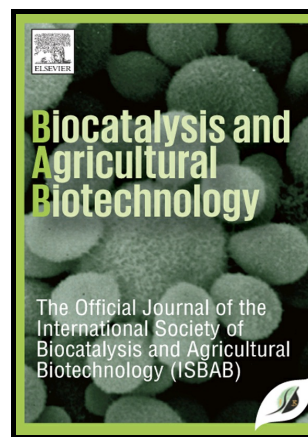


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# RHIZOSPHERIC BACTERIA ISOLATED FROM THE AGRICULTURAL FIELDS OF KOLATHUR, TAMILNADU PROMOTES PLANT GROWTH IN MUSTARD PLANTS

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## ABSTRACT

### Background:

Rhizosphere is rich in microbial flora. Rhizosphere soils samples were collected from five different agricultural fields located in the Kolathur village, Tamil nadu, India. Thirty isolates were isolated and designated as VITMS1-VITMS30. The isolates are checked for the plant growth promotion property.

### Methods:

Plant growth promotion studies such as phosphate solubilization, HCN, IAA, Siderophore and Ammonia production was performed. The potent isolates were assessed for their plant growth promotion using mustard pants.

### Results:

Out of 30 isolates tested, all the 30 isolates showed the ability to solubilize phosphate, produce indole-3 acetic acid (IAA), siderophore and ammonia. HCN production was shown by 11 isolates. Indole acetic acid (IAA) production is a major property of rhizosphere bacteria that stimulate and facilitate plant growth. Optimization of Indole acetic acid production was carried out by using *Streptomyces* sp. VITMS22 at different cultural conditions of pH and temperature with varying media components such as carbon and nitrogen source, tryptophan concentration. The production of IAA was maximum at pH 7.3 and at 28°C at 0.2 % tryptophan when dextrose and peptone were amended as carbon and nitrogen sources respectively. Partial purification of IAA was done and purity was confirmed with thin layer chromatography. Subsequently, effect on plant growth was tested and was proved significant. Genotypic characterization was done using 16S r-DNA partial gene amplification and sequencing. The sequence was submitted to GenBank with the accession number MF164146.

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