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Effect of Different Season on the Life Cycle of Dannus Chrysippus (L.) (Plain Tiger)

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Abstract:- Dannus chrysippus is also known as the plain tiger or African queen. The plain tiger is believed to be one of the first butterflies dissipated in art. . Butterfly laid eggs over all year. I worked on this to observe life cycle of butterfly. I observed life cycle in different season and trying to observe the developmental stages in different season. The life cycle of Dannus chrysippus was studied at my home by using leaves of milkweed plant as the larval host. The egg hatching, five stages of instar, and the emergence of butterfly from puppa were observed in home at 37°-42°c. The life cycle was completed in 28 days. The consumption of food increases from instar to instar. I observed that life cycle depends on temperature of that locality. In cold temperature, it requires long time to emerge butterfly from puppa.

Keywords:- *Dannus chrysippus, Instar, Puppa, Early life stages of life cycle, Effect of season.*

I. INTRODUCTION

Butterflies are the most important insects in the environment which are helpful to plants as well as humans. Butterflies are dependent upon plants for vegetation both as larvae and adults. Larvae feed on leaves of specific host plant. Suitable habitat is also important for butterflies reproduction. If the butterfly species are thoroughly understood it is possible to conserve them in their natural habitat.

Present study related to the Plain tiger(Dannus chrysippus) butterfly, describes its larval host plant, instar stages and butterfly emergence including their duration.

II. MATERIALS AND METHOD

A. Study Region

The present study was carried out in my home located in Ashta, Dist. Sangli during 2016 and 2017.The mean temperature is 37°-42°c during March-May. In rainy season from June-Saptember temperature is moderate.

Freshly laid eggs were spotted.and the plant material on which they were laid was plucked without damaging any part. Then the material was transferred in plastic box of 19cm length and 15cm width. The depth of box is 6.5cm. They were brought to the home at normal temperature 37°c. The hatched eggs and larvae was observed. Fresh leaves were offered as food for growing larvae. The number of instars was recorded. Observation of larvae as colour and size of each instars were recorded. As the larvae grew they require more food and space. Full grown larvae pupate and the duration of pupae was recorded. Duration of emergence of butterfly from puppa were recorded. Butterfly was release in wild and also the release date and timing were recorded.

B. Field observation

- *Adult Description*

Wingspan 70-80 mm. Both sexes pale orange with black marginal borders, and black upper side forewing tips having a sub-apical white band of elongated spots. Similar to Striped Tiger but without the bold outlines to veins. Three or four small black discal spots on both sides of Hind wing. Under side much paler. Thorax black with white spots. Upper side reddish brown with black borders in both wings and black apex in Fore wing. Forewing with variable number of white spot. Underside dull orange. Fore wing dark brown in the upper half with white spots in the black area and Hind wing with six black spots. Also known as the African Monarch, the African Queen. It is the commonest of all Indian butterflies and strongest flier of the geneus Danaus. Found throughout the year, Mimicked by Leopard Lacewing, Tamil Lacewing, Indian Fritillary and Female Danaid Egg fly.

- *Habit*

This butterfly is known to everyone. From dawn to dusk, it may be seen flying about in any garden, sitting on a flower for a moment to sip its nectar, and then moving on to the next blossom. In the evening, it flutters low among bushes or stems of grass to find a resting place for the night. Less frequently, the males can be observed sailing to and from with their scent brushed exposed trying to attract a mate. They appeared in open places, mostly near their oviposition host plants (milkweed). Slow flight close to the ground.

- *Nectar Plants*

The butterfly collected nectar present in the flowers of family Polygonaceae ,Apocynaceae, Bignoniaceae, Asteraceae.

- *Host plants*

The larval host plants of the of the butterfly is milkweed.

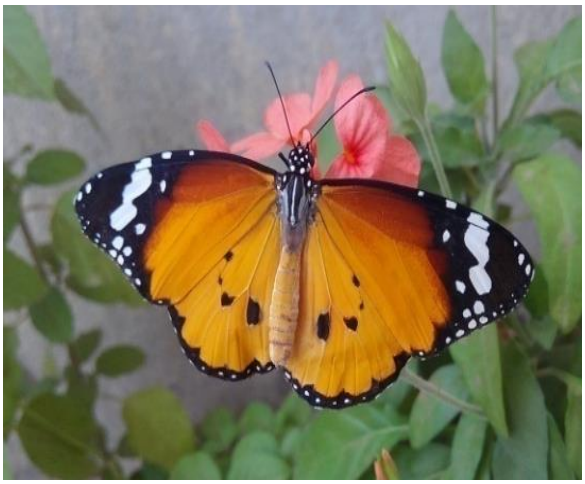

Fig 1:- Plane tiger butterfly

- *Result*

Egg stage(Fig.2)

On 3 March freshly laid eggs were spotted, and the plant material (leaves/twigs) on which they were laid, was plucked without causing any damage. The newly laid egg was dome shaped with longitudinal ridges. At deposition, it was white but change to cream colour in a day. The egg measured 1.00 mm . It hatched in 3 days of incubation. The larva immediately after emerging consumed its eggshell. It passed through five instars over a period of 15-17 days.

Larval Stage

Instar I (Fig.3): (6 March - 8 March)

It grew for 2 days and attained a length of 4 – 5 mm. Its body was yellow, with minute hairs on head and body. Head was black and wide with a pair of black horns. Yellow lines were present on the dorsal side longitudinal to the body.

Instar II (Fig.4): (9 March – 11 March)

It lasted 1– 2 days, and grew to a length of 7 – 10 mm. Body became totally green with black square shaped hea. Anal spines were black. There were well-developed longitudinal yellow lines dorsally, and a pair of thinner yellow lines present on each lateral side of the body. Body and head were rough and hairy.

Instar III (Fig.5): (12 March – 14 March

It grew for 1– 2 days and reached a length of 11 – 16 mm. Head was black, hairy, with two forked horns. It had white marks. There were well-developed dorsal and lateral yellow lines on the body, the dorsal pair extending up to the black anal spines. Segmentation was clear. There were no changes in other characters from the previous instar.

Instar IV (Fig.6): (15 March)

It also grew for 1 day; it was 16 – 21 mm long. Head grew to width and turned to reddish brown in colour along with the head horns. The white markings on head turned to cream in colour, well developed and triangular in shape. Anal spines developed orange colour dorsally. There were no changes in other characters from the previous instar.

Instar V (Fig.7): (16March - 18March)

It grew for 2 days and attained a final length of 26 – 34mm Anal spines were orange coloured with black tips. Body was completely hairy. It was rough dorsally and ventrally soft and light green in colour. Orange and dark blue to green coloured spots (three pairs each) were seen on dorsal yellow pair of lines. There were no changes in other characters from the previous instar.

Fig 2:- Egg of Plain tiger

Fig 3:- Instar I

Fig 4:- Instar II

Fig 5:- Instar III

Fig 6:- Instar IV

Fig 7:- Instar V

Stage	Length	Duration(Days)	Feed
Egg	1mm	3	-
First instar	4mm-15mm	2	Quarter of the quarter leaf
Second instar	7mm-10mm	1-2	Half of the quarter leaf
Third instar	11mm-16mm	1-2	More than quarter leaf
Fourth instar	16mm-21mm	1	Half leaf
Fifth instar	26mm-34mm	2	One leaf

Table 1. Biologycal Observation of early life stages of Danaus chrysippus

Pupal Stage (Fig.8-11)

On 19 March I saw pupa which was plane brownish yellow in colour. On the dorsal side, there were cream spots with red border, and on lateral sides red spots with yellow border. Ventral side was plain without any markings. This period is from 8-15 days. At the night of 27 march the pupa was transparent.

Emergence of butterfly (Fig.12)

On 28 March, at 6:30am butterfly emerge out from pupa**.** After two-three hours butterfly ready to fly.

Fig 8:- Prepupation stage

Fig 9:- Creemy puppa

Fig 10:- Greenish puppa

Fig 11:- Transparent puppa

Fig 12:- Emerging butterfly

III. CONCLUSION

After study the life cycle of Dannus chrysipuus for many times in different season I observed that the life cycle was depend upon the temperature and locality. The butterfly lay egg over all year. If the temperature is more cold then the puppa take long time for emergence of butterfly. In summer days heat is more, sometimes puppa get died i.e. fail to emerge butterfly.

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