

Effect of diafiltration on preparation of fermented mung beans concentrate as probiotic savory flavor through ultrafiltration membrane

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Abstrak

Diafiltration by means of the ultrafiltration system of probiotic fermented Mung beans (*Phaseolus radiatus* L.) concentrate has been performed to reduce or eliminate salts and smaller impurities than the nominal cut-off of the membrane of 20,000 nominal weight cut-off (NWCO). These processes have been conducted as an attempt in order to get a probiotic product with organoleptic acceptability, composition, and the optimal total lactic acid bacteria (LAB)

counts because the presence of salts will affect on the viability

of LAB and the cell lysis of LAB and limit its utility in food products. Concentrate of probiotic mung beans was prepared through fermentation of LAB using inoculum of LAB consisting of

Lactobacillus bulgaricus and *Streptococcus thermophilus*

(1 : 1) on fermented mung beans extract inoculated by inoculum of

Rhizopus ?C1 in rice substrates at salt condition. Ultrafiltration and diafiltration modes have been carried out at flow rate of 8.77 Liter/minute, room temperature and the pressure of 5 bar (0 to 79.7 minutes) and 7 bar (0-154.5 minutes) with the ratio of the volume of pure water to the volume of initial feed (number of diavolume, Nd)

of 0, 0.25, 0.5, 0.75, 1.0 and 1.25, respectively. The experiment results based on total LAB counts as a probiotic product show that a high Nd can reduce the salt content but increase the total LAB counts. Nd of 1.0 results reduce the salt content which is equal to retentate, permeate, and the optimal total LAB counts.

Ultrafiltration and diafiltration modes at the pressure of 7 bar and Nd of 1.0 give a retentate with total solid of 6.1355%, salt of 1.3515% and remove 86.15% of the salt from probiotic fermented mung beans

concentrate and total LAB counts of 10.73 log cycles. Meanwhile, the permeate obtained at this condition

results in flux value of 10.83 Liter/m².hour with contents of total solid of 6.8199%, salt of 1.325% and total LAB counts of 5.49 log cycles.