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ABSTRACT BOOK

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**Abstracts:
Environmental Microbiome**

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Identification of plant growth promoting rhizobacteria from healthy coconut palms in root (wilt) diseased tract of Kerala

Topic : Environment Microbiome

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Root (wilt) disease (RWD) is a phytoplasmal disease of coconut prevalent in Kerala. Lack of disease control measures demands adoption of management strategies involving multidisciplinary approaches. Phytobeneficial rhizobacteria known for their beneficial role on host plants by mechanisms such as biostimulation, biofertilization and bioprotection, can form one of the components. Screening and identification of phytobeneficial rhizobacteria associated with healthy coconut palms of RWD tract of Kerala was carried out. One hundred and ten rhizobacterial isolates were screened in vitro for IAA production and solubilization of fixed forms of mineral nutrients such as tricalcium phosphate, zinc oxide, magnesium trisilicate and potassium aluminosilicate for solubilization of phosphate, zinc, silicate and potassium respectively. Among these, 54 isolates produced IAA in tryptophan-supplemented nutrient broth. Among the nutrient solubilizers silicate solubilizers (57%) and phosphate solubilizers (48%) dominated. Zinc and potassium solubilization potential was observed in 21% and 16%, respectively of the tested isolates. Seven isolates viz., K1HPSB1, K3HPSB1, K3HPSB2, T4HFB9, T4HFB11, T2PSB3, T6PSB1 showing multiple phytobeneficial properties were identified using biochemical tests and 16S rRNA gene sequencing. Five rhizobacterial isolates belonged to Enterobacteriaceae family including three Enterobacter spp. The isolate T4HFB9 belonged to Acinetobacter sp. of Moraxellaceae family under class Gammaproteobacteria. Another Gammaproteobacteria, the green fluorescent Pseudomonas isolate K3HPSB2, showed 99% sequence similarity with Pseudomonas migulae (Pseudomonadaceae). Further studies would facilitate selection of rhizobacterial consortia having multimodal synergistic action as potential bioinoculants for coconut RWD management.

Keywords : phytobeneficial rhizobacteria;nutrient solubilization;Pseudomonas; biostimulation