

Research Paper :

**Biology of maize stem borer, *Chilo partellus* (Swinhoe) Crambidae: Lepidoptera**  
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**SUMMARY**

The biology of maize stem borer was studied under laboratory conditions during *Khariif* 2007 at College of Agriculture Navile, Shimoga, revealed that the stem borer completed its life cycle in 30 to 69 days. The incubation period ranged from 3 to 6 days. The larval stage passed through six instars. The mean duration of I, II, III, IV, V and VI instar was  $4.80 \pm 0.78$ ,  $4.40 \pm 1.89$ ,  $5.30 \pm 1.88$ ,  $5.90 \pm 2.28$ ,  $6.10 \pm 2.37$  and  $8.30 \pm 2.21$  days, respectively. The total larval period ranged from 20 to 51 days. The pre-mating and mating period occupied  $9.15 \pm 1.40$  and  $5.04 \pm 0.70$  hours, respectively, oviposition period occupied  $4.2 \pm 0.63$  days. The stem borer had the fecundity rate of 262-657 eggs. The adult male and female lived for 3 to 8 days and 3 to 7 days with a mean of  $6.20 \pm 1.75$  and  $5.00 \pm 1.49$  days, respectively.

**Key words :**

Biology, Maize  
stem borer,  
Fecundity,  
Oviposition,  
Incubation period

Maize or corn (*Zea mays* Linn.) is one of the important cereal crops of the world, cultivated for food, fodder and for raw material in many industries. In many parts of the world, stem borer is an important pest of maize which possesses serious problem in the successful cultivation of maize in India. Newly hatched larvae feed on the leaves making pinholes and leaf windowing. They bore down inside the plant whorl and feed. While feeding in the plant whorl, they kill the central shoot, which later on dries up causing dead heart resulting total loss of the crop. Harris (1990) reviewed the literature, related to the biology of *Chilo partellus* in Indian conditions. Nesbitt *et al.* (1979) and Lwande *et al.* (1993). Scanty information is available on stem borer of maize. Keeping this point in view, the effective management the present studies were under taken at College of Agriculture Navile, Shimoga.

**MATERIALS AND METHODS**

A laboratory experiment was conducted to study the biology of *C. partellus* on maize (Kanchan hybrid – 517) genotype. The infested materials were collected from the field used for developing pure culture of the stem borer in the laboratory condition. Newly emerged male and female moths obtained from the mass culture were released in a plastic container along with circular pieces of leaves for

oviposition. Larvae hatched from these eggs were used for further studies.

**Larval study:**

Twenty five larvae were released individually on maize leaves in Petriplates. For the newly hatched I instar neonates, leaf bits were provided for feeding and later on stem pieces of maize were given. Every day stem pieces were replaced with fresh food. Observations were made twice a day (12 hrs. interval) to record the incubation, larval and pupal periods separately on maize. Male and female adults emerged on maize were allowed to mate separately and confined on leaf bits in Petriplates for egg laying. The eggs laid on maize were kept separately to record the incubation period. Morphological and morphometric characters of different stages in the life-cycle of the insect reared on maize were recorded.

**Longevity:**

Separate sets of ten pairs of moths were kept to record the adult longevity, pre-mating period, mating period, oviposition period and fecundity. Honey (10%) was provided as adult food. Adult longevity of both male and female moths with and without food (10% honey) was recorded separately. For this, ten pairs of male and female moths were released separately into

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