

Prolonged stadium and subsequent death of a praying mantis

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Subject: Praying mantis, *Odontomantis* cf. *planiceps* (Insecta: Mantodea: Hymenopodidae).

Subject identified by: Tiffany Q. H. Lum.

Location, date: Singapore, Coney Island (origin of subject); November 2017 to March 2018.

Habitat: Scrubland.

Observer: Tiffany Q. H. Lum.

Observation: A first instar *Odontomantis* cf. *planiceps* (Fig. 1) obtained from Coney Island was reared in the laboratory for 167 days. At its fifth instar, its growth was halted, and the animal subsequently developed a deeper bluish colour, especially on the raptorial forelegs. The green pigmentation on the mantis progressively became a deeper shade, and the antennae became shorter (Fig. 2). This male juvenile remained at the fifth instar for 111 days before dying from unknown causes.

Remarks: The praying mantis, *Odontomantis* cf. *planiceps*, is found in many parts of Singapore, often in shrubs and seem to adapt well to urban areas. When alarmed, it is quick to flee on its two pairs of walking legs (personal observation). The nymph bears a strong resemblance to an ant (Fig. 1) which it supposedly mimics. The author has observed that the growth stages of a typical male *Odontomantis* cf. *planiceps* consists of five juvenile instars, before the final moult to an adult with fully functional wings. Females go through six juvenile instars before their final moult.

The change in colour of the affected mantis (Fig. 2) is clearly observed when compared to a normally pigmented fifth instar that subsequently moulted into an adult (Fig. 3). This could be attributed to an individual genetic defect that has not been studied, unsuitable environmental conditions for growth and moulting, or possibly even an instance of infection. The environmental conditions in which the featured individual was reared seemed to have no major issues, as other individuals were able to grow successfully into adults.

Although there are as yet no studies on parasitism of mantises in Singapore, some research on this topic have been conducted elsewhere. Tachinid flies have been recorded to lay their eggs on juvenile mantises and the larvae then boring into the hosts' body (Young, 2009). Symptoms of this form of parasitism include delayed moults and swelling of the mantis's abdomens. The author has observed this particular type of infection in Singapore (unpublished data). As the featured mantis was frozen immediately upon death, there would be insufficient time for any possible parasites to emerge from the corpse.

A deeper green pigmentation has also been observed in *Odontomantis* cf. *planiceps* reared in a separate study (unpublished personal observations), when individuals undergo prolonged stadiums in response to poor rearing environments (Fig. 4).

It is vital to study the potential causes of such abnormal occurrences, as praying mantids play a vital role in supporting our ecosystem as predators. Potential efforts in supporting and protecting ecosystems should take into account the environmental conditions suitable for the mantises to thrive in, as predator loss is known to be closely linked to ecosystem damages (Schneider & Brose, 2013; Prugh et al., 2009).

The author is unable to confirm the identification of the featured mantis as keys for species delimitation of *Odontomantis planiceps* are not available for reference. Tentative identification is made from comparisons with a preserved specimen identified as *Odontomantis planiceps* in the Lee Kong Chian Natural History Museum at the National University of Singapore.



Fig. 1. First instar mimicry of an ant.
Approximate size: 5mm.



Fig. 2. Male fifth instar in prolonged stadium.
Approximate size: 13mm.



Fig. 3. Healthy fifth instar juvenile male.
Approximate size: 13 mm.



Fig. 4. Bluish-green coloured fifth instar juvenile with prolonged stadium lasting 4 months.
Approximate size: 13 mm.

Photographs by Tiffany Q. H. Lum

References:

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