Cerana Bees - the Defender

Animals have evolved a suite of defense mechanisms to fend off their predators, resource plunderers, and attackers. Honeybees are not an exception. *Apis* bees demonstrate exceptional nest defenses to protect their abundant food stocks and large colonies. Recently, a group of bee researchers has offered fresh insight into how *Apis cerana*, or Asian honeybees use animal feces as a weapon to defend colonies from giant hornets.

The giant hornets are a menace to the honeybees of Asia. It feeds primarily on larger insects, colonies of other eusocial insects, tree sap, and honey. They used to attack bee colonies in groups, kill adult defenders, and prey on brood. However, *Apis cerana* bees do not give them a free hand. When honey bees detect spying hornets, they used to transmit a signal that commonly cautions the predator. Another strategy adopted by the cerana bees, to avoid midair attacks, is to speed up dramatically while flying back to the colony. It does not end here. The latest research has unraveled yet another trick, employing a great collective defense against the giant hornet *Vespa soror* which frequently lands at and chews on entrances. Now the question is what do they actually do? And How?

It is quite hard to believe that Animal faeces do all the Magic!

Interestingly, *A. cerana* workers keep sneaking for animal feces while foraging and applying spots of animal feces around their nest entrances. Fecal spotting generally increases after colonies were exposed to natural attacks or to chemicals from hornets use to target colonies for mass attacks. Interestingly, the spotting even continues for a number of days after hornet attacks ceased. It has been observed that moderate to heavy fecal spotting suppressed the incidence of multiple-hornet attacks. Researchers argued that *A. cerana* forages for animal feces because it has properties that repel this deadly predator from nest entrances though the key chemical(s) remain elusive!

It may be the first report of tool use by honey bees that have evolved in response to the predatory threats they face. Moreover, the study also presents evidence that they could forage for diverse resources, not solely for solids that are derived from plants or water-based fluids (excluding *A. florea* colonies salvaging their own beeswax). So, the more we get to know about the natural history of honey bees better we are placed to sustainably manage bee colonies ensuring honey harvest and pollination.

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