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Short Communication

Relative Appearance of Important Insect Pests on Select Genotypes of *Tecomella undulata* (Sm.) Seem at Jodhpur

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'Rohida', *Tecomella undulata*, popularly known as Marwar teak or Desert teak, is one of the most important timber trees in the Indian arid zone. With its slow but successful growth, even in extreme drought and famine conditions, the demand for its celebrated timber has always been on the increase.

The leaves, containing about 60% moisture, are browsed by various wild and domesticated animals during summer. Consequently, the population of this species has decreased drastically in the last few decades, and it is now in the list of threatened species (Pandey *et al.* 1983, Saxena 1993). Efforts for its genetic and breeding studies have but begun only recently (Jindal *et al.* 1985, Prakash & Sen 1987, Upadhyay 1991).

Of the various limiting factors in the successful establishment and growth of *T. undulata* in the arid zone of Rajasthan, the insect pests are the most important. Very few reports are available on the extent of damage and management of important pests, viz., the stem borer, *Stegmatophora* sp., the leaf skeletonizer *Ptialus tecomella,* and the flower aphid, *Aphis craccivora*. Implication of pest management aspects, at the selection and breeding level, is of paramount importance in agroforestry systems wherein chemical pesticides are to be contained on account of costs and limits of feasibility.

Therefore, studies were undertaken at the Central Arid Zone Research Institute, Jodhpur, on the relative incidence of the three important pest species on 11 best genotypes out of 30 reported by Jindal *et al.* (1985). Observations were recorded on 42, 9-year-old plants for each genotype. Fourteen plants, in two rows of 7 each, constituted one replicate and there were 3 replicates in a randomized block design for each genotype. For *Stegmatophora*, per cent infestation of 50 small branches per tree during April was the parameter; for leaf skeletonizer, percentage of leaves damaged, as well as the total number of grubs of the weevil per plant were counted in January. In case of *Aphis craccivora*, the standard Aphid Infestation Index (Anonymous 1982) was recorded in December.

There was a slight increase in the appearance of the stem borer infestation in 1993-94 (Table 1), except a marginal decline of 0.4% in TU-109, due probably to sampling error. The mean range of per cent infestation by *Stegmatophora* was 2.4 in TU-189 (Jodhpur) to 7.0 in TU-109 (Barmer). The only genotype completely free from the attack of the stem borer (TU-74) was from Rawatsar (District Barmer). A comparatively good growth exhibited by this genotype, indicated the significance of stem borer infestation in the overall slow growth and poor vigour of the Rohida plants.

No genotype showed any appreciable promise against the grubs of the leaf skeletonizer weevil, *Ptialus tecomella*. The range of per cent foliar infestation was high (57.0 to 94.0) in all the genotypes on account of the presence of 44.0 to 70.5 grubs per plant during January. This high level of infestation by the pest gives a very sick and devastated look to the plants left with little to contribute to wood production by adverse effect on the photosynthesis. The brunt is severe as the forthcoming harsh summers further affect the vitality of the plants. The per cent Aphid Infestation Index was in the narrow range of

Table 1 *Relative infestation of different genotypes of Tecomella undulata by major insect pests at Central Arid Zone Research Institute, Jodhpur*

Acc No.	Source village	*Stegmatophora sp.* % branches infested			*Ptialus tecomella* % Leaves infested			*Ptialus tecomella* No. grubs/plant			*Aphis craccivora* Aphid Infestation Index		
		'92–93	'93–94	Mean	'92–93	'93–94	Mean	'92–93	'93–94	Mean	'92–93	'93–94	Mean
						Source District : Jodhpur							
JUF	Jodhpur	4.0	5.7	4.8	89.0	83.0	86.0	62.0	58.0	60.0	4.1	3.2	3.6
TU-189	Haikhala	1.9	2.9	2.4	64.0	71.0	67.0	49.0	45.0	47.0	1.7	3.2	2.4
TU-3	Mogra	2.0	3.4	2.7	67.0	71.0	69.0	58.0	51.0	54.5	3.5	4.7	4.2
						Source District : Barmer							
TU-106	Chohattan	2.9	3.2	3.0	64.0	57.0	60.5	50.0	48.0	49.0	2.9	3.2	3.0
TU-109	Chohattan	7.2	6.8	7.0	95.0	86.0	90.5	70.0	71.0	70.5	5.1	4.8	4.9
TU-35	Kaludi	2.4	2.6	2.5	60.0	75.0	67.5	50.0	49.0	49.5	2.1	3.1	2.6
TU-59	Kaludi	4.5	5.5	5.0	62.0	71.0	66.5	47.0	41.0	44.0	2.8	2.7	2.7
TU-60	Kaludi	2.4	2.8	2.5	92.0	96.0	94.0	58.0	67.0	62.4	5.3	4.0	4.6
TU-74	Rawatsar	0.0	0.0	0.0	80.0	75.0	77.5	52.0	52.0	52.0	3.4	4.6	4.0
TU-81	Rawatsar	6.8	6.9	6.8	67.0	65.0	66.0	48.0	50.0	49.0	2.1	3.4	3.2
TU-95	Salonre Ka Tia	2.7	2.9	2.8	82.0	96.0	89.0	68.0	68.0	68.0	4.2	3.7	3.9

2.4 to 4.6, indicating the reaction of different genotypes to be at par against *A. craccivora*, the only aphid species recorded so far in our collections. Rohida plants appear to be incidental hosts for this species during December, when host cross over takes place in a number of pest species, in the face of *kharif* harvest.

The study establishes the importance of selection of fast growing, as well as stem borer tolerant or resistant genotypes, for breeding and multiplication purposes and implies the need for the management of leaf skeletonizer, through applied control measures.

References

Anonymous 1982 Methodology to be adopted for aphid infestation index. *Proceedings of the Annual Rabi Oilseeds Workshop of Rapeseed-Mustard, Safflower and Linseed.* I.A.R.I., New Delhi, August 9-13, 1982

Jindal SK, Kackar NL & Solanki KR 1985 Evaluation of *Tecomella undulata* (Sm.) Seem germplasm from western Rajasthan *in situ*. *Transactions of Indian Society of Desert Technology* **10** 33-37

Pandey RP, Shetty BV & Malhotra, SK 1983 A preliminary census of rare and threatened plants of Rajasthan. In : S K Jain and R Rao (Eds) *An Assessment of Threatened Plants of India*. Botanical survey of India. Botanic Garden, Howrah, pp. 52-62

Prakash BSV & Sen DN 1987 Floral variations and seed viability in *Tecomella undulata* in Indian desert. *Annals of Arid Zone* **26** 281-286

Saxena VS 1993 Propagating non-traditional species in plantations. *Proceedings of Workshop on Tree Improvement and Provenance Research*. Department of Forests, Government of Rajasthan, Jaipur pp. 135-145

Upadhyay AK 1991 Performance of various species in canal side plantations in IGNP stage III. *Proceedings of the Seminar on Afforestation of Arid Lands*. AFRI, Jodhpur, pp. 1-6