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Antioxidant and Anti-diabetic Activity of Extract from Proso Millet Seed Coat

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**[Introduction]**

Proso millet (*Panicum miliaceum* L.) contains abundant nutrition and functional ingredients, and have various seed coat color such as white, yellow, red and black. The colored seed coat have contained most of polyphenol compounds with biological activity of proso millet. Therefore, the study was performed to investigate antioxidant and enzyme inhibitory activities of proso millet seed coat.

**[Materials and Methods]**

It was extracted with 80% methanol and concentrated. The concentrated samples were divided into high dense (PM-SC-B) and low dense material (PM-SC-Y) by freeze drying. Divided samples were tested in antioxidant activity (DPPH and ABTS) and enzyme inhibitory activity (alpha-glucosidase).

**[Results and Discussion]**

PM-SC-B was showed to be about 76% in ABTS and 32% in DPPH activity but PM-SC-Y showed to be about 43% in ABTS and 14% in DPPH activity at 1.25 mg/ml. Also, alpha-glucosidase inhibitory activity of PM extract was 46% at 1.25 mg/ml (positive control acarbose, 26%). Interestingly, proso millet seed coat showed higher ABTS activity than DPPH activity. ABTS scavenging activity refers to electron delocalization ability, but DPPH activity refers to electron donor ability to affect cytotoxicity in high concentration. The extracts of proso millet seed coats with low DPPH activity, high ABTS activity and anti-diabetes activity are more effective in developing functional materials, so industrial utilization can be expected.

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