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Variation in stress resistance traits of *Ceratitis* fruit flies

ABSTRACT

Some fruit flies in the genus *Ceratitis* are widespread, invasive species that cause considerable economic damage to horticulture industries. Others are much more restricted despite females ovipositing and larvae successfully developing in a wide range of hosts. This discrepancy is at least partly related to baseline differences in tolerance by *Ceratitis* species to extremes in temperature and water scarcity. But it is also clear that mean values for tolerance differ between populations of the same species through local adaptation, and improvement and loss of stress resistance develops within only a few generations. Additionally, stress resistance traits vary within populations depending on age, diet and prior experience. This presentation will provide specific examples for these patterns in *Ceratitis* species from recent and ongoing studies based in South Africa.



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"Using a foundation in evolutionary and physiological ecology, my research aims to address interactions between human livelihoods and the activities of insects, whether negative or beneficial, with a focus on flies. Results from these studies inform sustainable management practices that can reduce reliance on pesticides, but may also facilitate the beneficial use of flies. My students and I pursue projects on the traits that make fruit flies destructive and invasive pests, the biology and management of mosquitoes and other blood-feeding flies that affect human and animal health, and bioconversion of organic waste to promote a sustainable, circular economy."

