VARIETAL RESPONSE TO CADMIUM ACCUMULATION AND GROWTH PERFORMANCE OF SELECTED RICE (*Oryza sativa* L.)VARIETIES IN SRI LANKA

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Rice (*Oryza sativa* L.) is one of the particular crops, which is having the ability to uptake and accumulate Cadmium (Cd) in different amounts within their plant parts. A soil-pot experiment was conducted to investigate the variations among eight rice genotypes (new improved varieties - NIVs and traditional varieties - TVs) with different soil Cd levels and their tolerance to plant growth and accumulation. Three soil Cd concentrations (0, 50 and 100 mg kg^{-1}) were provided in the form of cadmium chloride ($CdCl_2$. 2½ H_2O) and the effect of Cd on rice plant growth was measured with respect to plant height, flag leaf chlorophyll content, leaf area, number of tillers and root dry weight. The total amount of Cd in unpolished rice grains, shoots and roots were analysed with Graphite Furnace Atomic Absorption Spectrophotometer (GF-AAS) and Flame Atomic Absorption Spectrophotometer (FAAS). The results revealed that rice variety, soil Cd level and interactions between them significantly affected ($p<0.05$) the plant height, root dry weight and Cd accumulation. Variety *Suwandel* could not withstand soil Cd levels at 50 mg $kg^{-1}$and 100 mg kg^{-1}. Increasing soil Cd levels reduced plant height and root dry weight except in *At 307*. *Bg 300* was the lowest grain Cd accumulator without cadmium chloride addition. TVs were the highest grain Cd accumulators without addition of cadmium chloride and NIVs were the highest grain Cd accumulators at 50 and 100 mg kg^{-1} Cd treatments. Shoot Cd level was increased with increasing soil Cd level. *Suwandel* showed the highest Cd accumulation in all the plant parts without cadmium chloride addition. Cd distribution within the rice plant was grains< shoots< roots. Distribution percentage of Cd in grains and roots was same at 50 and 100 mg kg^{-1}soil Cd treatments.

Key words: Accumulation, Cadmium, Growth, Rice, Varieties