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Comparison of amino acid profile, antioxidant, soluble phenolic acid, cytotoxicity and immunomodulation of fermented mung bean and soybean

Kamariah Long³, Norlailly Mohd Ali¹, Swee-Keong Yeap¹, Hamidah Mohd Yusof¹, Boon-Kee Beh¹, Wan-Yong Ho², Soo-Peng Koh³ and Noorjahan Banu Alitheen¹

¹Universiti Putra Malaysia, Malaysia

²The University of Nottingham Malaysia Campus, Malaysia

³Malaysian Agricultural Research and Development Institute (MARDI), Malaysia

Mung bean and soybean have been individually reported previously to have antioxidant, cytotoxic and immunomodulatory effects while fermentation is a well-known process to enhance the bioactive compounds that contribute to higher antioxidant, cytotoxic and immunomodulation effects. In this study, the amino acid profile, soluble phenolic acid content, antioxidant, cytotoxic and immunomodulatory effects of fermented and non-fermented mung bean and soybean were compared. Fermented mung bean was recorded to have the highest level of free amino acid, soluble phenolic acid (especially protocatechuic acid) and antioxidant activities among all the tested products. Both fermented mung bean and soybean possessed cytotoxicity activities against breast cancer MCF-7 cell by arresting the G0/G1 phase and by apoptosis. Moreover, fermented mung bean and soybean also induced splenocyte proliferation and enhanced the levels of serum interleukin-2 (IL-2) and interferon-gamma (IFN- γ). Augmented amounts of amino acid and phenolic acid content after fermentation enhanced the antioxidant, cytotoxicity and immunomodulation effects of mung bean and soybean. More specifically, fermented mung bean showed the best effects among all the tested products. This study revealed the potential of fermented mung bean and soybean as functional foods for maintenance of good health.

amai@mardi.gov.my