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Total phenolics and antioxidant properties of some traditional breakfast foods of Sri Lanka

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Antioxidants prevent free radical damage to macromolecules and hence can mitigate disease. In the present study raw and processed foods that are considered as traditional were assayed for their phenolic content and antioxidant activity. Raw materials were used in this study were taken from bulk samples and pressed plant materials were identified at the National Herbarium. The foods studied included two *Dioscorea alata* (Raja ala varieties, violet and white), *Canna edulis* (Buthsarana), and pittu made with *Vateria copallifera* (Hal) seeds and *Cycas circinalis* (Madu) seeds and roti made with Madu seeds and caryota *urens* (Kithul) flour. Foods were prepared according to standard procedures. Total phenolics were determined by Folin-ciocaltue assay. Antioxidant capacity was measured as the ability to reduce the cationic ABTS (2, 2'Azino-bis (3-ethylbenzothiazoline-6-sulfonic acid) and free radical activity is expressed as TEAC (Trolox Equivalent antioxidant capacity).Total phenolics were expressed as mg per gallic acid equivalent (GAE/100g fresh weight).

Total phenolics of the processed foods were 33 ± 4 (Raja ala violet), 98 ± 7 (Raja ala white), 117 ± 6 (Madu pittu), 125 ± 4 (Buthsarana), 145 ± 13 (Kithul roti), 153 ± 12 (Madu roti), 347 ± 14 (Hal pittu).Total phenolics contents of raw flour were 79 ± 3 (Kithul),179 ± 17 (Madu), 188 ± 12 (Raja ala violet) 229 ± 21 (Raja ala white) 482 ± 4 (Buthsarana), 1162 ± 26 (Hal raw). Compared to the raw samples total phenolics were low in processed samples except for (Hal raw against pittu), which could be attributed to an increase in moisture content during process. A high decline (45%) in the total phenolics on dry weight was also observed in Hal pittu following preparation which may be due to degradation. Phenolic constituents were confirmed by qualitative tests and mainly belongs to classes anthocyanin, flavones, flavanols, flavanones, isoflavanones. When considering the antioxidant activity of raw flour and processed flour, raw Hal flour had the highest antioxidant activity (225 ± 7) compared to other raw flours (73 ± 5 to 3 ± 2). Antioxidant activity ranged from 75 ± 8 – 5 ± 1 in cooked foods. Antioxidant activity of Madu roti, pittu and Kithul roti were significantly ($p<0.05$) low compared to other foods studied. A correlation between phenolics and antioxidant activity was not observed for the above foods indicating that other compounds have contributed to the antioxidant activity.

Key words: TEAC equivalent, gallic acid equivalent, Antioxidants

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