

Chapter 44

Evolutionary Aside 44.1--Evolution of Chili Peppers

The burning taste of chili peppers is at first glance an evolutionary riddle. The reason that plants have fruits is so that they will be eaten—the seeds contained within then pass through the consumer's digestive tract and are deposited elsewhere, where they subsequently germinate. In other words, this is a type of mutualism (discussed in chapter 56) in which plants provide animals food, and the animals in turn provide the service of dispersing the seeds.

Given this, why would the fruits of chili pepper plants have such a discouragingly painful taste? (humans are the only mammal that seems to enjoy eating chili peppers). The answer lies in the fact that the TRP that responds to capsaicin is not found in birds, and hence they are immune to capsaicin's effects—in other words, birds munch on chili peppers with impunity! Furthermore, it turns out that many types of seed-eating mammals, such as rodent species, are not good dispersers because the seeds are chewed up during ingestion, rendering them unable to pass through the digestive tract and germinate on the other end. So, chili peppers, by deterring seed predators but not birds, are an evolutionary adaptation for dispersal.