

New orchid deception found: wearing the scent of hornet's prey

August 6 2009

Orchids are famous for their deceptions. Most of those with nothing of value to offer their pollinators lure them instead with the scents of more rewarding flowers or potential mates. Now, a report published online on August 6th in *Current Biology* reveals for the first time that a species of orchid, which lives on the Chinese island of Hainan, fools its hornet pollinator by issuing a chemical that honeybees use to send an alarm.

The discovery explains why the hornets, which capture [honeybees](#) to serve as food for their [larvae](#), have been observed to literally pounce on the rewardless *Dendrobium sinense* flowers.

The compound the orchids produce, so-called Z-11-eicosen-1-ol, is a rarity even in the insect world, said researchers Manfred Ayasse and Jennifer Brodmann of the University of Ulm in Germany. It has never before been described in any plant.

"Of course, we are aware of the fascinating other examples of how orchids attract their pollinators," Ayasse said. "However, we did not expect to find such a new form of deception."

The researchers knew from earlier studies by their Chinese collaborators that there was something going on between *D. sinense* and the hornet *Vespa bicolor*. Hornets were the most frequent visitors of those orchids by far. And rather than landing and pausing on the flowers, as would be typical behavior for [pollinators](#), the hornets instead pounced on the red center of the flower, much as though they were attacking prey.

In the current study, they found that hornets were more apt to tackle orchids with their natural scent or dummy honeybees impregnated with the floral scent than they were odorless bee dummies.

An examination of the floral extract turned up Z-11-eicosen-1-ol as one of few compounds that might be detected by the antennae of worker hornets. The chemical was known from other studies to be a major compound of honeybees' alarm pheromone and an essential component for [prey](#) recognition in hunting [wasps](#). Behavioral experiments of hornets in the lab confirmed the predatory insect's attraction to the [orchid](#) flower's scent and to Z-11-eicosen-1-ol alone.

People might take a note from these orchids about how to manipulate *Vespa* hornets to their own ends, according to the researchers.

"Various species of *Vespa* are problems to beekeepers, because they plunder the hives," Ayasse said. "Besides this, their ravages of fruit crops make hornets a serious pest to man. Our results could be used to develop environmentally responsible traps for pest hornets."

Source: Cell Press ([news](#) : [web](#))

Citation: New orchid deception found: wearing the scent of hornet's prey (2009, August 6)
retrieved 9 April 2024 from

<https://phys.org/news/2009-08-orchid-deception-scent-hornet-prey.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.