

Pollinators like their flowers with a dash of salt

Sodium-supplemented plants attract more diverse and plentiful pollinators

1 MAR 2022 • 7:01 PM • BY GRAYCEN WHEELER



A bumble bee visits a purple coneflower. JOHN CANCALOSI/MINDEN PICTURES

SHARE:



When you have a salt craving, you might grab a pickle from the fridge or an order of fries from a drive-through. For butterflies and bees, those obviously aren’t options. Instead, a new study has found they go after plants with extra sodium in their nectar when the option is available.

Salt ions such as sodium help animals balance the amount of water in their cells and play important roles in muscle function. But plant-munching creatures struggle to get enough salt from their diets. “Herbivores have to get salt from somewhere,” says Nate Sanders, an ecologist at the University of Michigan, Ann Arbor, and a co-author of the study. “The same is true for things that fly around pollinating plants.”

Honey bees have been found to prefer brackish, “dirty” drinking water over fresh water, [likely because of its salt content](#). And some bees are known to scavenge sodium through literal [blood](#), [sweat](#), and [tears](#). Sanders and his colleagues wanted to test whether pollinators also have a taste for salt from a more cheerful source: flower nectar.

The team selected five species of flowering plants native to the meadows of Vermont, where the research took place. They grew the flowers, which included yarrow and purple coneflower, in a greenhouse.

Lead author Carrie Finkelstein, then an undergraduate at the University of Vermont, visited the greenhouse every warm, sunny day from July to August 2021, when pollinators are active. Each time, she used a tiny hand pump to suck the nectar out of the flowers and replace it with a sugary solution. Half the plants received an artificial nectar containing 1% salt and the other half received a nonsalty version. Finkelstein then moved the potted plants into a meadow and arranged them in an area about the size of a basketball court. She observed the plants for 3 hours throughout the day, tracking the comings and goings of bees, ants, and butterflies that visited the flowers.

For every kind of flower, the ones with salty nectar [attracted nearly twice as many pollinators](#) as their low-sodium counterparts, the researchers report today in *Biology Letters*. They also attracted a more diverse set of visitors: Approximately twice as many species of pollinators stopped by the sweet-and-salty flowers, compared with the sugar-only varieties.

The experimental approach is winning fans. “I really like the idea,” says Rachael Bonoan, a nutritional ecologist at Providence College who was not involved in this study. “I think there are a lot of other questions that can be asked and answered using this method.”

Plants usually have low amounts of sodium in their nectar, but levels can vary from plant to plant within a species, the authors say. “It could be the case that some plants are spiking their nectar with sodium in order to attract pollinators,” Sanders says. Whether that’s true—and whether the plants or the pollinators benefit—is still a wide-open question. Salt-rich diets aren’t always healthy for humans, Bonoan says, and the same could hold true for insects. “There’s a lot more that needs to be done if we want to think about ecological context and practical solutions to pollinator decline.”

Pollinators are [critical for 35% of the world’s crops](#), but their populations are declining because of habitat loss, pesticides, climate change, and other environmental issues. Although the new findings may not directly help these species, Sanders hopes the results will help scientists understand how plants and insects cooperate. “It’s important to understand the interactions between pollinators and plants,” he says. “And they’re changing because the planet is changing.”

doi: 10.1126/science.adb1766

RELEVANT TAGS:

PLANTS & ANIMALS

ABOUT THE AUTHOR

Graycen Wheeler

Author

MORE FROM NEWS



26 APR 2022
Record avian flu outbreak is threatening North America’s birds. Is the virus here to stay?

BY ERIK STOKSTAD



26 APR 2022
Government attacks on higher education in Nicaragua put research—and researchers—at risk

BY SOFIA MOUTINHO



25 APR 2022
NYU may hire biologist pushed out of MIT, Whitehead for sexual misconduct

BY MEREDITH WADMAN