



Class Insecta, Insects

Order Hymenoptera, Ants, bees, and wasps

Hymenoptera means “membraneous wings.” The hind wings are smaller than the front wings and have a row of tiny hooks, hamuli, that attach the two wings. There are two suborders. The smaller suborder includes sawflies and horntails, which are phytophagous. Bees, wasps, and ants belong to the larger suborder, which includes nectar, pollen, and insect feeders. Hymenoptera is the second largest group of insects, most of which are beneficial. These insects undergo complete metamorphosis and have complex behaviors. Most parasitic wasps do not sting humans. All hymenopterans have chewing mouthparts.

Aphelinid wasps

Family Aphelinidae

Description and life history: Aphelinid wasps are an important and diverse groups of insects, with about 1,000 known species. They are mostly solitary parasitoids, and can lay their eggs inside or outside the host. Adults are usually 1 mm long or less, and female. Females reproduce parthenogenetically to produce only more females.

Prey species: Aphelinid parasitoids attack aphids, mealybugs, psyllids, scales and whiteflies. *Encarsia formosa* is a cosmopolitan species, used worldwide for commercial control of greenhouse whiteflies. *Aphytis melinus* parasitizes California red scale and other armored scales. Both of these parasitoid species are available commercially.



Encarsia formosa adult. (338)
Photo: John Davidson



Encarsia formosa adult, which lays its eggs in the immature greenhouse whitefly. (337)
Photo: John Davidson



Empty pupal cases of greenhouse whiteflies and black parasitized pupae containing *Encarsia formosa*. (339)
Photo: John Davidson