

RESEARCH PAPER

Isolation and functional characterization of cadmium resistant strains RAN 1 using agronomical parameter of chaulai (*Amaranthus tricolor*)

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Resistance and tolerance are arbitrarily defined terms frequently interchangeable and after based on weather a given isolate can grow in the presence of selected heavy metal concentration in laboratory media. Total bacterial strains were isolated and screened on the basis of their heavy metal tolerance ability for cadmium and their PGPR activity. It was estimated that they have good tolerance power for cadmium the heavy metals and are plant growth promoting rhizobacteria. If we study morphological aspects we can say that Gram negative rods are more efficient in tolerating heavy metals. In case of treatment I, fresh weight was increased 27.5 per cent and dry weight was increased 25 per cent compared to positive control. In case of treatment II, fresh weight was increased 28 per cent and dry weight was increased 14.81 per cent compared to negative control. In case of negative control, fresh weight was decreased 50 per cent and dry weight was decreased 48.07 per cent compared to positive control. By performing experiment it was proved that the cadmium concentration reduced significant percentage of Chaulai fresh weight and dry weight but increased when treated with strain RAN 1.

Key words : Rhizobacteria, Tolerance, Resistance, Functional characterization, Cadmium

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