

Rejuvenation of Peanut Seedling from Collar Rot Disease by *Azotobacter* sp. RA2

Authors : Ravi R. Patel, Vasudev R. Thakkar

Abstract : Use of plant growth-promoting rhizobacteria (PGPR) to increase the production and decrease disease occurrence is a recent method in agriculture. An RA2 rhizospheric culture was isolated from peanut rhizosphere from Junagadh region of Gujarat, India and showed different direct and indirect plant growth promoting activity like indole acetic acid, gibberellic acid, siderophore, hydrogen cyanide, Ammonia and (1-Aminocyclopropane-1-Carboxylate) deaminase production, N₂ fixation, phosphate and potassium solubilization in vitro. RA2 was able to protect peanut germinating seedling from *A. niger* infection and reduce collar rot disease incidence 60-35% to 72-41% and increase germination percentage from 70-82% to 75-97% in two varieties GG20 and GG2 of peanut. RA2 was found to induce resistance in *A. hypogaea* L. seedlings via induction of different defense-related enzymes like phenylalanine ammonia lyase, peroxidase, polyphenol oxidase, lipoxygenase and pathogenesis related protein like chitinase, β - 1,3- glucanase. Jasmonic acid one of the major signaling molecules of inducing systemic resistance was also found to be induced due to RA2 treatments. RA2 bacterium was also promoting peanut growth and reduce *A. niger* infection in pot studies. 16S rDNA sequence of RA2 showed 99 % homology to *Azotobacter* species.

Keywords : plant growth promoting rhizobacteria, peanut, *aspergillus niger*, induce systemic resistance

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