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Praying mantis (Insecta: Mantodea).

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Mantodea are insects popularly called praying mantis. The scientific name of this order, Mantodea, originates from the combination of the Greek words “μάντις = praying mantis” which means prophet, seer, and diviner. Furthermore, the suffix “εἶδος = eidos” which means form, type and similar. This alludes to the position these insects adopt when at rest, with their front legs folded under their body, like the posture of a person praying (Figure 1) [1-12].

Figure 1. *Empusa pennata* (Thunberg, 1815) (nymph). Sources: Algarve/ 22.04.2018, Photo Ana Valadares, Photo and https://www.anavaladaresfotografia.com/mantodea.

They are hemimetabolous, predatory, terrestrial insects, ranging from 8 to 170 mm in length. Movable head. Multiarticulated antenna, usually filiform. Well-defined post-clip. Mouthpiece with strong jaws. Prothorax elongated. Raptorial anterior leg, with long thigh and femur and tibia with spines aligned on the external and internal margins, anterior femur with an area of bristles on the internal posterior part. The tarsus was pentamerous. The forewing, called tegmina, is more sclerosed and narrower than the hindwing, which is membranous. Wings were reduced or absent in some females.

Metathorax with a hearing organ in most species. Multi-articulated siege. Asymmetrical male genitalia. Eggs in the ootheca. Other characteristics: Coloration that favors camouflage against predators and prey trap devices. Males are generally smaller than females (Figure 2) [1-12].

Figure 2. Louva-a-deus (Insecta: Mantodea). Source: https://www.reddit.com/r/MadeMeSmile/comments/miblqm/this_beautiful_praying_mantis/

They are aggressive predators that mainly hunt flies and aphids. Hunting is usually done by ambush, facilitated by the mantis' camouflage capabilities. As they do not have venom, praying mantises rely on their raptorial front legs, that is, modified like claws, to hold the prey while it is consumed. The mating ritual of praying mantises is a moment of danger for the males of the species, as the female often ends up killing and eating them during and after the act. After the fact, the female lays between 10 and 400 eggs in a hardened capsule that she deposits on the ground, on a flat surface, or wrapped around a leaf. In some species, the female remains close to the capsule and protects it against predators, especially some species of wasps. After hatching, the praying mantis is born as a nymph, which is in all respects the same as the adult, except for its smaller size and the absence of wings and mature reproductive organs (Figure 3) [1-12].

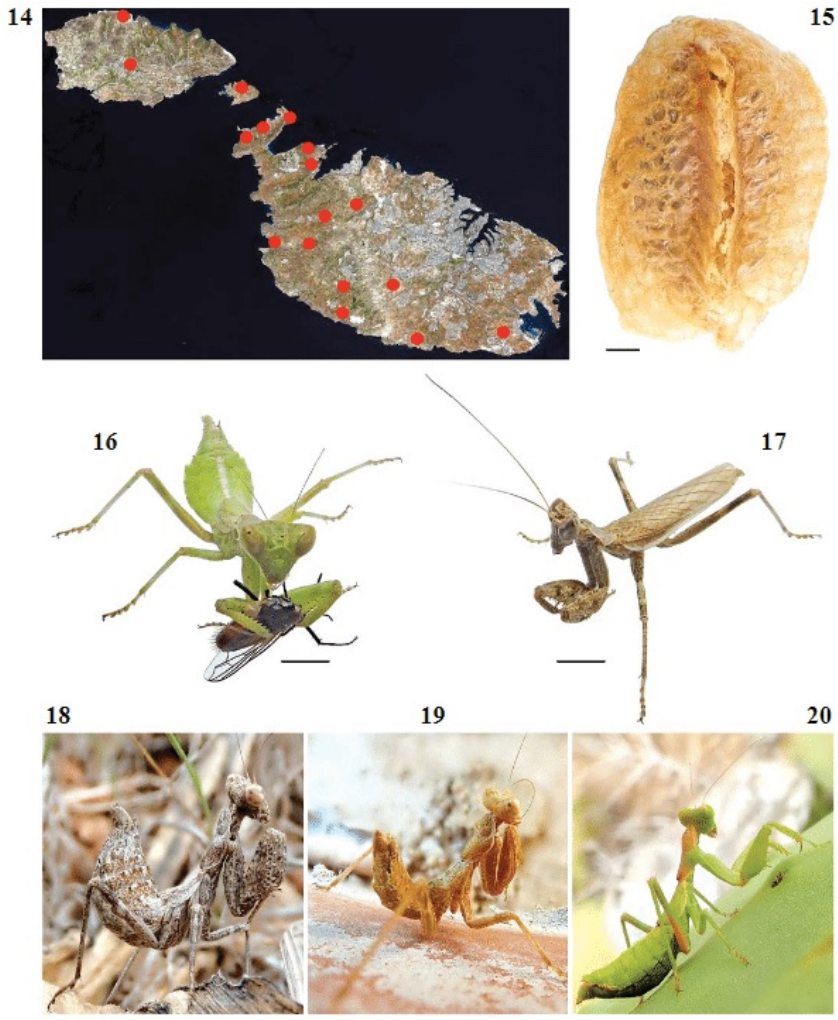

Figure 3. *Ameles spallanzania* (Rossi, 1792). 14, distribuição nas ilhas maltesas; 15, ooteca; 16, ♀ atacando*Musca domestica,* L., 1758; 17, ♂ de Zebbug; 18, ♀ de Manikata; 19, ♀ de Zebbug; 20, ♀ de Mellieħa. Fonte: https://www.researchgate.net/figure/20-Ameles-spallanzania-Rossi-1792-14-distribution-in-the-Maltese-Islands-15_fig3_345767516.

Large species can attack even small vertebrates, such as frogs, geckos, and small rodents. Due to their great appetite and voracity, they often capture animals more than half their size. The idea is that the female always eats the male during mating, this is not a common behavior for most species in the order Mantodea. Between males and females, there are common morphological differences. Females are generally larger and more robust, with a wider and shorter abdomen, as well as reduced and more colorful or even absent wings. Praying mantises are insects generally associated with camouflage and mimicry strategies. Furthermore, they have stereoscopic vision, that is, three-dimensional vision that allows precision in attacks. [1-12].

The order Mantodea is cosmopolitan in its distribution and is classified into 17 families, seven of which are found in the Neotropical region and six are recorded in Brazil: Acanthopidae, Chaeteessidae, Liturgusidae, Mantidae, Mantoididae, and Thespidae; Hymenopodidae, the other Neotropical family is found only in the Caribbean. Representatives of this

order can be found in all regions of the world and the most diverse environments, except Antarctica. Currently, they are considered the closest relatives of cockroaches, due to the indication of various morphological and genetic data[1-12].

Praying Mantis- Species

Insecta – Mantodea- *Apteromatis aptera* (Fuente, 1894).

Distribution: Species endemic to the Iberian Peninsula. It is found mainly in the south of the peninsula, being known in Portugal in the Algarve and Alentejo (Figure 4).

Figure 4. Insecta – Mantodea- *Apteromatis aptera* (Fuente, 1894). Source https://observation.org/species/240542/.

Habitat: This species occurs in areas of open forests, meadows, and extensive pastures, appearing to prefer areas with low vegetation.

Biology: Individuals of this species are active during the day and are generally observed on the vegetation where they wait for their prey. These praying mantises are generalist predators, varying their diet, based on arthropods, depending on the availability of local food. Adults are active between June and November and their clutches can reach 40 eggs.

Praying mantis - *Mantis religious* (Linnaeus, 1758)

Crushing mouth armor, long and slender antennae, large eyes, and 3 ocelli between the antennae. Long chest. The front legs are prehensile, with spines that help retain prey (Figure 5).

Figure 5. Praying mantis **-** *Mantis religious* (Linnaeus, 1758). Sources: SergioSanse and https://eu.community.samsung.com/t5/galer%C3%ADa-galaxy/mantis-religiosa/td-p/8241030.

Their speed is such that they can hunt flies in flight. Females are larger than males; Both are greenish or brownish, which allows them to often camouflage themselves in the substrate. Although they have wings, they are weak fliers; females fly worse than males. They are solitary animals. The female often eats the male during or after copulation, starting from the head, as the nerve ganglia that control copulation movements are the last abdominal ones. The eggs are deposited together with a foam that hardens, forming an ootheca that can contain between 200 and 300 eggs. People often think that praying mantises are pests. This is only partially true. Praying mantises are excellent pest exterminators. They keep the population of insects that are a threat to agriculture low (Figures 1-9). [1-12].

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