ABSTRACT

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EFFECT OF GERMINATED COWPEA (*Vigna unguiculata* L.) AND GERMINATED SOYBEAN (*Glycine max* L.) ON THE QUALITY AND PROTEIN DIGESTIBILITY OF TOFU

(xiv + 74 pages: 14 tables, 15 figures, and 11 appendices)

Recently, the average amount of protein consumption per capita in Indonesia is still slightly lower than standard. In addition, protein consumed by Indonesian people has low protein digestibility. The requirement of protein can be fulfilled from many sources, such as legumes such as cowpea and soybean. Germination process of legumes can increase protein digestibility. The aim of this research was to determine the best ratio of germinated cowpea and soybean and heating time that can produce an acceptable tofu to increase protein digestibility. Three different ratios of germinated cowpea and soybean (40:60, 30:70, and 20:80) and heating time (30 minutes, 60 minutes, and 90 minutes) were applied as treatments. The physicochemical parameters consisting of percent yield, texture profile (hardness, cohesiveness, springiness, and chewiness), degree of whiteness, moisture content, water activity (a_w), and pH as well as sensory analysis of tofu were also evaluated. Interaction between different ratios of germinated cowpea and soybean and heating time gave significant effect towards cohesiveness. Increasing proportion of cowpea decreased percent yield, hardness, springiness, and chewiness. Hardness, chewiness, degree of whiteness, and moisture content were enhanced along with heating time. However, different ratio of germinated cowpea and soybean and heating did not give significant effect on pH and water activity (a_w). Tofu made from 40:60 germinated cowpea to soybean with heating time 30 minutes was chosen as the best formula tofu. It contains 13.56% protein, 2.75% fat, 0.76% carbohydrate, 0.48% ash, and 82.45% moisture. Protein digestibility is increased due to germination process. Protein digestibility of best formula tofu is 11.75% which is 36.95% increased compared to that of un-germinated cowpea and soybean.

Keywords : cowpea, germinated, protein digestibility, soybean, tofu
References : 68 (1998-2016)