

PhD and PDF positions Insect Chemical Ecology and Neuroethology

Hillier Lab - Acadia University

Wolfville, Nova Scotia, Canada

Application Deadline: Open until filled

Start date: ASAP

Website: <http://www.acadiau.ca/~khillier/>

Qualifications

Successful candidates for either the PhD or PDF positions will have an opportunity to integrate elements of electrophysiology, chemical analyses, neuroanatomical studies and molecular biology (experience in any of these skills would be an asset). Furthermore, they should be highly motivated, and have a keen interest in chemical ecology, and neuroethology. Must be able to work well independently and with a team, and have a good suite of communication and interpersonal skills.

Description

Heliathine moths are ubiquitous, representing the most serious agricultural pests on the planet, causing massive annual crop losses particularly in the developing world. Estimates range between \$3-7 billion in control costs per annum for the most prevalent agricultural pest species - *Helicoverpa armigera*, *Helicoverpa zea*, *Helicoverpa assulta* & *Heliothis virescens*. This research project will investigate mechanisms which have led to the evolution of diverse pheromone communication strategies by comparative examination olfactory systems in an important group of agricultural pests & improve management for these & other pest species. The candidate(s) will join a research program investigating shifts in olfactory physiology in relation to insect phylogeny & host specificity. Using a comparative approach with closely-related species will provide critical information regarding evolution & divergence of these species, & new avenues for management with pheromones & host plant odorants.

The **goal** of these studies will be to use comparative physiology, chemistry and molecular tools to characterize odorant receptor shifts associated with communication and develop a comprehensive comparative database of olfaction in this group. Using the Heliathine model system to examine shifts in communication manifested by differential olfactory receptor (OR) expression will permit investigation of larger trends in speciation (both sympatric and allopatric) and evolution in insects. This will determine genetic factors mediating shifts in female pheromone production, male pheromone preference and physiological processing of these odorants as these species diverge. Populations from five continents will be investigated, including major & minor polyphagous pests, host specialists & out-group species via international collaborations. A multi-pronged comparative approach will be used to examine olfactory physiology, morphology, chemistry and genetics between these species.

Application Materials

Forward a cover letter outlining your research interests, a current CV, and contact information of 3 references.

Submit applications and further questions to:

Contact Person: N. Kirk Hillier

Mailing Address: Biology, 33 Westwood Ave., Biology, Acadia University, Wolfville, NS. B4P 2R6

Telephone: 902-585-1314

E-mail: kirk.hillier@acadiau.ca