

Tropical and subtropical wasps.

Carlos Henrique Marchiori¹

¹ Instituto Federal Goiano

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Co-authors: Marcus Vinícius de Oliveira Santana¹ and Klebert de Paula Malheiros².

*Instituto Marcus Vinícius de Oliveira Santana¹⁻². Goiânia, Goiás, Brazil.

1. The pot wasp

The wasps of the subfamily Eumeninae or eumeninos are known because some of the species within this subfamily build their nests using clay in the shape of a pot or pot. An example of the pot wasp is *Zeta argillaceum* (Linnaeus, 1758), which also uses cavities in soil, wood, or abandoned nests. Within this subfamily, there are almost 200 distinct genera of wasps, most of which are solitary and some have primitive social characteristics. This type of wasp can be dark, black, or brown and with patterns that contrast the background color, such as yellow or orange (Figure 1) [1-5].



Figure 1. It took this potter wasp -*Eumenes fraternus* Say 1824 - just over 1 hour to make this pot. Sources: Project Noah, Spotted by Anjay Krishna and <http://www.projectnoah.org/spottings/969776003>— in India.

They are animals that can fold their wings longitudinally, like most wasps. They feed on caterpillars or beetle larvae. They

also consume nectar, which gives them energy to fly. The wasp can be dark, black, or brown and with patterns that contrast with the background color, such as yellow or orange. [1-5].

2. The pollen wasp

Among the different types of wasps, those from the subfamily Masarinae or masarineos are insects that feed exclusively on pollen and nectar from flowers. This behavior is more similar to that of bees, since in most wasps carnivorous behavior is a common denominator. In this subfamily are the genera Gayellini and Masarini. These types of wasps are dark in color with contrasting light tones that can be red, white, and yellow, among others. They have club-shaped antennae and live in mud nests or burrows made in the ground. They can be found in South Africa, North America, and South America in desert regions. (Figure 2).



Figure 2. Pollen Wasp - *Pseudomasaris vespoides* (Cresson, 1863) - Female Clear Cut area 1 mile Nort. Clear Cut area 1 mile North of Westwood, Lassen County, California, USA. Sources: Photo#1335190 and <https://bugguide.net/node/view/1335190>.

The polistinos or Polistinae wasps are a subfamily of the wasps, where we can find a total of 5 different genera. There are the genera *Polistes* Latreille, 1802, *Mischocyttarus* Saussure, 1853, *Polybia* Lepeletier, 1836, *Brachygastra* Party, 1833, and *Ropalidia* Guérin-Méneville, 1831. They are wasps that live in tropical and subtropical climates, in addition to being eusocial. They have a narrow abdomen, with curved antennae in the case of males. The queen females are similar to the workers, something rare since in general, the queen of a colony is much larger. The genera *Polybia*, and *Brachygastra* have the peculiarity of producing honey [5-8].

3. The vespines

These wasps, also known as Vespinae wasps, are a subfamily that has 4 genera, speak of *Dolichovespula* Rohwer, 1916, *Provespa* Ashmead, 1903, *Vespa* Linnaeus, 1758, and *Vespula* Thomson, 1869. Some of these species live in colonies, others are parasitic and lay their eggs in the nests of other insects. They are wasps that have a more developed sense of socialization than the Polistinae. The nests are of a type of paper, formed by chewed wood fiber, and make their nests in

trees and under the ground. We can find them on all continents of the world, except Antarctica (Figure 3).



Figure 3. *Vespa austriaca* (Panzer, 1799). Sources: Photo (C) Josef Dvorak www.biolib.cz for BWARS and <https://bwars.com/wasp/vespidae/vespinae/vespula-austriaca>.

They feed on insects and, in some cases, the flesh of dead animals. Some species invade the nests of other species, killing the queen of the colony and forcing the worker wasps to take care of the invading young. They can invade nests of the same species or nests of species with which they are related. In the genus, *Vespa* are wasps that are colloquially called hornets because they are more robust than traditional wasps [9-12].

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