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Mating status of brinjal shoot and fruit borer *Leucinodes orbonalis* Guenee (Crambidae: Lepidoptera) male adults caught in sex pheromone traps

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ABSTRACT: Brinjal Shoot and Fruit Borer, *Leucinodes orbonalis* , is a major constraint in brinjal production. Investigation was taken up to understand the mating status of *L. orbonalis* male adults caught in sex pheromone trap. The genetalia of the male moths were examined for the presence of sperm cells and sperm bundles. The results indicated that 55.38 per cent of males caught in the trap were unmated whereas 26.15 per cent of them are partially mated and 18.40 per cent males are spent ones. The study indicated presence of *L orbonalis* male moths of different mating status in the pheromone catches. © 2018 Association for Advancement of Entomology

KEY WORDS: *L orbonalis,* Sex pheromone , Mating status

Brin-jal shoot and fruit borer, *Leucinodes orbonalis* Guenee (Crambidae: Lepidoptera) is a serious and destructive pest on brinjal crop cultivated in South and Southeast Asia. The larvae of *L. orbonalis* cause extensive damage both in vegetative and reproductive stages of the crop (Banerjee *et al.*, 2009). According to Rahman *et al.* (2009), among the different Integrated Pest Management (IPM) options available, the use of sex pheromone is a one of the prospective alternative to the sole use of chemical pesticides in brinjal crop. Sex pheromone is being widely used in *L. orbonalis* across different parts of the world (Peter *et al*., 2010). Information on the mating status of the male moths that are being attracted and trapped into sex pheromone trap either mated or virgin is not known. Keeping the above aspect in mind the present investigation was carried out in evaluating the mating status of *L. Orbonalis* male moths attracted to the sex pheromone lures.

For ascertaining the mating status of male adults caught in sex pheromone traps, the live moths trapped in the pheromone trap were dissected out for the spermatozoa content. The dissection and staining procedure reported by Mohmood and Reisen (1982) was followed. The live active male moth were killed with ether and dissected at under

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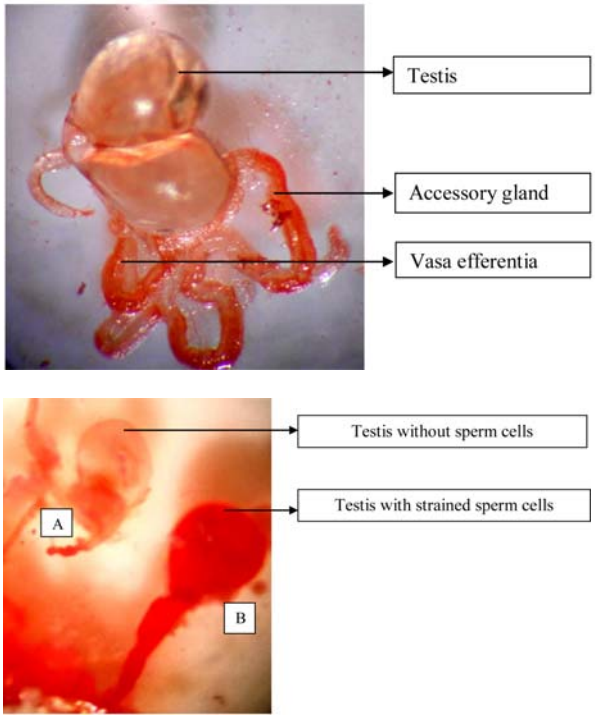
stereo-zoom microscope in magnification of 20-30X using minute nadelin inserted into wooden applicator sticks. The male internal genetalia was dissected out in saline (0.9 g NaCl/ litre) solution on a microscope cavity slides. The entire reproductive system was excised with one motion and care was taken not to break the vasa efferentia, while remaining the fatty tissues surrounding the reproductive system. The male moth collected from the trap catches were segregated as mated and unmated based on the presence or absence of sperm cells in sperm bundles in the genetalia. For better visualization of sperm bundles various strains like Congo red and Phenolphthalein were tried. The Congo red at 0.2 per cent was found most suitable (Figure 1).



A) Genetalia of spend male; B) Genetalia of unspend male

Fig. 1. Male reproductive system and matting status of *L. orbonalis*

Studies carried out on ascertaining mating status of the *L. orbonalis* male moth catches revealed presence of *L. orbonalis* male having different mating status besides 55.38 per cent unmated male. It is interesting to note that 26.15 per cent moths are partially mated and 18.46 per cent of moth completely spent (Table 1). The mating status to the male moths attracted to the pheromone trap revealed attraction of male maths of different mating status *viz*., unmated, partially mated and spent. The attraction of spent and partially spent male in the trap catches is the first kind of such report in *L. orbonalis*.

Table 1. Mating status of *L. orbonalis* male adults caught in traps

Male adults	No.	%
Total number of moth dissected	130	-
Moth having no sperm bundle	24	18.46
Moth having partially intact sperm bundles	34	26.15
Moth having sperm bundles intact	72	55.38

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