

Biology Seminar

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Life in the Extreme-Tolerance and Physiological Response to Environmental Stress in Antarctic Arthropods

In contrast to the relatively stable marine environment of the Southern Ocean, seasonally ice-free Antarctic terrestrial habitats are characterized by widely varying, often extreme environmental conditions on both daily and seasonal timescales, including high and low temperature, limited water availability, dramatic fluctuations of light and ultraviolet radiation, and high salinity due to ocean spray from frequent Antarctic storms. As a result of such extreme environmental conditions, along with limited habitat availability and continental isolation, the terrestrial fauna of the maritime Antarctic is rather depauperate. Of the terrestrial arthropods, the Acari (mites) and Collembola (springtails) dominate, with only two Dipteran (flies) species represented. These relatively few species of terrestrial arthropods inhabiting the Antarctic Peninsula, therefore, must possess adaptations and elicit responses, both behavioral and physiological, that facilitate survival under such harsh environmental conditions. Our research has focused on characterizing the remarkable tolerance of environmental stress of several arthropods in this environment, as well as examining the molecular and physiological mechanisms used by these organisms to survive on the Antarctic Peninsula.



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2:00 PM

ENV125 (EESAT)