

## Bees are buzzing on caffeine

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A friend of mine recently returned to the U.S. from deployment with the National Guard in Afghanistan. One of the first things he did when he reached a military base in Texas was to buy a cup of espresso. He even took a picture of it and posted it on the internet. Good coffee was a sure sign, he said, he'd returned to civilization.

The magic in coffee is caffeine, a stimulant that keeps us coffee-drinkers going back for more every day. Many of us know that a dose of caffeine makes us perk up and concentrate better. It makes reading and writing a breeze for me, it helps students the world around study more effectively, and it generally greases the wheels of our workaholic world.

Recently scientists presented evidence that honey bees—just like soldiers and aging geologists—get a buzz from caffeine and their memory is enhanced by it.

It's perhaps no surprise that the nectar in the flowers of coffee plants have a bit of caffeine in them. But would you guess that some citrus flowers also are laced with a little caffeine? It's reasonable to think that flowering plants might have certain chemicals in them specifically because of the way they affect bees. That's because certain flowering plants "co-evolved" over time with the help of bees and shaped the insects even as the bees influenced the plants.

To put it bluntly, bees are helpful when plants want to have sex with one another. The bee is attracted to a flower by the nectar, but it gets covered in pollen while it feeds. When it moves on to a new flower, the pollen is spread from the bee's body hairs to the second flower, a fact that helps the plant reproduce.

"It's not hard to test learning in a bee. You basically put a bee in a straw to hold it still. Then you blow a scent like lavender on them. When they extend their proboscis (or tongue) you can give them a sugar water reward," Sheppard said.

Over time, the bees will learn to extend their little tongues when they smell lavender.

Now here's the part that's interesting. If the sugar water was laced with a tincture of caffeine, the bees were more likely when re-tested to stick out their tongues. That's to say, they remembered their lesson better if a bit of caffeine was in their drink. And this effect grew stronger over the passage of time for up to three days—which counts as a long time if you're a bee.

"The bees can't taste the caffeine, but it affects them," Sheppard said.  
I'll drink to that.