A-21: Iron, zinc and copper content of Sri Lankan foods

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Trace elements Fe, Cu and Zn collectively play an important role in the oxidative pathways whilst individually they play dominant roles in activities such as work performance, myelination, wound healing respectively. A deficiency of these elements in humans could drastically reduce the physiological, immunological and reproductive functions. Therefore it is necessary to identify rich dietary sources of Fe, Zn and Cu, especially to those needing care, like the undernourished, the growing children, pregnant and lactating mothers and the elderly. In the present study, Fe, Zn and Cu content of some common leafy vegetables have been estimated.

1 g of plant product, in triplicate, was digested with a mixture of conc. nitric acid, perchloric acid and sulphuric acid (3:2:1). The digested material was made upto 10 ml with deionised water and the concentrations of Fe, Zn, Cu were determined by atomic absorption spectroscopy. Fe, Zn and Cu contents were calculated as mg/100g of edible portion and as mg/100g of dry matter. The values reported are only for fresh edible portions of food.

The foods analysed comprised cereals: samba, parboiled, raw-white and raw-brown rice, pulses: horse gram and soya bean and vegetables: brinjal, okra, beet, carrot, agathi, amaranthus, beet leaves, black nightshade, brussels sprouts, cabbage (two species), drumstick leaves, gotukola (big var.), kankun, manioc leaves, passion fruit, plantain flowers, sarana, spinach (bush and creeper), val-kohila and yellow pumpkin.

Of the foods analysed, beet leaves (43.14 $\pm$ 2.76), onion leaves (39.53 $\pm$ 5.28), spinach (bush variety (87.27 $\pm$ 0.38 and creeper variety 81.39 $\pm$ 1.06) and yellow pumpkin leaves (78.21 $\pm$ 1.28) had high content of iron while agathi, amaranthus, gotukola, kankun, mukunuwenna, sarana and val-kohila had moderate values ranging from 20-40 mg. Others had less than 20 mg. Kankun (1.27 $\pm$ 0.06) and yellow pumpkin (1.12 $\pm$ 0.09) had high content of copper and brinjal, beet leaves, gotukola and val-kohila had moderate values (0.7-1.0 mg). Others had less than 0.7 mg of copper. The foods rich in zinc were amaranthus (4.36 $\pm$ 0.01), beet leaves (2.91 $\pm$ 0.18), gotukola (big var.) (3.52 $\pm$ 0.34), manioc leaves (2.93 $\pm$ 0.03), mukunuwenna (5.41 $\pm$ 0.63), spinach (bush variety (2.23 $\pm$ 0.04), val-kohila (2.67 $\pm$ 0.02) and yellow pumpkin leaves (2.14 $\pm$ 0.14).

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