A-22: Overcoming dietary deficiencies of iodide and fluoride in food

P A J Perera[1], W R Wimalasiri[2],
K N H Weligama[1], W H M Pushpakumari[1]
([1]*Dept. of Biochemistry, Faculty of Medicine,* [2]*Div of Oral Biochemistry, Faculty of Dental Sciences, Univ of Peradeniya*)

Iodine and fluorine are micronutrients involved in energy metabolism and bone mineralisation, respectively. An allowance of 50 to 150 μg of dietary iodide and 1 to 2.5 mg of fluoride is considered to be adequate to satisfy the daily requirement.

The objective of this project was to identify the rich sources of the halogens and to assess their daily intake.

This paper presents iodide and fluoride levels of commonly eaten food as μg per g of edible portion.

50 g samples of food purchased from the market in Kandy, in duplicate, were ground and/or homogenised in 200 ml deionized water, filtered through glass wool, centrifuged and the supernatent analysed for iodide and fluoride using the ion specific electrode method and their mean and SEM were calculated as μg/g of food.

The foods analysed consisted of cereals, pulses and vegetables. Of the cereals analysed, wheat flour and red millet had high iodide levels of 1.29 ± 0.7 and 1.25 ± 0.02 μg/g respectively. Moderate values were observed with samba, brown raw rice and bulrush millet, ranging from 1.1 to 0.8 μg. Others had less than 0.5 μg. Among the pulses, Mysore dhal had the highest with 52.10 ± 0.88 μg, whilst others had less than 1.7 μg. Among the vegetables, bitter gourd, cabbage, knol khol leaves and yellow bean had high levels ($>50\mu$g) and moderate values ranging from 50 to 20μg were observed in radish and potato. Others had less than 15μg.

Cereals, pulses and vegetables had fluoride levels ranging from 0.34 to 0.76 μg/g.

Rice was a poor source of iodine. But if mixed with iodine rich pulses and vegetables it could supply adequate iodine to meet the daily requirement.

In the case of fluoride, the dietary intake, excluding water, tea and fish was in the range 150 to 750 μg. This fell below the requirement, but can be supplemented with fluoride available in tea and drinking water.