Graduate Student Assistantship Opportunity: Unraveling the role of hemipteran potassium (K+) channels in sap feeding and plant pathogen transmission

The Swale and Davis Labs at Louisiana State University have recently been awarded an USDA AFRI Foundation Grant to identify novel physiological pathways that simultaneously inhibit feeding, halt pathogen transmission, and induce mortality of Hemipteran plant disease vectors. They previously demonstrated that chemical inhibitors of potassium ion channels reduce function of aphid salivary glands, eliminate phloem feeding events, and led to death through starvation. This project will further this research by testing the efficacy of structurally diverse chemical inhibitors to alter salivary secretions to prevent plant feeding by hemipteran vectors and by doing so, prevent pathogen transmission and acquisition by hemipteran vectors.

Two PhD assistantships are available immediately for Fall 2020. One assistantship will focus on screening new chemical inhibitors for toxicity, modulation of watery and gel saliva, and impact on feeding behaviors via EPG. The second assistantship will focus on K+ channel inhibitors effects on acquisition and transmission of insect vectored plant pathogens, both bacterial and viral.

Requirements: MS in Biology, Entomology, or related field. Interested students should have good organizational skills, demonstrated communications skills, experience with molecular techniques, must be self-motivated, and be willing to be a part of a dynamic lab group.

Position Details: Students will be based in Baton Rouge, Louisiana and co-advised by Dr. Jeff Davis (field crop entomology, IPM) and Dr. Daniel Swale (insect physiology, toxicology). Tuition remission will be granted and a competitive stipend will be provided. Preferred start date: August 2020.

How to apply: Prospective students should email a statement of interest, 3 points of contact for references, and CV to Jeff Davis (jeffdavis@agcenter.lsu.edu) and Daniel Swale (dswale@agcenter.lsu.edu). Full application details for the Department of Entomology can be found here and the LSU Graduate School here.

The University: LSU includes institutions, facilities and programs in each of Louisiana’s 64 parishes, and its campuses stretch the length of the state from New Orleans to Shreveport. Each institution plays a vital role in preparing students to incorporate new knowledge and technologies into their daily lives. LSU researchers across Louisiana are working on developing a wide-range of innovations to improve quality of life by studying issues such as disease management, advance medical treatments, obesity, coastal protection, hurricane preparedness, energy, natural resource management and agriculture, among others. Louisiana’s Flagship University is a land-, sea- and space-grant institution with academic programs in all areas of science, engineering, humanities, arts and social sciences.

Applications due by April 15, 2020.
Anticipated Start Data: August 2020