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**Antioxidant properties of brans of selected improved, old improved and traditional rice varieties (*Oryza sativa* L.) of Sri Lanka**

W K S M Abeysekera, G A S Premakumara\*, U K D S S Gunasekara, P Ranasinghe and W P K M Abeysekera

*Industrial Technology Institute (ITI), 363, Bauddhaloka Mawatha, Colombo 07*

Rice (*Oryza sativa* L.) is the staple food for nearly half of the world's population including Sri Lanka. Rice bran is a byproduct of the rice milling process and has numerous commercial applications as it has many beneficial biological effects including antioxidant properties. We have previously reported antioxidant properties of some of the Sri Lankan traditional red rice and the present study evaluates antioxidant properties of brans of selected improved, old improved and traditional rice varieties (RV) of Sri Lanka.

Freeze-dried 70% ethanolic extracts of brans of five improved (At 307, Bg 407, Bg 3-5, Bg 250, and Bg 305), one old improved (H-7) and one traditional (Dosthara Heeneti) RV were used in this study. Antioxidant properties were evaluated using 1,1-diphenyl-2-picryl-hydrazyl (DPPH) and 2-azino-bis (3-ethylbenzothiazoline-6-sulfonic) acid (ABTS) radical scavenging activities (screening at 25 µg/ml:n=6; dose response studies: n=3), total polyphenolic content (TPC, n=6), ferric reducing antioxidant power (FRAP, n=6) and oxygen radical absorbance capacity (ORAC, n=6) *in vitro* antioxidant assays.

Significant differences were observed among bran extracts of selected RV for investigated antioxidant properties ( $P < 0.05$ ). Mean DPPH, ABTS, TPC, ORAC and FRAP antioxidant properties were in the range of  $4.42 \pm 1.61 - 47.00 \pm 3.28$  %,  $22.08 \pm 0.53 - 98.34 \pm 0.19$  %,  $3.17 \pm 1.03 - 173.33 \pm 5.16$  mg gallic acid equivalents/g extract,  $58.69 \pm 2.01 - 304.12 \pm 5.94$  mmol Trolox equivalents (TE)/g extract and  $0.19 \pm 0.00 - 1.89 \pm 0.05$  mmol TE/g extract, respectively. Interestingly, traditional rice variety, Dosthara Heeneti demonstrated the highest ( $P < 0.05$ ) antioxidant activity for all the investigated antioxidant properties compared to old improved and improved white rice varieties studied. DPPH<sup>•</sup> and ABTS<sup>•+</sup> radical scavenging activity of this variety was dose dependent and IC<sub>50</sub> values were  $25.90 \pm 3.59$  and  $11.71 \pm 0.16$  µg/ml, respectively (IC<sub>50</sub> Trolox: DPPH:  $7.67 \pm 0.11$  µg/ml; ABTS:  $3.45 \pm 0.11$  µg/ml). Further, Mean TPC, ORAC and FRAP antioxidant properties were 55, 5 and 10 times higher compared to the lowest active variety in this study. Among selected old improved and improved varieties Bg 3-5, an improved variety, demonstrated significantly higher ( $P < 0.05$ ) antioxidant activity for all antioxidant properties investigated. It is concluded that, brans of Sri Lankan traditional rice variety Dosthara Heeneti possess high antioxidant properties.