

Selenium in rice consumed by Sri Lankans

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Selenium is an essential trace element found in the selenoproteins and as a component of enzymes such as glutathione peroxidase that could quench free radicals by acting as antioxidants and prevent free radical induced degenerative diseases such as diabetics, Alzheimer, rheumatism and the deficiency of selenium could result in iodine deficiency resulting goiter. It also proved that selenium is toxic in high concentrations resulting in damages to the nervous system and even some forms of cancer. Unlike most elements the essentiality and toxicity of selenium is shown in a narrow range the respective values being $40 \mu\text{g day}^{-1}$ and $400 \mu\text{g day}^{-1}$.

Studies on selenium content in food have been reported from other countries but studies carried out in food consumed by Sri Lankans is rare. Hence, the objective of the present study is to determine the selenium content in different varieties of rice consumed by Sri Lankans. Parboiled rice is commonly consumed in Sri Lanka. Studies have not been carried out in Sri Lanka or any other country on the effect of parboiling on the selenium content. Hence, this study was extended to deduce the effect of parboiling on the selenium content in rice.

Selenium content in fourteen varieties of rice namely Bg 250, Bg 352, Bg 358, Bg 359, Bg 360, Bg 379, Bg 450, Bg 094, Bw 361, Bw 363, Bw 364, Ld 408, At 306 and At 362 obtained from the Rice Research Institute, Batalagoda and subjected to acid digestion. Selenium contents of the samples were determined using Hydride Generation Atomic Absorption Spectrometric method. Experiments were carried out in triplicate. The selenium content ($\mu\text{g kg}^{-1}$) in the rice samples analyzed ranged from 24.5 (At 362) - 40.5 (Bg 094).

The selenium content in parboiled rice was analyzed by parboiling the above raw rice samples at home. The results of the present study showed that the selenium content ($\mu\text{g kg}^{-1}$) in the grains from par boiled rice varied from 29.0 (Bw 361) to 42.0 (Bg 352). This study reveals that parboiling increased the selenium content in rice although a direct relation could not be obtained between the selenium content in raw rice and that in the parboiled rice.

Key words: Selenium, Rice, Parboiled rice, Sri Lanka

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