PAPILIO DEMOLEUS

CITRUS BUTTERFLY

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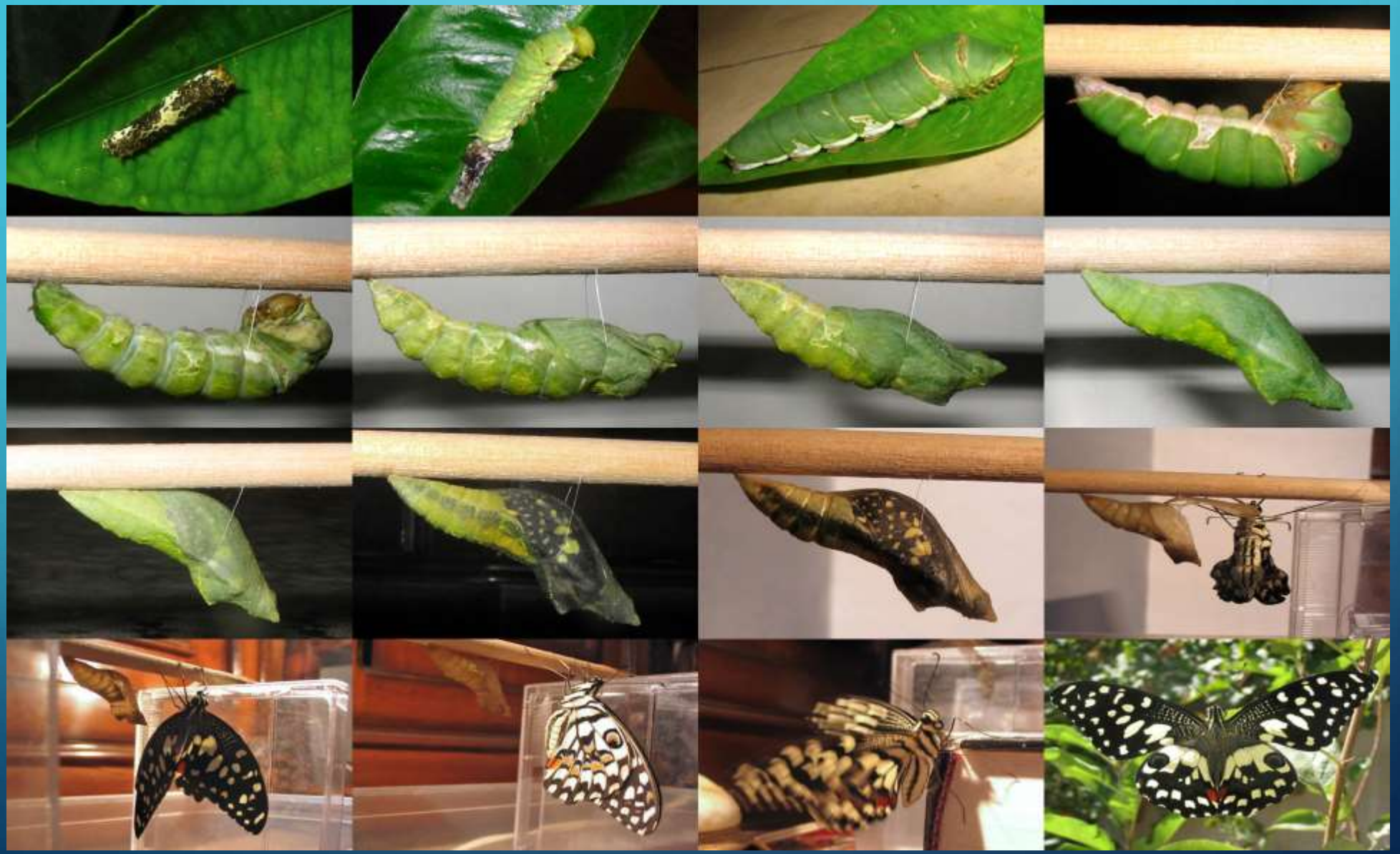
Papilio demoleus :

Papilio demoleus **is a common and widespread swallowtail butterfly. The butterfly is also known as the lemon butterfly and chequered swallowtail.[1] These common names refer to their host plants, which are usually citrus species such as the cultivated lime.**

Unlike most swallowtail butterflies, it does not have a prominent tail. When the adult stage is taken into consideration, the lime swallowtail is the shortest-lived butterfly, with male adults dying after four days and females after a week



Identification of pest:

- **Larvae:** Early stage larva resembles bird dropping. Grown up larva – cylindrical, stout, green and brown lateral bond
- **Adult:** Dark brown swallowtail butterfly with numerous yellow marking

First instar larva:

The newly hatched caterpillars were less spiny, cylindrical in shape, light brown to brownish black with dirty white marking on the dorsal side of the abdomen and resembled the bird droppings in appearance. Its thoracic region is broader than the rest of the body.

The mean body length and width of newly hatched caterpillars were 2.30 and 0.40 mm respectively on acid lime. The duration of first instar larvae lasted from 2.99-3.04 days with an average of 3.015 days.

Second instar larva: The second instar larvae were less spiny and dark brown in colour with a dirty white line present obliquely along lateral sides of the abdomen with a break on the dorsal side.

The mean body length, width and head capsule width of second instar larvae were 9.05, 2.6 and 0.85 mm respectively. The duration of second instar larvae ranged from 3.06-3.18 days with an average of 3.12 days.

Third instar larva: The third instar larvae resembled the second instar larvae in general appearance and colouration except in size. Mean body length, width and head capsule width of third instar larvae were 13.12, 3.7 and 1.54 mm respectively. The duration of third instar larva varied from 3.98-4.02 days with an average of 4.00 days

Fourth instar larva: The fourth instar larvae were almost black in colour with a little greenish tinge. Whitish bands were seen on meso and meta thoracic segments laterally, anterior part of the abdomen and on the last anal segments. It had two red coloured sacs or osmeteria opening in the first thoracic segment dorsally at the anterior position.

It emits foul smelling material which is defensive in function.The mean body length, width and head capsule width of fourth instar larvae were 25.00, 5.6 and 2.50 mm respectively on acid lime. The duration of fourth instar larvae were 3.17-3.33 days with an average of 3.25 days.

Fifth instar larva:

Fifth instar larvae were entirely different from the previous four instars in all aspects, they were yellowish green or green in colour. The fifth instar larva had characteristic brownish stripes on each of the eighth and ninth sternites with two semi-circular yellowish bands on the elevated portion of the body.

Head is pale green in colour. Two eye like spots were present on the second thoracic segment. A horn like structure was found on the dorsal side of the last body segment. The mean body length, width and head capsule width of fifth instar larvae were 40.76, 6.75, and 3.55 mm.

The duration of fifth instar larvae were 3.96-4.09 days with an average of 4.025 days. The prolegs will grasp onto the leaf and chew from the edge onwards with the help of its pairs of thoracic legs.

Body camouflage:

The caterpillars of the lime butterfly resembled as bird droppings (1st – 4th instar) and green leaves like its host plant (5th instar). (Plate 3) Its camouflage would trick potential predator into ignoring them as inanimate objects or hard to see.

Total larval period:

The duration of total larval period varied from 17.16 to 17.66 days with an average of 17.53 days and the butterfly had four generations in a year with a life cycle of 33.19 days.

Pre pupal stage: The mean length and width of pre pupa were 27 and 7.625 mm and duration of pre pupa varied from 1.02 to 1.06 days with an average of 1.04 days on acid lime.

Pupa: When the caterpillar is ready to pupate, it would orient itself to the wall with its head facing upwards and expelling its waste from the system. The pupa was initially green in colour and at the time of adult emergence it turns to brown colour

A slit was opened at the anterior portion of the chrysalis. The butterfly wiggled from the chrysalis and pushed itself away from the wall to free its 2 front legs.

After achieving that, it climbed out onto the silk pad or branch to dry its wings. It slowly expands and to dry its wings before fluttering off to feed. The mean length and width of pupa were 29.75 and 9.05 mm and duration of pupa varied from 8.82 to 9.20 days with an average of 9.01 days on acid lime.

Total life cycle:

The total life cycle of citrus butterfly, Papilio demoleus L. i.e from egg to adult ranged from 29.77 to 30.9 days with average periods of 30.33 days on acid lime.

References:

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