

Plant growth-promoting and antagonistic abilities of endophytic bacteria isolated from maize plant

This study was aimed at evaluating the plant growth-promoting potential and antagonistic ability of endophytic bacteria. Indigenous endophytic bacteria were isolated from surface-sterilized roots and leaves of maize plants. Isolates were screened for plant growth-promoting potential using hydrogen cyanide (HCN) production, phosphate solubilization, indole-3-acetic acid (IAA) production, and ammonia production assays. In vitro antagonistic assay was used to evaluate the antagonistic ability of the isolates against selected phytopathogens. Results showed that *Bacillus subtilis*, *B. cereus*, *Pseudomonas aeruginosa*, and *Microbacterium* sp. were HCN producers; all the isolates produced substantial IAA which ranged from 0.69-1.96 mg/mL; *Bacillus subtilis*, *P. aeruginosa* and *Microbacterium* sp. solubilized phosphate with clear zones of 0.49mm, 0.41mm and 0.66mm respectively. Also, all the isolates except *Staphylococcus epidermidis* produced ammonia. *Microbacterium* sp. had the highest percentage of growth inhibition against *Alternaria alternata* (63.82%), while *B. subtilis* had the highest percentage of growth inhibition against *Rhizoctonia solani* (67.45%) and *Fusarium oxysporum* (71.26%). This study revealed that indigenous endophytic bacteria from maize plants have plant growth-promoting potential and could inhibit the growth of some fungal pathogens of the maize plants.



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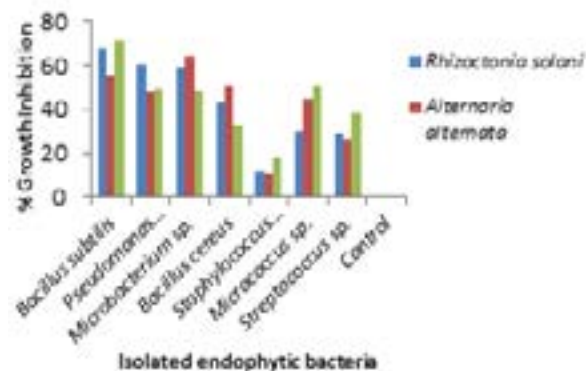


Figure 1: Percentage growth inhibition of the isolates against phytopathogens

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Biography:

Abdulwasiu Sakariyau is an Environmental Microbiologist. His research interests include soil microbiology, plant-microbe interactions, Biodegradation of contaminated soil, and the discovery of biofertilizers and biocontrol agents. He is an alumnus of the University of Ilorin and the Federal University of Agriculture Abeokuta, Nigeria where he obtained a BSc (Microbiology) and MSc (Environmental Microbiology) respectively. He currently lectures at the Department of Biological Sciences, Crescent University Abeokuta, Nigeria. Abdulwasiu is a passionate academic with over 6 years of teaching and research experience

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