



606/E2

### **DPPH radical scavenging activity of rice bran obtained from five rice varieties grown in Sri Lanka**

H M T Herath\* and D Rajapakse

*Food Technology Section, Industrial Technology Institute, Bauddhaloka Mawatha,  
Colombo 07*

Rice bran is a nutritionally and functionally important by-product of the rice processing industry which is obtained from the outer layer of brown rice kernel during milling. It is reported that bran is a health promoting functional food ingredient which could be used in the formulation of novel food products with an intention to prevent most prevalent non communicable diseases (NCD) such as cancer, diabetes, heart diseases and elevated serum lipids. Natural antioxidants present in the rice bran scavenge free radicals and reactive oxygen species and are extremely important in inhibiting oxidative mechanisms that lead to degenerative non-communicable diseases in the human body. Rice bran positively contributes to human health due to the presence of their fibre, minerals, vitamins (B, D and E), phenolic compounds, lignans and other phytochemicals such as ferulic acids, gamma oryzanols and tocotrienols. These compounds are proven to influence biological functions individually or synergistically.

The present study investigates the total antioxidant activity of rice bran obtained from some locally grown rice varieties of Sri Lanka with an intention of incorporating rice bran in food products and using for indigenous medicinal purposes.

The methanolic extracts of bran obtained from rice varieties with coloured pericarp, white or red, namely basmati 370 (white), suduru samba (white), kalu heenati (red), rathu heenati (red) and sudu heenati (red) were subjected to the DPPH radical scavenging assay and absorbance was measured at 517 nm using spectrophotometry (UV/VIS). A graph was plotted using concentration of methanolic extract of bran vs. percentage reduction of colour and the  $IC_{50}$  value was calculated. Ascorbic acid was used as a reference ( $IC_{50} = 0.011 \text{ mg ml}^{-1}$ ). The results showed that sudu heenati had significantly ( $P < 0.05$ ) high antioxidant activity ( $IC_{50} = 0.054 \text{ mg ml}^{-1}$ ) as previously reported by Abeysekera *et al.*, 2011 while basmati 370 had moderate antioxidant activity ( $IC_{50} = 0.083$ ). Kalu heenati and rathu heenati had similar activity ( $IC_{50} = 0.094 \text{ mg ml}^{-1}$  and  $0.096 \text{ mg ml}^{-1}$ ) and suduru samba had significantly ( $P < 0.05$ ) low antioxidant activity ( $IC_{50} = 1.46 \text{ mg ml}^{-1}$ ). Further, there was a positive correlation between % reduction of activity and concentration of extract in all varieties.

The present study concluded that sudu heenati with red pericarp had high antioxidant capacity among the rice varieties studied.

Acknowledgements: Financial support by Treasury (grant TG11/34)