

Screening of Various Provenances of Karanj, *Pongamia pinnata* Against Leaf Skipper Butterfly, *Hasora chromus* at Raipur (C.G.)

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Abstract

Studies on the screening of six provenances of Karanj, *Pongamia pinnata* against the leaf skipper butterfly or the common banded awl, *Hasora chromus* (Lepidoptera: Hesperidae) conducted at Raipur, Chhattisgarh during 2013-14 resulted that maximum population of *H. chromus* was observed in the provenance Jabalpur and minimum population was observed in the provenance Ambikapur during the period of observation i.e. August to April. Other provenances like Raipur, Nainpur and Zaheerabad showed intermediate population of *H. chromus*. It can be concluded that Jabalpur provenance was more susceptible while Ambikapur provenance showed some tolerance against the attack of *H. chromus*.

Keywords: Screening, Common Banded Awl, Karanj And Provenance.

Introduction

Karanj, *Pongamia pinnata* L. Pierre (Family: Leguminosae) is a medium sized glabrous tree. It grows easily from seed. Historically, this plant has long been used as a source of traditional medicines, animal fodder, green manure, timber, fish poison, fuel and also used as source of biodiesel. *P. pinnata* has an added advantage of nitrogen fixing ability and drought resistance due to its nodulation properties. (Sangwan et al. 2010). The tree is known for its pesticidal property but attacked by a number of insect pests which deteriorates the overall vigor and oil yielding capacity of the tree (Prakash and Rao, 1997). As other crops and trees, Karanj, *P. pinnata* is also attacked by a number of insect pests like leaf defoliators, leaf webbers, leaf gall maker, blotch miner, bark feeding caterpillars, plant sucking bugs and pod feeders etc. Among these the leaf skipper butterflies also known as the common banded awl, *Hasora chromus* was observed as one of the serious pests found in large numbers causing heavy defoliation. Practically, no work has been on the entomological aspects on the bio-diesel yielding leguminous tree so far in the state, hence the present work was under taken to record and estimate the damage caused by various insect pests at various levels of the tree canopy.

Aim of the Study

To screen different provenances of karanj, *Pongamia pinnata* against one of its major insect pest, *Hasora chromus*.

Materials and Methods

The present studies were conducted from August, 2013 to April, 2014 at the Agro-forestry farm, College of Agriculture, IGKV, Raipur (C.G.). For taking observations, the whole experimental field of Agro-forestry system was divided into 6 blocks, each block consisting of 18 trees of karanja, *P. pinnata*. Observations were recorded on the various types and number of insect pests and their related natural enemies at fortnightly intervals from each block on three randomly selected trees on two randomly selected branches at lower and upper canopy levels.

The experiment was conducted in Randomized Block Design with 6 provenances each replicated three times.

Design	Randomized Block Design
No. & Name of provenances	6 namely Raipur, Ambikapur, Jabalpur, Nainpur, Zaheerabad, Keesaragutta
Replication	3
Tree spacing	6 x 6 meter
Plot size	90 x 40 m ²
Plantation	20.09.2009

Results and Discussion

The larvae of *Hasora chromus* was observed as a major defoliator of karanja, *P. pinnata*. Larvae folded leaves and fed within it, particularly on young and tender leaves. The larvae measured about 1.5 to 35 mm. in length with typically cylindrical in shape with yellowish brown body which later became pinkish brown having a number of short setae. The head was large, black with four white stripes on the dorsal side toward the prothorax up to last abdominal segment of the body (Plate: 1 & 2). Sahu et al. (2014) Studies on the biology of the common banded awl, *Hasora chromus* on karanj, *P. pinnata* revealed that the eggs are laid singly or in small groups of 2-3 on young shoots. The neonate larvae folded leaves of young plants and fed within. The pre-pupa attached itself to the rolled leaf by silk threads to seal the pupation shelter and period lasted for 1-2 days. Adult butterfly was brownish black in colour and the wings of male butterfly are unmarked whereas the female butterfly had two spots on both side of the fore wings. The total life cycle was completed in about 34-36 days.

In present studied the data indicates that the activity of the pest was observed from the 1st fortnight of August to 1st fortnight of September, 2nd Fortnight of 1st fortnight of to 2nd Fortnight of December in all the provenances. No population of the larvae was observed after 2nd Fortnight of September to 1st fortnight of November and from last week of December to 1st Fortnight of April during the period of observations. As far as the maximum population of common banded awl, *H. chromus* was observed in the provenance Jabalpur which was recorded as 17.00 larvae/ twig and minimum population was observed in the provenance Ambikapur to be of 5.67 larvae/ twig during the period of observation i.e. August to April. Other provenances such as Raipur, Nainpur and Zaheerabad showed intermediate population of *H.chromus*. Hence, it can be concluded that Jabalpur provenance was more susceptible while Ambikapur provenance showed some tolerance against the attack of *H. chromus*.

Conclusion

Thus, from the above studies it can be concluded that among the six provenances of Karanj, *P. pinnata* tested against one of its major pests, *H. chromus* revealed that that Jabalpur provenance was more susceptible while Ambikapur provenance showed some tolerance against the attack of *H. chromus*.

References

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Plate 1: Adult of *H. chromus*



Plate 2: Larva of *H.chromus*

Remarking An Analisation

Table 01: Population of Leaf Skipper Butter Fly, *Hasora chromus* On Various Provenances of Karanj, *Pongamia pinnata*

S. N.	Name of provenances	18-Aug	02-Sep	17-Sep	02-Oct	17-Oct	01-Nov	16-Nov	01-Dec	16-Dec	31-Dec	15-Jan	30-Jan	14-Feb	01-Mar	16-Mar	31-Mar	15-Apr	Total	Mean
1.	Raipur	4.33	0.50	0.00	0.00	0.00	0.00	0.33	0.33	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.08	1.68
		2.31	1.21	1.00	1.00	1.00	1.00	1.15	1.15	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
2.	Ambikapur	2.00	0.33	0.00	0.00	0.00	0.00	0.50	1.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.67	0.33
		1.73	1.14	1.00	1.00	1.00	1.00	1.21	1.61	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
3.	Jabalpur	3.83	1.00	0.00	0.00	0.00	0.00	3.17	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.00	1.00
		2.27	1.41	1.00	1.00	1.00	1.00	2.04	1.66	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
4.	Nainpur	2.08	0.25	0.00	0.00	0.00	0.00	1.50	2.16	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.74	0.54
		1.74	1.11	1.00	1.00	1.00	1.00	1.58	1.77	1.21	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
5.	Zaheerabad	3.67	0.17	0.00	0.00	0.00	0.00	1.17	2.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.75	0.71
		2.15	1.15	1.00	1.00	1.00	1.00	1.63	1.72	1.32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
6.	Keesaragutta	3.25	0.33	0.00	0.00	0.00	0.00	3.17	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.00	2.20
		2.06	1.14	1.00	1.00	1.00	1.00	2.03	1.41	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
	SEm±	0.07	0.10	-	-	-	-	0.13	0.11	0.06	-	-	-	-	-	-	-	-		
	CD(5%)	0.23	-	-	-	-	-	0.41	0.36	0.21	-	-	-	-	-	-	-	-		
		12.00	1.30	-	-	-	-	8.89	4.22	4.43	-	-	-	-	-	-	-	-		