



Response of Plant Growth Promoting Rhizobacteria (PGPR) in Relation to Elevated Temperature Conditions in Ground Nut (*Arachis hypogaea* L.)

Sweta Kachhap *

Centre for Environment Science & Climate Resilient Agriculture (CESCRA), IARI, New Delhi-110012, India

Address for Correspondence: Sweta Kachhap; swetakachhap123@gmail.com

ABSTRACT: The elevated temperature conditions are also likely to modify the ecosystem functioning including the role of various Plant Growth Promoting Rhizobacteria (PGPR), which are directly dependent on rhizodeposition. The impact of temperature in the present and future climate change scenarios on some PGPR populations in rhizosphere soil of groundnut was investigated. Groundnut variety B-95 was planted with four treatments of temperature. Rhizosphere soil samples were collected at the vegetative, flowering, pod development and maturity stages of groundnut. Various strains of *Pseudomonas* spp., *Enterobacter* spp., *Azotobacter* spp. and *Acetobacter* spp. at different stages of crop growth were enumerated, isolated and tested for several PGP traits such as IAA, siderophore etc. The data presented here showed consistent statistically significant differences in the numbers of different groups of functional bacteria between rhizosphere soil from ambient and above ambient temperature treatments from germination to maturity. The rhizobacterial isolates represented *Pseudomonas* (25.3%), *Azotobacter* (16.5%), *Acetobacter* (15.2%) and *Enterobacter* (21.5%) population. 73.4% of the total isolates were able to produce IAA whereas 70.9% of the total isolates were positive for NH₃ production. *Pseudomonas* spp. were strong at exhibiting protease activity with 75% of isolates as test positive. 42 and 49 strains could display antagonism for *A. niger* and *F. moniliforme* respectively. No loss or gain of PGP traits as a result of temperature could be seen. The effect of their population and exhibition of PGP traits were correlated with the plant height, root length, root dry weight and no. of nodules. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.

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