Bee friendly insecticides? Scientists unlock genetic key to kill crop pests, sparing beneficial insects

Researchers at Michigan State University's entomology department have unlocked a key to maintain the insecticide's effectiveness in eliminating pests without killing beneficial bugs, such as bees. The study, featured in the current issue of Proceedings of the National Academy of Sciences, shows that molecular tweaks can make the difference.

Pyrethroids target the voltage-gated sodium channel, a protein found in nerve and muscle cells used for rapid electrical signaling. Pyrethroids basically work by binding to the voltage gate of the sodium channel and prevent it from closing. The nervous system becomes over-stimulated and the insect is killed. These pesticides, however, don't have the same effect on humans, or other mammals for that matter.

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[The researchers] honed in on a single protein that could afford bumble bees the same resistance as humans – tau-fluvalinate, a pyrethroid insecticide.
…

"This opens the possibility of designing new chemicals that target sodium channels of pests but spare bees," [said Ke Dong, MSU insect toxicologist and neurobiologist and co-author of the paper].

[Editor's note: Read the full study (behind paywall)]

The GLP aggregated and excerpted this article to reflect the diversity of news, opinion and analysis. Read full, original post: Refining pesticides to kill pests, not bees