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Short communication

STUDY OF LEAF DAMAGING BEHAVIOUR OF THE LARVAE OF *ALSTONIA* LEAF FOLDER, *PAROTIS MARGINATA* (HAMPSON) IN FIELD CONDITION

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ABSTRACT : Leaf damaging behaviour of Alstonia leaf folder was studied in the campus plantation of Birsa Agricultural University, Ranchi as well as road side plantation sites in and around Ranchi, Jharkhand for a couple of years. It was observed that larvae were solitary feeder i.e. they constructed their shelters singly by folding alstonia leaves and ate inside. Maximum damage was noticed in young plantations in the month of August even sometimes leaf folder infestation caused complete defoliation. A brief account of management practices is also discussed.

Key words : *Parotis marginata*, larval behaviour, solitary feeder.

Alstonia scholaris (L.) is a glabrous, elegant; medium to large sized evergreen avenue tree belongs to the family Apocynaceae and commonly called as Saptaparni because of seven digitate leaflets arising from the end of stalk of a palm shaped leaf. It is also called Indian Devil's tree and avoided by the animals because of its poisonous nature. It is known to be a rich source of alkaloids and there is a interest among the scientist to use it for therapeutic purpose (Goyal and Varshney, 1995). It has a special relevance for planting in parks, gardens and inside lawns. It is planted along expressway, major roads and in urban landscapes as an ornamental tree because of its attractive growth form and tolerant of a wide range of soil type from waterlogged to drier condition. It is recommended for road side plantation in city areas and comparatively less affected to automobile pollution of the city. (Shafiq and Iqbal, 2003). It is the fact that this tree is very prone to different insect pest infestation but severe and significant damage is caused by a leaf eating polyphagous lepidopteron insect commonly called as Alstonia leaf folder, *Parotis marginata* (Hampson) in both nursery as well as young plantation in India and Bangladesh (Beeson, 1941; Ahmed *et al*, 1974; Chattopadhyay, 2013). Records of its infestation were also reported on the foliages of *Bombyx ceiba, Rauvolfia* sp., *Adina cordifolia* from India (Robinson *et al*, 2010). Its defoliation was also observed on tea (Shah and Mitra, 2015).

During the regular survey of foliage damaging insects in the tree plantation areas of Birsa Agricultural University campus, Ranchi (23.18 ^{o} N, 85.19 ^{o} E; alt. 625 MSL) and other plantation sites especially road side areas in and around Ranchi, Jharkhand, severe foliage infestation of *Parotis marginata* (Hampson) on Alstonia trees was noticed in young plantations for a couple of years and sometimes damage was exhibited by leafless or scorched / burned look. However, no sincere efforts were made to study the foliage damaging aspects of this lepidopteron insect pest. Keeping in view the damage potentiality of this insect, the nature of damage and larval feeding behaviour were studied in nature so that suitable management strategy can be formulated.

During investigation for the last three years, noticeable leaf infestation and occurrence of larval feeding of Alstonia leaf folder was observed from June second fortnight to second fortnight of October. Infestation started in the apical whorl of leaves just after sprouting and the newly hatched larvae were found to feed gregariously on the tender leaves by scraping the epidermal surface imparting irregular mesh like appearance to the apical leaves (Fig. 1a and 1b). Young larvae were found to construct their shelters by folding the leaves longitudinally starting from the sub-apices of the leaves and after folding the leaves they tied the lateral margin together with silk (Fig. 1c). They were observed to live and feed inside the folded leaves and after

Fig. 1a, 1b, 1c, 1d, 1e: Stages of leaf infestation by *Alstonia scholaris* larvae.

Fig. 2 : Larva of *Alstonia scholaris*.

Fig. 3 : Severe infestation resulting burned look (3a) or leafless (3b).

consuming half of the leaf tissues, they gave up the old leaves and made new ones. Late aged larvae (Late 3rd inster onwards) were found to be very active and they tied the lateral margin of the entire leaf together with the silk (Fig. 1d). After consuming the entire epidermal tissue they vacated the old leaf folds and constructed another leaf fold and continued till their maturity. Larvae were found singly in the folded leaves and sometimes they made their shelter by spinning two leaves together (Fig. 1e). It was also noticed that the mature larvae constructed their shelter by spinning three to four leaves together in a congregated fashion and they ate in their shelter and pupated. After opening the several lead folds it was seen that only one larva along with its fecal matter was found in each fold which indicated that alstonia larvae are solitary feeder (Fig. 2). During heavy infestation, almost all the leaves were affected and dried leaves were found hanging from the shoots exhibiting scorched burn look (Fig. 3a). Maximum damage by the larvae was noticed in the month of August when all the dried leaves dropped down due to heavy rain making the younger trees leafless (Fig. 3b). As infestation started in the apical whorl of tender leaves, regular monitoring of the alstonia leaf folder infestation and hand picking of initially infested tender leaves with the larvae of leaf folder and their destruction can reduce the severity of infestation. Furthermore works on formulating suitable management strategy has been taken into account.

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