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### **Antioxidant properties of selected pigmented whole long grain rice varieties of Sri Lanka**

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Highly polished, long grain, white rice is the most popular rice in international trade. However, the demand for pigmented, whole, long grain rice has increased, as they are rich in nutrients and naturally derived antioxidants. In Sri Lanka, several long grain rice varieties (RVs) with 'Basmathi' type grain qualities, and a black pericarp rice variety have been recently developed and commercialized. However, the antioxidant properties (AP) of such RVs are less investigated to date. The present study investigated the AP of selected pigmented whole long grain RVs developed in Sri Lanka.

A locally developed long grain, red pericarp, basmati type rice variety and a black long grain rice variety were used in the study. 70% Ethanol extracts of whole grain rice flour of these two varieties were studied for total polyphenolic content (TPC), ferric reducing antioxidant power (FRAP), 2,2-diphenyl-1-picrylhydrazine (DPPH) and 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid) diammonium salt (ABTS) radical scavenging activities and oxygen radical absorbance capacity (ORAC) AP *in vitro* (n=3 each).

Results showed that both varieties tested had AP in all the assays tested with varying degrees of potentials. Black rice exhibited significantly high ( $P < 0.05$ ) FRAP ( $38.58 \pm 0.73$  mg Trolox/g extract) and ORAC ( $107.58 \pm 2.65$  mg Trolox/g extract) whereas red rice demonstrated significantly high ( $P < 0.05$ ) DPPH radical scavenging activity ( $120.23 \pm 0.80$  mg Trolox/g extract). For, TPC (red:  $26.00 \pm 2.21$  mg gallic/g extract; black:  $27.67 \pm 0.89$  mg gallic/g extract) and ABTS radical scavenging activity (red:  $72.19 \pm 1.92$  mg Trolox/g extract; black:  $75.18 \pm 0.73$  mg Trolox/g extract) the difference between the two rice varieties were insignificant ( $P > 0.05$ ). Compared to the reference standards used both varieties showed moderate activities for the tested antioxidant properties.

It is concluded that both red and black whole long grain rice varieties studied had AP in all the assays tested with different degrees of potential. Thus, consumption of these two varieties as whole grains may be important in prevention and dietary management of oxidative stress associated chronic diseases.

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