

The Root Rhizosphere Interface



The Key to feeding our world, Protecting our environment, and Improving our health

Texas A&M University

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MSC 1400; 2–4:00 PM

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Back to the Roots: microbiology & chemistry at the soil-root interface

The overall goal of my current research program is to unravel the diversity, dynamics and functions of microorganisms associated with plants. Several PhD and Postdoc projects aim to elucidate the genomic, genetic and metabolic potential of specific bacterial genera and species living on or in plant tissues. The functions of the plant microbiome we study in detail are: 1) protection of plants against biotic stress (pests, diseases); and 2) modulation of root architecture, plant development, plant secondary metabolism and nutrition. The ongoing projects involve model plants species, natural plant species and also crops important for agriculture and the bio-based economy. Over the past three years, I also initiated new lines of research to investigate microbiomes in aquatic environments. More specifically, we study the diversity of microorganisms associated with eggs of fish that suffer from emerging diseases. Understanding the influence of environmental conditions on the dynamics, assembly and activities of eukaryotic microbiomes will help to design strategies to limit the proliferation and spread of these emerging pathogens in natural and man-made ecosystems. Next to these fundamental scientific aspects, my program also contributes to the discovery of new antibiotic compounds and the development of new disease control strategies to reduce pesticide use or to control diseases for which no other effective control measures exist. In my department, several other major themes in the field of microbial ecology are investigated: 1) functional diversity and dynamics of microorganisms involved in biogeochemical cycling (N, P, C) and greenhouse gas emissions (methane, nitrous oxide), 2) bacteria-fungi interactions, 3) decomposition of organic matter and plant biomass, 4) volatiles in microbe-microbe communication, and 5) metagenomics and network analyses of soil and plant microbiomes.

*Hosted by Dr. Sandy Pierson &
The Root Rhizosphere Interface*



*Coffee & Cookies
in MSC 1400*