Changes in Growth, Nutrients Uptake and Biochemical Attributes of Four Wheat (Triticum Aestivum L.) Cultivars Under CdCl2 Stress

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Abstract

Wheat, a glycophylate which is frequently grown on tropical and subtropical regions of the world. It is also most important cereal grain crop being consumed by more than half population of the world. Keeping in view the world consumption of wheat, the present experiment was carried out to determine the deleterious effect of various levels of cadmium chloride (0, 50, 100 and 150 mM) on growth, nutrients uptake and some biochemical attributes of four wheat cultivars i.e., AARI, Lasani, Punjab-2011 and Millat-2011. It has been investigated that fresh and dry weights and lengths of both shoots and roots, chlorophyll a, chlorophyll b, total chlorophyll and carotenoid contents were reduced with increasing CdCl2 concentrations in the soils. Moreover, CdCl2 adversely affected the uptake of essential nutrients i.e zinc (Zn), Iron (Fe), calcium (Ca) and phosphorus (P) in roots and shoots of all the wheat cultivars. However, the uptake of Cd was increased in all levels of cadmium stressed environment in both shoots and roots of four wheat cultivars. The extent of uptake of cadmium was more prominent with increasing concentrations of cadmium chloride in all the four cultivars of wheat.

Keywords: Wheat, CdCl2, Growth, Biochemical parameters