ABSTRACT

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UTILIZATION OF GERMINATED COWPEA FLOUR (*Vigna unguiculata* [L.] Walp.) AS IRON SOURCE IN BLACK RICE-BASED COOKIES
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Cowpea (*Vigna unguiculata* [L.] Walp.) *was a legume that has high iron content, however, it also contained phytic acid, which was an iron inhibitor. In this research, germinated cowpea flour was utilized as iron source in cookies. Black rice* (*Oryza sativa* L.) *flour, which was high in iron, was also used to substitute the usage of wheat flour in cookies. This research was aimed to investigate the effect of using germinated cowpea flour and black rice toward phytic acid, total iron content and sensory characteristics in cookies. The germination time was 24 hours, and the ratios used were 1:4, 2:3, 1:1, 3:2 and 4:1. The psychochemical properties (moisture content, degree of whiteness and texture), phytic acid concentration, total iron content, sensory properties and acceptance of the cookies made with non-germinated and germinated cowpea flour were analyzed. The result showed that germination significantly reduced phytic acid concentration in cookies. Phytic acid was reduced from 0.7275±0.0504% in raw cowpeas, to 0.4680±0.0234% in germinated cowpea flour. Germination did not affect the total iron content and improved the sensory attributes of cookies. The best formulation of cookies was the one made with germinated (GM) cowpea flour with cowpea to black rice ratio of 4:1. These GM 4:1 cookies contained 0.0035±0.0061% phytic acid and 2.7270±0.1817 mg iron/100g sample. Lastly, GM 4:1 contained 19.48% of the iron NRV per 100g which enable it to be claimed as an iron source.*

Keywords : *Vigna unguiculata* (L.) Walp., *Oryza sativa* L., germination, iron, phytic acid, cookies, iron inhibitor, sensory attributes
References : 43 (1985-2016)