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Screening of traditional rice varieties of Sri Lanka for micro-nutrients; Iron, Zinc and Phosphorus

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Iron deficiency anaemia is a major health problem in Sri Lanka. Nearly one third (31.2%) of pre-schoolers, 20.0 % of primary school children, 22.3 % of adolescents and 30.2 % of pregnant women are anaemic.

Dietary iron intake in developing countries consists primarily of non-heme type, where poor absorption is considered as a major factor in iron deficiency anaemia. Recent scientific research approaches on

bio-fortification of staples such as rice and maize have been successful as an effective vehicle to improve bio-availability of iron to the human body, in order to combat iron deficiency anaemia **in the** population. Although iron is available in rice, its bio-availability to the human body is low due to the presence of phytates, which is a potent inhibitor of iron absorption. It is reported that in 75 % of grain and legumes, the total phosphorus is found as phytic acid. Zinc plays a vital role in the functioning of enzymes , growth and development.

Germplasm screening has shown a large genetic variation in iron and zinc concentrations of raw rice. Some traditional varieties have reported double concentration of these elements. Therefore in an attempt to improve the bio - availability of iron in rice, *Oryza sativa L*., the present study is focused on screening 27 rice cultivars, 24 traditional and 3 improved varieties obtained from Regional Rice Research and Development Centre (RRRDC), Bombuwala, Sri Lanka cultivated in iron rich soil during 2005 yala season for micronutrients; iron and zinc, and phosphorus content. Rough rice samples were air dried to about 12 % moisture content, dehusked manually and whole grain was used for the study.

Iron and phosphorus content were determined by UV spectrophotometric technique and zinc was determined by Atomic Absorption Spectroscopic method (AOAC, 2000).

Results indicated that there are no significant differences between iron levels in rice varieties (P=0.06). Apparently high iron levels of 3.1-3.0 mg/100g are present in rice cultivars of Kattamanjal, Sudu Heenati and Bw-272-6b, moderate iron levels of 2.7-2.1 mg/100g are present in rice cultivars of 14 traditional varieties and in 1 improved variety while the rest have low levels of iron (2.0-1.7 mg/100g). Phosphorus and zinc contents varied in the range of 451 mg/100g to 262.2 mg/100g and 3.3 mg/100g to 2.1 mg/100 respectively.

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