An enhancing effect of exogenous brassinolide and Salicylic acid on the growth and antioxidant activity in groundnut (*Arachis hypogaea* L.) under Cadmium Stress

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Abstract

The ameliorative effect of brassinosteroids (BRs) and salicylic acid (SA) on cadmium (Cd) toxicity in groundnut plants was studied by investigating leaves. Groundnut plants in two leaves stage was exposed to $CdCl_2$ treatment (0, 50 and 100 µM) and then were treated with brassinosteroids (0, 2mM and 3mM) followed by Salicylic acid (0, 1 µM and 2 µM) as foliage spraying. One week after the last treatment, plants were harvested and growth parameters and enzyme content were measured. The results showed that Cd caused a significant reduction in shoot length, root length, chlorophyll content and biomass, but increased the activities of antioxidative enzymes such as peroxidase [EC 1.11.1.7]; catalase [EC 1.11.1.6]; ascorbate peroxidase [EC 1.11.1.11] and superoxide dismutase [EC 1.15.1.1]. Out of the two hormones (BRs/SA) excelled in its effects at both sampling stages. Toxic effects generated by cadmium stress were completely overcome by the combination of the two hormones (BRs and SA).

Key words: Brassinosteroids, Salicylic acid, Cadmium, Groundnut, Antioxidant enzymes.