

Luring hornets: Scientists unlock sex pheromone of notorious honey bee predator

October 12, 2017



A *Vespa velutina* attacks an Asian honey bee. Credit: Ping Wen

PDF

Over the past decade, Asian hornets, predatory insects with a widespread and expanding population, have invaded parts of Europe and Korea. *Vespa velutina* has a growing reputation as a species that proliferates rapidly, preys on honey bees and poses risks to humans.

Now a biologist at the University of California San Diego and his colleagues in Asia have developed a solution for controlling Asian hornets derived from the insect's natural chemical mating instincts.

As reported in the Oct. 11 edition of *Scientific Reports*, UC San Diego's James Nieh and researchers at the Chinese Academy of Sciences and Yunnan Agricultural University have deciphered the sex pheromone of *Vespa velutina*. Further, they developed a method of controlling

Asian hornets by luring males into traps baited with synthesized versions of the pheromones.

"We have successfully tested the key sex [pheromone](#) compounds of this species and the results show that males are highly attracted to them," said Nieh, a professor in UC San Diego's Division of Biological Sciences.

Nieh noted that recently Turkey and Balkan nations have been invaded by Asian hornets, with much of Western Europe at risk. A single [hornet](#) can bite and kill hundreds of honey bees in its quest to obtain [honey bee larvae](#).

Featured

Last comments

Popular



Raging Bull: First study to find link between testosterone and stock market instability Oct 10, 2017 9



Battery based on sodium may offer more cost-effective storage than lithium Oct 10, 2017 10



Two separate teams of astronomers find evidence of missing Baryonic matter Oct 10, 2017 58



Pest resistance to biotech crops surging Oct 10, 2017 0



Researchers make progress toward solving the proton spin puzzle Oct 10, 2017 5

[more »](#)

Phys.org

[G+](#) [Follow](#)

[Phys.org on facebook](#)

European honey bees have not evolved with this deadly predator and have poor defenses. As a result, "the European economic impact is high," said Nieh, and "major colony losses have led some beekeepers to abandon apiculture."



Males lured into glue trap with synthetic sex pheromone (dispensed onto the white paper strip shown in center). Credit: Ping Wen

Nieh noted that Asian hornets are difficult to control because their colonies can spread rapidly and their nests are difficult to find in non-urban areas. They pose dangers to humans with stings that are painful and, in rare cases, deadly.

Dwarf Asian honey bee defending itself from a giant hornet atta...



Dwarf Asian honey bee defending itself from a giant hornet attacker. Credit: University of California - San Diego

Pheromones are chemical signals that transmit information between members of the same species. Sex pheromones play a key role in mating and the continued survival of the species. In the case of Asian hornets, which have limited vision, sex pheromones likely play a key role in long-distance attraction. The new research demonstrates a simple, reliable way to monitor and potentially reduce the populations of these invading insects.

Follow

1.3M people are following [Phys.org](https://phys.org). Be the first of your friends.

Relevant PhysicsForums posts

Birds of a feather? Oct 12, 2017

Why does natural selection favor convoluted vaginas? Oct 11, 2017

Perfect food with no need for excretion? Oct 11, 2017

Minimum population needed to keep an anthropoid creature... Oct 11, 2017

Self learning about cancer Oct 10, 2017

The secretory pole in secretory cells Oct 10, 2017

More from Biology and Medical



Paper coauthors Ping Wen (left) and Shi-hao Dong (right) study Asian hornets. Credit: James Nieh

Asian hornet attacking an Asian honey bee, *Apis cerana*



Asian hornet attacking an Asian honey bee, *Apis cerana*

Explore further: [Fear of predators drives honey bees away from good food sources](#)

Journal reference: [Scientific Reports](#)

107 shares

Provided by: [University of California - San Diego](#)

[feedback to editors](#)



Fear of predators drives honey bees away from good food sources

October 2, 2013

Most of us think of honey bees as having a bucolic, pastoral existence—flying from flower to flower to collect the nectar they then turn into honey. But while they're capable of defending themselves with their painful stings, ...



Biologists discover sophisticated 'alarm' signals in honey bees

March 25, 2016

Bees can use sophisticated signals to warn their nestmates about the level of danger from predators attacking foragers or the nest, according to a new study.



Model predicts how E. coli bacteria adapt under stress

October 13, 2017

Researchers at the University of California San Diego have developed a genome-scale model that can accurately predict how E. coli bacteria respond to temperature changes and genetic mutations. The work is aimed at providing ...



Strange undertakings: Ant queens bury dead to prevent disease

October 12, 2017

Ant queens may bury other queens - a task normally performed by workers - to avoid infection when co-founding a new colony, according to a study published in the open access journal BMC Evolutionary Biology.

3-D packaging of DNA regulates cell

1 comment

2.5

Adjust slider to filter visible comments by rank

Display comments: **newest first**

lochroma

not rated yet

17 hours ago

These insects are scary - many people die each year from the stings of this hornet. They are huge, and aggressive towards anyone near their hive, or the beehive they are in the process of mobbing.
Poor honeybees have no defense against these thugs. Hopefully the traps will curb the monsters.

Please [sign in](#) to add a comment. Registration is free, and takes less than a minute. [Read more](#)

email

password

Sign in

[Click here](#) to reset your password.
[Sign in](#) to get notified via email when new comments are made.



Mystery Of Bermuda Triangle Unraveled In Australia
It is easy to explain why most of the accidents that occur in the infamous ...



1977 'Wow!' Signal Was Not a Comet, Could Have Been Aliens
A mysterious radio signal detected in deep space 40 years ago was not from ...



California Residents Spot Mysterious Foreign Body
Is it a plane? A rocket? E.T.? Multiple inquiring Californian minds want to ...



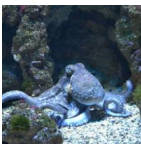
The North Sea Oil Recovery is Dead in the Water
Big oil's confidence in the North Sea might not be enough to save the ...



Will Hydrogen Break the Battery Market?
Hydrogen energy storage is making waves in the clean energy sector, and ...



New Space Sound Bursts Have Scientists Puzzled
A new burst of 15 short pulses of radio emission from a distant galaxy have ...



Scientists Find Underwater City Built by Octopuses
Marine biologists have discovered a veritable underwater 'settlement' ...



Israeli Female Soldiers Show Off Their Attractive Side
Instagram account where the young camouflage clad ladies demonstrate their ...

Top	Help	Science X Account	Feature Stories	Android app	Connect
Home	FAQ	Sponsored Account	Latest news	iOS app	
Search	About	Newsletter	Week's top	Amazon Kindle	
Mobile version	Contact	RSS feeds	Archive		