was arranged in a complete randomized design with 3 replications. The first factor was the concentration of salt: 1%, 3%, and 5%. The second factor was the length of fermentation time 0 day, 2 days, 4 days, 6 days, and 8 days. The results showed that at any salt concentration the pH values of 0-day fermented flour were between 5,7 and 5,8. Whereas those of 8-day fermented flour were between 3,51 and 3,64. Those values were not different from those of in 4, and 6-days fermented flour, except in 2-day fermented which was 3,5-3,8. The swelling power value of fermented white sweet potato flour measured at 60°C, 70°C, and 80°C were in the range of 3,08 to 4,24 g/g, 3,89 to 5,93 g/g, and 4,5 to 6,96 g/g

respectively. The solubility values of fermented white sweet potato flour fermented at 60°C were ranged from 8,65 to 26,2%, and at 70°C were from 3,23 to 10,29%, meanwhile at temperature of 80°C were 2,28 to 10,15%. The rehydration values of white sweet potato flour were between 229,76 and 292,58%. The result also revealed that flour produced from 0 day as well as 2-day fermentation did not form gel inspite of the salt concentration used, whereas those of fermented flour 4, 6, and 8 days could form gel at concentration 10%. The scores of ther color were between 2,02 (yellowish-white) to 3,48 (creamy-white), and the scores of the aroma were between 2,32 (slightly acid) to 4,17 (slightly typical sweet potato).

Keywords: fermented white sweet potato flour, salt concentration, swelling power, solubility, the length fermentation.