DETERMINATION OF TOTAL ANTIOXIDANT CONTENT OF SELECTED BANANA VARIETIES IN SRI LANKA

H.M.N. Wijesooriya[1], N.W.I.A. Jayawardana[1], D. Gunasekara[2], P. Senadeera[2], A.M.K.R. Bandara[3] and A. Chandrasekara[2]

[1]Department of Animal and Food Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura

[2]Food and Nutrition Research Center, CIC Agri Business (pvt) Ltd, Pelwehera

[3]Department of Agricultural Systems, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura

Banana (*Musa* spp.) has a special place in human diet and it is the most widely cultivated fruit crop in Sri Lanka. Antioxidant activities of fruits provide health benefits such as reduced risk of cardiovascular disease and cancer. This experiment was carried out to investigate the effect of varietal difference and ripening on total antioxidant content of banana. Six banana varieties ("*Embul*", "*Anamalu*", "*Ambun*", Cavendish, "*Rathambala*" and "*Seeni*") were tested for total antioxidant content, using 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay (mg AE 100 g^{-1}) and Ferric-Reducing Antioxidant Power (FRAP) assay (mM Fe(II) 100 g^{-10}), from initial ripening stage to 6 days. Bananas harvested at commercial maturity stage were naturally ripened at room temperature, except the variety Cavendish, which was ripened both naturally and artificially as per the industry practice. The initial ripening stage of different varieties was determined according to the colour of banana peel, using a colour chart. The results revealed that, with ripening, the total antioxidant content did not change significantly ($p>0.05$) in all tested varieties for both tests. According to the DPPH assay, the highest total antioxidant content was reported in *Embul* (26.87 ± 8.70), followed by *Rathambala* (22.83 ± 6.86), *Ambun* (17.75 ± 5.01) and Cavendish (naturally ripened) (15.63 ± 1.69), while the lowest total antioxidant contents were reported in *Anamalu* (12.03 ± 2.47) and *Seeni* (9.79 ± 2.66). FRAP assay revealed that *Rathambala* (2.42 ± 0.89), *Seeni* (2.14 ± 0.72), *Ambun* (2.11 ± 0.44) and *Anamalu* (2.11 ± 0.26) showed the highest total antioxidant contents and the lowest total antioxidant contents were reported in both *Embul* (1.99 ± 0.90) and Cavendish (naturally ripened) (1.61 ± 0.29). Artificially ripened Cavendish exhibited higher total antioxidant content than naturally ripened Cavendish in both tests.

Keywords: Banana varieties, DPPH assay, FRAP assay, Ripening, Total antioxidant content