

International Conference on

ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY

&

International Conference on

ECOLOGY AND ECOSYSTEMS

September 18-20, 2017 Toronto, Canada

Breach of rhizobial host specificity and colonization of *V. radiata* root nodules by *rhizobacteria***Maharshi Pandya**

University of Baroda, India

Legumes develop symbiotic relationship with rhizobia following complex exchange of signals. Regardless of high specificity of symbiosis, isolation of *rhizobacteria* from surface sterilized root nodules has been reported. To explore how these *rhizobacteria* enter root hairs and colonize root nodules, we hypothesized that host specific *rhizobia* initiate the signaling process to form infection thread (IT), which is invaded by *rhizobacteria* to breach host specificity. To experimentally prove the hypothesis, fluorescently tagged predominant *rhizobacteria Pseudomonas fluorescens* and a facultative aerobe *Klebsiella pneumoniae* were coinoculated with native host nodulating rhizobia *Ensifer adhaerens* to *Vigna radiata* seedlings and root hair infection was monitored at 5 days post inoculation (DPI) using confocal microscope. and *K. pneumoniae* adhered to surface and base of root hairs and failed to enter root hairs independently but successfully colonized root hairs when coinoculated with *E. adhaerens*. Recovery and confirmation of inoculated tagged strains through confocal laser scanning microscopy and 16S rDNA sequencing validated nodule occupancy by test *rhizobacteria* at 50 DPI. This is the first study that addresses the fundamental question of how non-rhizobia invade root nodules and experimentally proves that non-rhizobia invade IT of host nodulating native rhizobial strain and colocalize in root nodules. We also isolated eight non-rhizobia with predominance of gram positive *Paenibacillus* and *Bacillus* among other gram-negative species of *Klebsiella*, *Ensifer*, *Agrobacterium*, *Blastobacter*, *Dyadobacter* and *Chitinophaga* from field grown *V. radiata* root nodules.

maharshipandya140985@gmail.com

Notes: