

EFFECT OF ORGANIC MATTER ON GROWTH AND CADMIUM ACCUMULATION OF BG 300 AND *SUWANDEL*, GROWN IN CADMIUM CONTAMINATED SAND

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Cadmium (Cd), a potential toxic heavy metal to human health, is present in all soils in trace amounts and can reach higher levels in agricultural soils by anthropogenic activities. Rice has the ability to accumulate Cd in different amounts within its plant parts. A pot experiment was conducted to investigate the effect of cattle manure and paddy straw on plant growth and accumulation of Cd in Bg 300 and *Suwandel*, grown at 10 mg kg⁻¹ Cd contaminated sand, under plant house conditions. Both organic matters (OMs) were used in, 1 g kg⁻¹ and 2 g kg⁻¹ levels. Rice plant growth and development were investigated in terms of plant height, leaf area, leaf chlorophyll content, panicle length and filled grain percentage. The total amount of Cd in roots, shoots and unpolished rice grains were measured with Graphite Furnace Atomic Absorption Spectrophotometer. OM treatments caused major changes in plant growth and Cd accumulation. Cattle manure showed significantly higher plant height than paddy straw at 2 g kg⁻¹ Cd level. Both rice varieties showed significantly the highest leaf area with cattle manure. Chlorophyll content was not influenced significantly by any tested factors. The significantly highest panicle length was obtained at 2 g kg⁻¹ cattle manure addition. At both OM levels, a significantly higher grain filling percentage was observed. Paddy straw significantly reduced the grain Cd accumulation at both OM levels, irrespective of the variety. *Suwandel* showed a significantly higher root Cd accumulation than Bg 300 with cattle manure. Both shoot and root Cd accumulations have significantly lowered at both cattle manure levels. The highest reduction was obtained at 2 g kg⁻¹ OM level.

Keywords: Cd accumulation, OM, Plant growth, Rice