

ABSTRACT

Folic acid is an important vitamin for fetal development and nucleotide and amino acid metabolism. Corn is one of the good sources for folic acid while tempeh fermentation has been reported to increase folic acid content. To concentrate further, membrane filtration is a promising technology. This study aims to understand the effect of microfiltration conditions towards the increase of folic acid content in nixtamalized corn tempeh to obtain folic acid-rich concentrates. This study was conducted in two phases: preliminary and primary study. Preliminary study was done to find the ideal treatment to produce best nixtamalized corn tempeh. In this phase types of corn, nixtamalization process, forms of nixtamal, and types of inoculation were tested. The ideal treatment was selected by the appearance of tempeh and its folic acid content. Primary study was conducted to observe the effect of type of inoculation, microfiltration time, and type of stream towards folic acid content. The highest concentration of folic acid was observed in the permeate at the 90 minutes of microfiltration time, that is 209.33 µg/mL and 218.41 µg/mL, for both *R. oligosporus* strain C1 and *Rhizopus sp.* mix, with the folic acid concentration of 209.33 µg/mL and 218.41 µg/mL, respectively, retaining 63.76% of the folic acid in the retentate. ANOVA test proved the statistically significant effect of types of inoculation and stream. Additionally, regression analysis showed the high correlation between folic acid content and microfiltration time.

Keywords: folic acid, corn tempeh, microfiltration, membrane separation, functional food, Rhizopus oligosporus strain C1