A 100 million year-old fungus infesting a primitive wasp in amber

Fungi occur everywhere; in the air, on the ground, in the sea and often in very strange locations. We naturally think of mushrooms in regards to fungi, unless we encounter black mold on our walls or have a fungus growing on our feet.

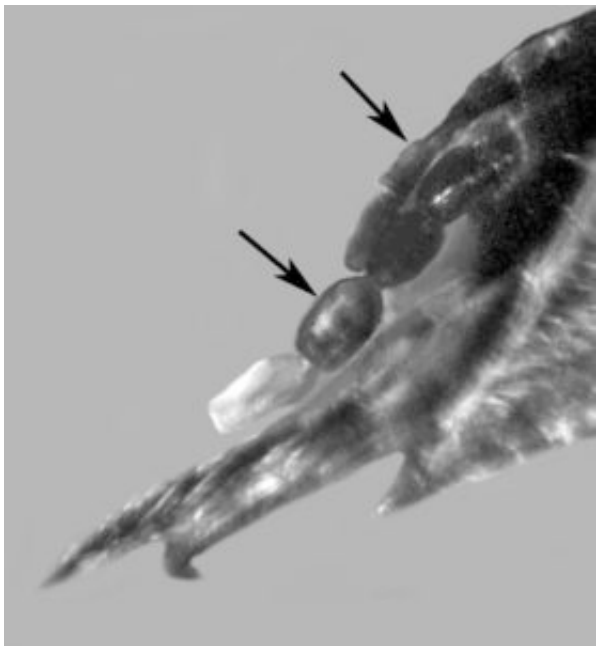

Fig. 1. Two sporangial chains (arrows) of an Eccrinales fungus protruding from the hind gut of a 100-million year-old wasp in Burmese amber.

Many fungi infect insects and the Eccrinales is an obscure group of fungal-like organisms that inhabit the digestive tract of insects. Fungus-like because scientists are not sure if the Eccrinales are true fungi or are a separate group of organisms.

Nevertheless, the Eccrinales live in the gut of insects and form chains of oblong sporangia that are attached to the inside of the hindgut of the host. They obtain nourishment from digested food in the alimentary tract of the insect. While in many cases, the entire fungus is hidden from view, sometimes, the tips of the chains protrude out of the gut wall. This is what happened with the form described as *Paleocadus burmiticus* that was living in the gut of a 100 million year-old wasp embedded in Burmese amber.

We are fortunate the tips of the spore-bearing segments are showing since now we know that

these fungi are at least 100 million years old. If you examine the terminal sporangium closely, you can see the tiny microspores that were to be released into the environment to infect new individuals.

However, these spores are now entrapped in a hardened resin called amber. We wonder if they are still viable and if we extracted them, they would be able to infect a present-day insect. What the amber does is a bit like cryopreservation, but instead of freezing the tissue, the amber dries it out and preserves it with natural chemicals. How exciting it would be to revive some of the creatures found in amber. Fungal spores would be a good place to start since many were formed to remain viable in the environment for long periods.

George Poinar, Jr.
Department of Integrative Biology, Oregon State University, Corvallis, Oregon, USA

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