Fiery fruit

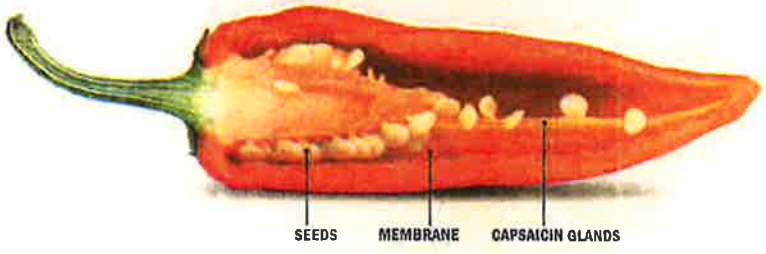
Why we are attracted to the very thing chile peppers employ to keep us away

By Mark Ferenchik | THE COLUMBUS DISPATCH

The squid has its ink. The skunk has its stink. And the chile has its heat. But the very defense mechanism that chiles employ to keep predators at bay is what attracts humans. It's the heat, baby. The mouth-searing, tongue-in-flames torture that we crave. That heat is created by capsaicin, an alkaloid that, ironically, also is used to relieve joint pain. Why so hot? "It's the plant's way to protect from mammals eating the fruit," said Paul Bosland, a New Mexico State University horticulture professor who has dedicated his life to studying the science of chile peppers. Why keep mammals at bay? They want the vitamin A that the plants provide. The mammalian digestive system destroys the seeds, ending any hope of dispersal.

Where's the heat?

Most of the heat in chili peppers comes from thin membranes that connect the wall of the pepper to the seeds. A small, orange band, called the capsaicin glands, contains a concentrated amount of the chemical compound that produces the burning sensation.



You're getting warmer

- One fresh medium size green chile pod has as much vitamin C as six oranges.
- One teaspoon of dried red chile powder has the daily requirement of vitamin A.
- Hot chile peppers burn calories by triggering a thermodynamic burn in the body, which speeds up the metabolism.
- Teas and lozenges are made with chile peppers for the treatment of a sore throat.
- Chile peppers originated in South America and then spread to Central and North America.
- The Indians of the American tropics cultivated the chile pepper for centuries for both its culinary and medicinal uses.
- On his first voyage to the Western Hemisphere, Christopher Columbus mistakenly called the fiery chile pepper pod "pepper" because of its heat thinking it was a relative of black pepper.
- All chile peppers are edible. Ornamentals, however, have been bred for their appearance, usually have little flavor and can be very hot.
- Chile peppers are relatives of tomatoes, potatoes and eggplants, all of which belong to the nightshade family.
- The color extracted from red chile pepper pods (it's called oleoresin) is used in everything from lipstick to processed meats.
- There are 26 known species of chile pepper, five of which are domesticated.

Chile Pepper Institute at New Mexico State University

Hot, hotter, hottest

The Scoville scale measures the heat of chile peppers. The world's hottest chile, the Naga jolokia, or "ghost chile," measures about 1 million Scoville units, or about 200 times hotter than a jalapeno.

Source: ushotstuff.com
TIM MCKO | DISPATCH

Birds, however, don't have pain receptors for peppers. And their digestive systems leave the seeds alone. They also fly far and wide, spreading the seeds as they go.

Chile peppers are native to South America, but were carried north by birds.

"Birds are the wild dispersal agent," said Danise Coon, assistant director of the Chile Pepper Institute at New Mexico State.

But there is one mammal that has aided the pepper's success — man.

Smithsonian researchers a few years ago reported that they found evidence that chiles were cultivated and traded as early as 6,000 years ago. Eventually, European explorers took them on their ships and spread them the world over.

"It must have been a brave human that bit into the first chile and said, 'I want to eat this,' " Bosland said.

And since then, interest in peppers has grown. A lot.

"What I found out is we had a lot of people asking chile questions," Bosland said.

In fact, so many peppered him with questions that it began to interfere with his research and teaching. So, the institute was born in 1992.

New Mexico produces about 80 percent of the nation's chile peppers, making New Mexico State a natural to house such an institute, Bosland said. The university also has a chile breeding and genetics program.

About 25 faculty members research the best soils for chiles and techniques for creating disease-resistant peppers.

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New Mexico State horticulture professor

Researchers around the world are interested in the power of chiles, their evolutionary history and how they were cultivated.

For example, University of Washington researchers recently reported that chile peppers also use their heat to fend off a fungus spread by insects.

And when chile peppers become stressed, they become hotter, a natural defense to prevent animals from eating them, Coon said.

If you are a chile head, you know all about the Scoville units used to measure that heat. They're named after Wilbur Scoville, an American chemist who created the scale in 1912 while working for the Parke-Davis pharmaceutical company. The units of hotness are based on how much sugar water you need to dilute the chiles until you feel no heat.

India's bhut jolokia pepper is considered the hottest, at 1 million Scoville units.

Beyond the heat and nutrition, chile peppers have a variety of tastes, Bosland said. "It's a fascinating crop. There are so many aspects to chile peppers."

But what about the heat? And why do we react the way we do?

Scientists say that capsaicin binds to receptors in the mouth that send a heat signal to the brain. It's the same signal the brain receives when you eat or drink something hot, like soup or coffee, Bosland said. "It fools your brain that it's hot."

You start sweating. Your eyes water. Then the brain releases endorphins.

For some, that rush, that high, is what they're looking for. You know, the pain and pleasure thing.

One person who understands this is John Hard, who runs Ca-John's Fiery Foods in Westerville. He sells some of the hottest sauces in the world. One sauce, Holy Jolokia, is considered one of the fieriest.

Hard is so interested in the research that a portion of sales from Holy Jolokia goes to fund the Chile Pepper Institute.

The best way to kill the burn? Milk is pretty good, as are most dairy products, according to the institute.

But who wants to ease that killer rush?

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