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SCIENTIFIC NOTES

Hatching process time of the cabbage looper, (*Trichoplusia ni)* egg as new scientific point of insect life cycle stage

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Abstract

The cabbage looper (*Trichoplusia ni*) is a medium-sized moth in the family Noctuidae, a family commonly referred to as owlet moths. Its common name comes from its preferred host plants and distinctive crawling behavior. The cabbage looper eggs are generally yellow-white in color, dome-shaped, and patterned with ridges. They are 0.6mm in diameter, they are usually laid singly on leaves. In one day, 40-50 females can lay 1000-2000 viable eggs. Viable eggs hatch after about three days The first record is the hatching process time (hatching period) of fully developed embryo within the egg was firstly video recorded. The elapsed time interval from the start till the completion of hatching process was calculated for three video recorded shots for egg eclosions of the full mature embryos of the cabbage looper,ranged between 12:30 minutes with an average interval period amounted to 21 minutes after feeding on Cabbage plant leaves.

Key words: *Trichoplusia ni*, Biology, Hatching period, First record. Egypt

Introduction

This paper recorded the addition of the hatching process time (hatching period) of fully developed embryo as a new record to the biological life cycle. The cabbage looper, *Trichoplusia ni* (Lepidoptera: Noctuidae), is a serious pest of cruciferous plants such as cabbage, cauliflower, broccoli, and Brussels sprouts. The adult cabbage looper is a gray, mottled moth with a characteristic white or silver "Y" mark on each forewing. The larva is a smooth, greenish caterpillar with thin white lines on its back and sides. It crawls in a looping motion. Cabbage loopers are present nearly the entire growing season, McEwen, Hervey (1960) The cabbage looper also attacks carnations, nasturtium, lettuce, spinach, beets, parsley, potatoes, and tomatoes.

All cruciferous plants at all stages of growth are attacked by cabbage loopers, which are capable of completely defoliating plants. Larvae feed on the underside of developing leaves. Outer leaves become riddled with small irregular holes. If leaves are parted, masses of greenish-brown pellets of excrement are found at the bases of the leaves. Heads of cabbage and cauliflower are stunted.

Life Cycle

Eggs

The cabbage looper eggs are generally yellow-white in color, dome-shaped, and patterned with ridges. They are 0.6mm in diameter and 0.4mm in height, and they are usually laid singly on the underside of leaves. In one day, 40-50 females can lay 1000-2000 viable eggs. Viable eggs hatch after about three days, while unviable eggs fail to develop and collapse within that period. Eggs are mostly found on leaves that are both larger and higher on the plant. It is not clear why eggs are preferentially laid on these leaves**.**

Pupae

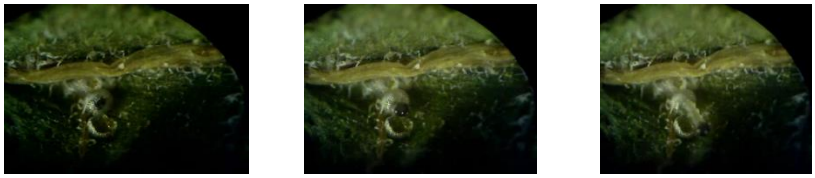
When they pupate, they attach to the undersides of leaves and form a silky cocoon. This stage can last 4–13 days, depending on the temperature of the environment Elsey , Rabb (1970). Male pupae are slightly larger than female.

Adult

The adult form is a moth with gray-brown front wings and light brown back wings. It is about 2.5 cm long and has a wingspan of 3.8 cm. Because they are nocturnal, adults spend their days protected by their host plants and begin activity 30 minutes before sunset. Males can be distinguished from females by light brown hairs that lie flat against their abdomen. Mating occurs 3 or 4 days after metamorphosis, during which 300-1400

eggs were oviposit. The longevity from egg to adulthood, in cabbage looper's life cycle is generally 24–33 days long (Capinera JL (2001) and (Shorey et. el. 1962).

The first record is the hatching process time (hatching period) of fully developed embryo within the egg was firstly video recorded (intellectual property). The elapsed time interval from the start till the completion of hatching process was calculated for three video recorded shots for egg eclosions of the full mature embryos of the cabbage looper. The calculated eclosion interval ranged between 12:30 minutes, with an average interval period amounted to 21 minutes after feeding on Cabbage plant leaves, at an average temperature of 27,3°C.



A B C

Hatching process by first author Rania S. Ammar (from the author video)

A: First stage of exit larvae during the hatching process time.
B: Second stage of exit larvae during the hatching process time.
C: Third stage of exit larvae during the hatching process time.

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