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### Isolation and characterization of stress tolerant plant growth-promoting *Pseudomonas plecoglossicida* NBRI1310 from saline desert

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The aim of the study was to isolate and characterize a potential stress tolerant plant growth promoting bacterium from the isolates of Rann of Kutch, near Bhuj in Gujarat, India. A Gram negative, rod shaped, motile and fluorescence pigment producing *Pseudomonas plecoglossicida* NBRI1310 was isolated from saline desert soil. The taxonomic position of NBRI1310 was confirmed by phylogenetic analysis of 16S rRNA gene. The NBRI1310 had ability to grow at wide range of pH 4-11, salt 0-12% (NaCl w/v) and temperature 10-40° C under *in vitro* conditions. It also demonstrated multiple plant growth-promoting attributes such as phosphate solubilization (48.25 µg of Ca<sub>3</sub>PO<sub>4</sub> ml<sup>-1</sup>), 1-aminocyclopropane-1-carboxylate (ACC) deaminase activity (39.1 nmol α-ketobutyrate mg<sup>-1</sup> h<sup>-1</sup>), indole acetic acid (IAA) production (68.74 µg ml<sup>-1</sup>) and siderophore production under *in vitro* conditions. Significant increase in the dry biomass of maize (68%), chickpea (45%), pea (50%) and barley (46.1%) plants were also recorded in NBRI1310 inoculated plants as compared to un-inoculated control. Based on stress tolerance and multiple PGP attributes, NBRI1310 can further be utilized as potential bio-inoculants to increase agricultural productivity in stress conditions. To feed the ever increasing population in deteriorating and conditions has put the agriculture on high pressure. There is an urgent need to develop better microbe based formulation which can enhance plant growth in stress condition without harming the soil in an economical way. The ability to tolerate stress and enhance plant growth with diverse crops proves its promising candidature agriculture productivity in a more effective, economical and eco-friendly manner.

#### Biography

Archana Yadav has completed her PhD in the year 2010 from CSIR-NBRI and University of Lucknow and she was awarded with CSIR-Research Associate Fellowship (2012-2015) for pursuing her Postdoctoral studies from CSIR. She was awarded the Young Scientist Fellowship (2015-2018) by UPCST. She has published 8 research articles in reputed journals.

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