PHYTOCHEMICALS AND ANTIOXIDANT ACTIVITIES OF SARAWAK BARIO RICE VARIETIES

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Abstract

Rice is a staple diet for almost half of the world's population, offering a diverse range of varieties with distinct characteristics, including pigmented and non-pigmented types. Phenolic and flavonoid compounds in food are acknowledged for their health-promoting benefits and antioxidant properties. This research explores the total phenolic content (TPC), total flavonoid content (TFC), and antioxidant activity through the 2,2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity of different Bario rice varieties. Bario rice varieties are exotic local crops that originated from Sarawak, Malaysia. These crops have gained a reputation due to their excellent eating quality and natural aroma upon cooking. The study found that the pigmented rice exhibited higher phenolic content compared to non-pigmented. Similar trends were observed in TFC, favouring the pigmented rice varieties. Bario Merah Sederhana indicated the highest TFC content, followed by Bario Celum (BC) and Bario Tuan. There was no significant difference ($p>0.05$) was observed among samples at the highest concentration level (3.5 mg/ml). The DPPH radical scavenging assay underscores the strong antioxidant potential of pigmented rice, particularly BC, the black-pigmented rice. The antioxidant activity was attributed to the presence of rice bran, which is rich in phytochemicals, contributing to a greater antioxidative effect. The study highlighted the promising potential of Bario rice varieties, as revealed by their phytochemicals and antioxidant capacity, indicating their potential contribution to human well-being.

Keywords: *antioxidant, bario rice, dpph scavenging assay, total phenolic content, total flavonoid content.*