



IMPACT OF DEFOLIATOR *HYBLAEA PUERA* AND SKELETONIZER *EUTECTONA MACHAERALIS* ON GROWTH OF TEAK

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ABSTRACT: The impact of defoliator, *Hyblaea puera* and skeletonizer *Eutectona machaeralis* on growth increment of teak was studied in the campus of Tropical Forest Research Institute, Jabalpur, Madhya Pradesh. Two experimental areas - completely protected with conventional insecticide monocrotophos 0.05% and unprotected (control) were established up to 5 years (June-November) in 5-10 years old root shoot raised teak plantation. GBH of each marked tree was measured before start the experiment and after annually to determine the normal growth pattern. The results revealed that the growth of teak trees in completely protected areas increased 17.76 cm and unprotected areas 14.04cm against defoliator/skeletonizer. The mean loss of 20.94% of potential growth was also recorded in 5-10 years old teak plantation in tropical forest ecosystem in Madhya Pradesh.

Key words: Defoliator, skeletonizer, teak, impact, growth

Citation: Meshram PB, Prakasham U, Singh Nahar, Malviya RK (2017) Impact of defoliator *Hyblaea puera* and skeletonizer *Eutectona machaeralis* on growth of teak. Indian J Trop Biodiv 25(2): 236 - 238

Received on : 19 Jul. 2017
Accepted on : 12 Sep. 2017
Published on : 30 Dec. 2017

Teak, *Tectona grandis* L.f. is a highly valuable and undoubtedly the most promising of multipurpose timber species of commercial importance. It is also extensively planted by state forest departments, forest development corporations and private tree growers to meet the increasing demand of high quality timber. A lot of emphasis has been placed during the last few decades on the tree improvements programme in teak for increasing productivity and quality of timber and to shorten the rotation period.

Teak, one of the most extensively studied timber species for entomology and has a rich complex of insect fauna suffers assiduously from insect damage. Nearly 294 insects have been identified on teak. About 141 defoliators have been recorded on teak. Among all, teak defoliator, *Hyblaea puera* Cram. (Lepidoptera: Hyblaeidae) and skeletonizer, *Eutectona machaeralis* Walk. (Lepidoptera: Pyralidae) are recognized as major insect pests of economic importance. Larvae of defoliator *H. puera* feed on the leaves leaving only the major veins. In teak forest of Madhya Pradesh the most active period is July-August. Its abundance varies from locality to locality and also from year to year due to topographical condition and varied climatic factors. These factors might play an important role in controlling population dynamics of this pest. The first major population built up of *H. puera* occurs during the pre monsoon, anywhere from late March to May in Kerala

and in July in Madhya Pradesh. The infestation of *H. puera* is influenced by the direction of monsoon and the migration of adult insect shows clear relation to the movement of south-west monsoon. Larvae of skeletonizer, *E. machaeralis* in central India are visible in late July, when the larvae have sufficient amount of teak leaves to feed. The population build-up of this insect reaches its peak in September during the monsoon rains and causes damage like epidemic defoliation every year to teak. The most active period of *E. machaeralis* is September in teak forest in Madhya Pradesh. Epidemic infestation of *E. machaeralis* has been reported to occur in southern India towards the end of growing season of teak and low level of infestation in May – June. Moreover, these key insect pests overlap upon one another during the month of August on teak.

The effect is thus the resultant economic loss which has been a subject of much speculation and debate as well as a few serious studies. According to Champion (1934), three complete stripping of a young teak crop in one season cause a loss of 65% of the normal increment. During the short period of heavy and complete defoliation, the loss of increment is estimated (by Beeson, 1941) to be 13% of the normal current annual increment and that during the rest of the year the loss is negligible. Nair et al. (1985) reported natural defoliation by *H. puera* which caused an average loss of 44% of the potential volume increment in 4-9 years old teak plantations in Kerala. The state forest departments