Postdoctoral Fellowships and Ph.D. Assistantships in Plant-Microbe interaction

Two Postdoctoral fellowships and three Ph.D. assistantships are available across multiple interdisciplinary projects in the area of plant-microbe interactions at Clemson University, Clemson, SC

Project 1: The primary aim of the project is to impart stress resilience in crops by the cross-inoculation of rhizosphere microbiota from native plants that are stress-tolerant. The project involves the sampling of marginal lands to collect the stress-tolerant microbiome of native species, greenhouse studies to select the functionally superior rhizobiome that impart stress tolerance in native species and crops, selection of cover crops that are functionally similar to the native species and crops in terms of the composition of root exudates to reinforce and multiply the microbiome under field condition, and field testing of the top-ranked microbiome- crop combinations for stress resilience.

Project 2: The primary aim of the project is to unravel the cellular mechanisms that impart the specificity of the outcome of plant-mycorrhizal associations. The project involves analyzing the chemical signals produced by genetically distinct accessions of sorghum and mycorrhizae at various stages of infection, and the role of chemical cues in initiating, and maintaining symbiotic association. Along with mycorrhizal associations, the project will also focus on the role of the chemical composition of root exudates in recruiting and maintaining the diversity of soil microbial communities that facilitate phosphorus acquisition.

Both projects are interdisciplinary and integrate soil ecology, soil microbiology, and plant chemistry at whole-plant and cellular levels in defining plant-microbe interactions.

Requirements:

For Postdoctoral applicants: Ph.D. in soil ecology, plant physiology, plant biochemistry, with a strong understanding of plant-microbe interactions at the ecological/cellular/molecular level. Based on the project emphasis, we envision a candidate with an ecology background with emphasis on plant-microbiome interactions to be a better fit for project-1, and a candidate with plant physiology and biochemistry background with an emphasis on metabolomics/proteomics for project-2. In both cases, the candidates should have a strong aptitude to learn the analytical and molecular techniques required by the projects.

For Ph.D. applicants: Masters in soil ecology, plant physiology, biochemistry, molecular biology.

The position is available during spring/summer 2022. Interested applicants should send the following documents to Dr. Vidya Suseela (vsuseel@clemson.edu).

i) a cover letter highlighting interest in the position and relevant qualifications,

ii) an updated CV, and

iii) contact information of three references