

Abstract

The present study was conducted to determine the "Amelioration of harmful effect of chromium on growth, yield and some physiological parameters of Onion (*Allium cepa* L. cv. KSP-117) by the inoculation of locally isolated chromium resistant bacteria". The adverse effect of chromium stress on Onion at five different levels of chromium viz. 50ppm, 100ppm, 150ppm, 200ppm and 250ppm with and without chromium resistant bacteria (*Bacillus cereus*). With increase in chromium stress, there was delay in germination, growth, yield and other physiological parameters as level of stress increased. When plants were grown without chromium resistant bacteria (*Bacillus cereus*), there was delay in germination, growth, yield and physiological parameters. While the plants were grown with chromium resistant bacteria (*Bacillus cereus*), there were increased in germination, growth, yield and physiological parameters. At 250ppm, the germination percentage reduced to 52% as compared to 97% at control without bacterial (*Bacillus cereus*) inoculum. Similarly, all other parameters decreased with the increase in level of chromium without chromium resistant bacteria (*Bacillus cereus*). At 250ppm, the germination percentage reduced to 43% as compared to 92% at control with bacterial (*Bacillus cereus*) inoculum. Similarly, all other parameters increased with the increase in level of chromium with chromium resistant bacteria (*Bacillus cereus*). In case of growth, yield and physiological assessment, length of roots and shoots, fresh weight of roots and shoots, dry weight of roots and shoots, height, number of leaves, bulb size, weight, diameter, rate of photosynthesis, transpiration rate and stomatal conductance under different concentrations of chromium decreased in plant seedling without bacterial inoculum (*Bacillus cereus*) while increased in plant with bacterial inoculum (*Bacillus cereus*). The number of senescent leaves increased under different chromium concentrations without bacterial inoculum (*Bacillus cereus*) while decreased with bacterial inoculum (*Bacillus cereus*). It was investigated that plants without bacterial inoculum showed decrease in all parameters while inoculation of chromium resistant bacteria (*Bacillus cereus*) enhanced germination, growth and yield of onion plants.