

April 28, 2015

Do Insects Have Good Taste?

Taste is an important sense found in almost all species of animals. Taste is the dominant sense associated with food and eating, although smell and texture plays a role, as well. Eating and food acquisition is essential to animal survival.

So how does the ability to taste compare in humans and insects? Dr Tom Turpin, Purdue University Entomology Professor gives us a glimpse of the insect taste buds. Behavioral studies in insects show that, like humans, their sense of taste includes the ability to detect sweet, salty, acidic and bitter tastes. Of these four, only sweet is acceptable to insects. Unlike humans, the other three tastes are not of interest to insects.

Insects have a more sensitive "taster" than do humans. Honey bees can detect lower concentrations of the sugar fructose than can humans. Additionally, honey bees cannot be fooled into sipping up artificial sweeteners. Honey bees will not drink solutions that humans would consider sweet, such as those enhanced by Splenda, Equal or Sweet'N Low. Any substance that cannot provide a carbon energy source for honey bees and be processed into honey is ignored. I guess honey bees aren't in the business of producing a "health food" honey substitute.

The sense of taste in humans is associated with taste buds located on our tongue. Most humans have around 10,000 taste buds. Each is replaced about every two weeks. However, as we age, all the taste buds aren't replaced so our sense of taste tends to decrease as we get older. Insects' sense of taste is also associated with mouthparts, but insects also have cells that function in similar fashion to our taste buds on the antennae, legs and the ovipositor. These insect taste buds can be in the shape of a hair, a peg or a pit. Human taste buds and the equivalent insect devices - generally known as chemoreceptors - function to determine something about food.

In the case of caterpillars, having taste sensors in the mouth means the insect will have to take a bite to tell if the item is a suitable food. Many adult insects also take bites to determine whether or not to eat a plant. Honey bees use their proboscis to determine if a substance is sweet enough to bring home to the hive. An insect can use its feet to determine if something is good to eat. If it is, the insect puts down its proboscis to begin feeding. This is the case with many butterflies and flies. Walking on something that is good to eat prompts what is known among entomologists as the tarsal taste and proboscis extension reflex. In other words, if you are standing on good food, the tongue comes out!

In other cases, when a female butterfly stands on a plant she can determine if that plant is a suitable host for her potential offspring. If so, she deposits an egg on the plant. In the same way, a female parasitic wasp can use her ovipositor to taste if an insect is a potential host for her young. Wouldn't it be great to stick your finger into the buffet offering and know if it tastes good before taking a serving...Maybe not!

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