Biodiversity Seminar Series

The Biodiversity Seminar Series is pleased to announce

Fatima Mitterboeck

from the Biodiversity Institute of Ontario and the Dept. of Integrative Biology, University of Guelph

presenting the talk

"Patterns of molecular evolution associated with repeatedly evolved traits"

Abstract:

Molecular evolutionary rates vary dramatically across the tree of life. This variation is to some extent shaped by biological and ecological characteristics of those lineages. Using a phylogenetic comparative approach, I explore rates and patterns of molecular evolution associated with three major repeated evolutionary transitions that have shaped life: 1) shifts between marine and freshwater environments in diverse lineages of eukaryotes (including fish, crustaceans, mollusks, and algae) using 148 independent comparisons; 2) shifts between freshwater and terrestrial environments in insects using 42 independent comparisons; 3) the evolution and loss of flight ability in insects using 11+ independent comparisons and transcriptome-derived DNA sequences. While rates of molecular evolution were observed to be relatively equal among habitat categories, freshwater eukaryotes tended to have higher rates than marine or saline eukaryotes, and terrestrial insects tended to have higher rates than freshwater insects. The results are discussed in the context of potential mutational and selective influences on molecular evolution. In flightless insects, certain categories of genes more commonly exhibited signatures of positive or relaxed selection than observed in flying insects, and these trends were similar to those previously reported for other flying and secondarily flightless animal taxa (birds and bats). Overall, the broad-scale trends observed in these studies support a degree of predictability in molecular evolution in association with biological and ecological traits of organisms.

Brief Bio:

Fatima Mitterboeck is a PhD Candidate in the Department of Integrative Biology at the University of Guelph and associated with the Biodiversity Institute of Ontario, working with Dr. Sarah J. Adamowicz and Dr. Jinzhong Fu. Part of her PhD work includes collaboration with researchers involved with the international 1000 Insect Transcriptome Evolution (1KITE) project. Fatima completed her Master's degree in Evolutionary Biology at the University of Guelph under the supervision of Dr. Sarah J. Adamowicz, and her undergraduate degree in Biomedical Sciences at the University of Waterloo.

When: *Tuesday* August 16th 2016 at 12:00 pm

Where: Visualization Theatre, Room 1009
Biodiversity Institute of Ontario

For scheduling and more information on the seminars, please visit:
http://biodiversitygenomics.net/resources/seminar-series/