

Comparison of γ -aminobutyric acid (GABA) content and antioxidant activities of conventional soybean tempeh and new generation mung bean tempeh produced using *Rhizopus* spp

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Improvement of nutritional quality and functionality of food products have always gained global interest. This paper aimed to introduce a new generation of mung bean tempeh produced using *Rhizopus* spp. Traditionally tempeh is produced from fermentation of soybean but no literature was found on using mung bean as a source of raw material. Therefore, the main objective of the present study was to compare the γ -amino butyric acid (GABA) content and antioxidant properties of conventional soybean tempeh and new generation mung bean Tempeh. Results showed that fermentation improved GABA content of both types of Tempeh. The highest level of GABA was observed on soybean tempeh (0.328 g/100g dry weight) followed by mung bean tempeh (0.122 g/100g dry weight). The antioxidant activities for both tempeh were evaluated using different *in vitro* antioxidants assay, namely: total phenolic content, 2, 2-diphenyl-1-picrylhydrazyl, ferric reducing antioxidant power and total soluble phenolic acids content. Mung bean tempeh produced under aerobic incubation at 48 hours exhibited the highest level of free radical scavenging activity with the IC₅₀ of 8.191 mg extract/mL as compared to soybean tempeh (20.000 mg extract/mL). On the other hand, mung bean tempeh gave higher content of total phenolic content (37.560 mg gallic acid equivalent/g sample extract), FRAP value (13.640 mg ascorbic acid/g sample extract) and total soluble phenolic acids (214.580 μ g/g extract) with respected to soybean tempeh. The soluble phenolic acid profile showed that the amount of protocatechuic acid in mung bean Tempeh was 13 times higher than soybean tempeh indicating the potential use of this new generation mung bean tempeh as a liver protection food product.

Biography

Kamariah Long, currently attached with MARDI and has served MARDI for 28 years. Her research interest are on microbial enzyme technology with special emphasis on lipases, their properties and applications, lipid biotechnology, enzymatic synthesis, fat substitutes and structured lipid. Her interest of research also covered coconut oil and other tropical seed oils. She is the inventor of 9 inventions and has published 66 refereed papers in national and international journals. She has supervised more than 20 postgraduate students. She is presently a deputy director of the Bio-Processing program at the Biotechnology Research Centre of MARDI and as adjunct Professor at Universiti Malaysia Pahang.

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