

New genetic test will improve biosecurity of honey bees around the globe

April 22 2015

A genetic test that can prevent 'killer' bees from spreading around the world has been created in a research effort led by University of Sydney scholars jointly with York University scientists.

"Our genetic test is highly accurate and considerably more sophisticated than the old tests that have a high tendency to misclassify hybrid bees," says Professor Amro Zayed in the department of Biology, Faculty of Science.

Africanized [honeybees](#) are highly aggressive and very difficult to manage relative to European honeybees used by Canadian and Australian beekeepers. The international trade in honeybees is restricted, due in part to bans on import of queens from countries such as the United States, where Africanized honeybees are present.

"Having a tool that can identify desirable and undesirable bee subspecies will be of value to breeding and conservation programs throughout the world," says lead author of the study, Nadine Chapman, in the School of Biological Sciences, University of Sydney. "Pollination of crops by honeybees adds many billions of dollars to the world economy, so any strategy that can prevent losses is an important contribution to food security."

The test uses 95 genetic mutations that distinguish between African and European honey bees. "We picked these mutations from a database of over 12 million mutations found in honey bees that we discovered here

at York University," says co-author of the study, Brock Harpur, a doctoral student in the Department of Biology.

"The Canadian Food Inspection Agency is very concerned about the accidental importation of Africanized honey bees among bee imports from the United States, and we are very proud to be able to translate our pure research on honey bee genetics to help develop a [test](#) that can make bee imports safer," adds Zayed.

The international study, [A SNP test to identify Africanized honeybees via proportion of 'African' ancestry](#), which also included researchers from the US Department of Agriculture and the Agricultural Research Council in South Africa, was published in *Molecular Ecology Resources*, April 20.

Provided by York University

Citation: New genetic test will improve biosecurity of honey bees around the globe (2015, April 22) retrieved 18 April 2024 from <https://phys.org/news/2015-04-genetic-biosecurity-honey-bees-globe.html>

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