ABSTRACT

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STUDY OF CHANGES OF FUNCTIONAL PROPERTIES DURING THE PROCESSING OF BLACK SOYBEAN AND YELLOW SOYBEAN TEMPEH

(xii +98 pages: 6 tables, 16 figures, 14 appendices)

Tempeh is a fermented product, a result of fermentation soybean by Rhizopus sp. This research is aimed to observe the effect on soybean type and tempeh processing steps on the changes of its functional properties. The functional properties were assessed by the antioxidant activity, total phenolic compound, total flavonoid content, and alpha-glucosidase inhibition activity. The preliminary research was conducted in order to determine the best soaking and cooking method that would produce tempeh with the best antioxidant activity. Soaking soybean in water (natural soaking) and cooking soybean by steaming method were proven to be the best method that produce tempeh with higher antioxidant capacity. The main research was conducted to observe the influence of soybean type and processing steps on changes in total phenolic, total flavonoid, antioxidant activity, and α-glucosidase inhibition activity. The statistical analysis showed that there was significant effect of interaction between soybean type and tempeh processing steps on changes in total phenolic, total flavonoid, antioxidant activity, and α-glucosidase inhibition activity. The changes occurred in each step of tempeh processing may resulted from the production of bioactive compounds during the processing of tempeh and also from the synergistic or opposite interaction between bioactive compounds present in soybean during processing. Black soybean showed significantly better overall functional properties compared to yellow soybean, as resulted from higher phenolic and flavonoid content of black soybean compared to yellow soybean.

Keywords: *α-glucosidase, antioxidant, DPPH, flavonoid, phenolic, processing, tempeh*
References: 76 (1989-2014)