

Honeybees ring 'alarm' signals

Honeybees have the potential to use vibrational "stop signals" to warn their mates about dangers from predators attacking foragers or the nest, finds an interesting study.

Scientists found that an Asian species of honeybee communicates about the impending dangers depending upon the type of danger and the context via short vibration pulses, usually by head butting their peers.

"Surprisingly, this signal encodes the level of danger in its vibrational frequency, its pitch, and the danger context through the duration of each pulse," said lead researcher James Nieh, professor at the University of California in San Diego, US.

The vibration pulses are the most sophisticated form of alarm signalling found in a social insect, the study said in a paper published in the open-access journal PLOS Biology.

Previously, such referential alarm signals had only been reported in vertebrates like birds and primates.

The team studied Asian honeybee, *Apis cerana*, when attacked by the world's largest hornet, the "yak-killer" *Vespa mandarinia* and a smaller hornet, *Vespa velutina*, to see if bees would produce stop signals in both situations.

"We hypothesised that bigger predators would pose a bigger threat and would change stop signalling, perhaps by producing more signals when attacked by a large predator," Nieh said.

The research confirmed that the bees were using stop signals to keep their fellow foragers from returning to a place where danger lurks.

The bees used higher pitched stop signals to warn their peers of larger predators, while longer stop signals connoted that threat was closer to the hive.

The attacked foragers reduced their waggle dancing and produced stop signals that increased in pitch according to predator size.

In addition, the guard bees and returning foragers attacked at the nest entrance produced longer duration stop signals to warn nestmates about the imminent danger outside.