

CHAPTER- VI

6 CONCLUSION

Biotic factors

The results from this present study revealed the effect of different host plant on the growth and development of *S. litura*. Generally, shorter developmental times, higher reproduction rates, and low mortality of insects on a host indicate greater suitability of a host plant (Bale et al., 2002). This result on pupal duration was little similar with previous study reported by Shahout et al., (2011) where pupal duration was about 8.43 days when larva fed on soybean. Favetti et al., (2015) also revealed that pupal duration of *S. litura* when larva fed on soybean cultivar ranged from 10.5-11.2 days for female and 11.2-11.8 days for male, indicated longer than pupal duration in this present study. The biological parameters of *S. litura* including life cycle duration, larval weight, and the number of larval instars were studied towards assessing the suitability of hosts for the larvae of *S. litura*. The results were compared with similar parameters reported from other host plants especially castor, a plant that has been considered as the most suitable host for *S. litura*. Favourable results were obtained for all biological parameters of *S. litura* when the larvae were fed on tomato leaves. Moreover, the insect pest went through a normal life cycle without impaired morphological or during the process testing. From the results we can see the influence of biotic factors like host has influence on lifecycle of *Spodoptera litura*. When we change the host the days to complete life cycle will also changes.

Abiotic Factors

Our results are in larger agreement with those reported by Rao et al., (1989), who also did not get *S. litura* oviposition at constant high temperatures of 35°C and

37°C, however, only deviation that existed for low temperature of 15°C, where they reported egg laying. The studies by Rao et al., (1989) on the developmental effects of constant and alternating temperatures on *S. litura* addressed only the development rates and estimation of thermal constants. However, they did not consider the temperature-dependent immature mortality, adult senescence and female fecundity which are considered highly important in understanding pest population dynamic (Wagner et al., 1984). Rest of the studies that deal with estimating *S. litura* life table parameters were conducted using only single constant temperature (Hashmat M, 1977). From the results we can see the influence of abiotic factors like temperature and humidity on lifecycle of *Spodoptera litura*. When we reduce temperature and humidity the lifecycle was prolonged. This study can be helpful in predicting seasonal distribution of insect pests depending on the weather conditions. Also can be helpful for farmers to see when insect pest can invade the crop. So by this we can reduce the use of pesticides by correlating abiotic factors with pest of different crops.