

Effect of Plant Growth Promoting Rhizobacterial Isolates on Morphological growth Characteristics of Coriander (*Coriandrum sativum* L.)

Brijesh Kumar Mishra

National Research Centre on Seed Spices, Tabiji, Ajmer -305206, India

E-mail: bknmicro@gmail.com

Abstract—Plant growth promoting rhizobacteria (PGPR) are beneficial soil bacteria, which may facilitate plant growth and development both directly and indirectly. By increasing the population of beneficial rhizobacteria in soil, vigorous plant growth can be achieved. Isolation of native strains adapted to the environment and their study may contribute to the formulation of microbial inoculants to be used in region specific crops. Therefore, attempts were made to isolate native strains of rhizobacteria from coriander crops and to evaluate their ability to promote plant growth. For this purpose, a field experiment was laid out to assess the potential of 10 selected rhizobacterial cultures along with a control were tested on the basis of their plant growth promoting potentials in an RBD experiment consisting 11 treatments with 03 replications at NRCSS experimental farm. Various growth and yield attributes such as germination, root shoot length, dry weight, number of primary and secondary braches, umbels and umbellets etc. were recorded during the crop growth. These PGPR treatments include Azotobacter, pseudomonads and PSB isolates from coriander rhizosphere. All the rhizobacterial isolates have positive effect on seedling vigour index when compared to control. Highest seedling vigour index was recorded for Pseudomonas -9 (T8) followed by Azoto-8 (T4) and minimum was found in control (T11). These all rhizobacterial isolates accelerate the coriander seed germination. At 90 DAS shoot length ranged from 81.23-85.32 cm for different treatments and highest shoot length was recorded for Azotobacter-9 (T5) and lowest was recorded for Pseudomonas -2 (T7). There was non-significant difference in root length, fresh root weight and dry root weight at 90 DAS of coriander plants. However, significant difference was recorded for fresh shoot weight and dry shoot weight at 90 DAS of coriander plants treated with PGPR isolates. As observed with analysis of harvest crop and plant biomass, there were significant effects of PGPR treatment on total NPK uptake by coriander plants in comparison to control.