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Beneficial and harmful fauna associated with Sarpagandha (*Rauvolfia serpentina*) in Odisha

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Abstract

A field experiment was laid out in All India Coordinated Research Project on Medicinal and Aromatic Plants & Betelvine (AICRP on MAP and Betelvine), Central Horticultural Research Station, Odisha University of Agriculture and Technology (OUAT), Bhubaneswar during January, 2018 to March, 2019 to study the occurrence of insect pests and natural enemies associated with Sarpagandha (*Rauvolfia serpentina*). Apart from major pests and like Sphingid, scales, mealy bugs, green stink bug, Gundhi bug and Red spider mite two more naturally occurring natural enemies i.e. spiders and coccinellid beetles. This present study can be helpful for prediction of pest predator occurrence and predator utilization in the future.

Keywords: Brinjal, production. nursery, demonstration etc.

Introduction

Sarpagandha, *Rauvolfia serpentina* (Benth.) a perennial medicinal plant of family Apocynaceae is indigenous to the moist, deciduous forests of South-East Asia including Burma, Bangladesh, Sri Lanka, Malaysia, the Andaman Islands and Indonesia. Most of the drug is obtained from wild sources in these countries. Odisha state has a great potential to produce large quantity sarpagandha where richest diversity areas are found in districts of Rayagada, Sambalpur, Malkangiri, Koraput where 136 sarpagandha plant species are known to occur. The insect pest scenario in sarpagandha comprises of defoliator (*Deilephila nerii*), gundhi bug (*Leptocoris oratorius*), weevil (*Indomia cretaceous*), grasshopper (*Trilophida annulata*), dark brown hawk moth (*Psilogramma menephron*), leaf roller (*Glyphodes suralis*), green stink bug (*Nezara viridula*), scales, mealy bug and mite including a species of snail. Natural enemies like spiders and lady bird beetles are also found in association of these pests. In Odisha no in depth studies have been taken in last past days. But few workers have initiated the preliminary work on insect pests infesting medicinal plants for which the experiment has been conducted to study the incidence of insect and non insect pests and predators associated with Sarpagandha.

Material and Methods

A field experiment was laid out in All India Coordinated Research Project on Medicinal and Aromatic Plants & Betelvine (AICRP on MAP and Betelvine), Central Horticultural Research Station, Odisha University of Agriculture and Technology (OUAT), Bhubaneswar located at 20° 15' North latitude and 85° 52' East longitude with an elevation of 25.5 meters above the mean sea level (MSL) during January, 2018 to March, 2019 to study the occurrence of insect pests and natural enemies associated with Sarpagandha (*Rauvolfia serpentina*). In the present investigation a local variety of Sarpagandha was taken for experiment in a slightly acidic brown sandy loam soil.

Result and Discussion

Field experiment carried out at the Central Horticultural Research Station, Odisha University of Agriculture and Technology, Bhubaneswar from January, 2018 to March, 2019 in sarpagandha (*Rauvolfia serpentina*) resulted that a total of different types of major pests and natural enemies were associated with the crop under observation. Those major pests are Sphingid (*Deilephila nerii*), Scales (*Chrysomphalus aonidum*), Mealy bugs (*Planococcus citri*), Green stink bug (*Nezara viridula*), Gundhi bug (*Leptocoris oratorius*) and Red spider mite (*Tetranychus urticae*). (Table 1)

Rehman *et al.* (2018) found that Sphingid, *D. nerii* was defoliating the leaves of sarpagandha with population of 0.60 larvae per plant. Similar observations were being taken by

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Kulkarni *et al.* in 2008^[1] in Sarpagandha and Nirmal *et al.* (2015)^[4], Ramanna (2009)^[2] and Kumar (2007)^[5, 6] in Aswagandha. Ramanna (2009)^[2] recorded the incidence of *N. viridula* on sarpagandha.

Observations on mealy bug and red spider mite population were recorded from two leaves each at the top, middle and bottom canopy. Mealy bug population was also recorded from

the twig. Population on scale insects was recorded from 10 cm of terminal twig of each plant. The population on other pests mentioned earlier was taken from five randomly selected plants and average per plant was calculated. The population was counted visually and by using a lens having magnification of 30X.

Table 1: Taxonomic position of the insect pests studied during investigation

Pests	Scientific name	Family	Order
Sphingid	<i>Deilephila nerii</i> Linnaeus	Sphingidae	Lepidoptera
Scale insect	<i>Chrysomphalus aonidum</i> Linnaeus	Diaspididae	Hemiptera
Mealy bug	<i>Planococcus citri</i> Risso	Pseudococcidae	Hemiptera
Green stink bug	<i>Nezara viridula</i> Linnaeus	Pentatomidae	Hemiptera
Gundhi bug	<i>Leptocoris oratorius</i> Fabricius	Alydidae	Hemiptera
Red spider mite	<i>Tetranychus urticae</i> Koch	Tetranychidae	Trombidiformes

Apart from the harmful pests, some beneficial natural enemies like spiders and coccinellid beetles present in each subplot were recorded. Three ladybird beetles i.e. Ladybird beetle (*Micraspis discolor*), Transverse lady beetle (*Coccinella*

transversalis) and Six-spotted zigzag ladybird beetle (*Cheilomenes sexmaculata*). Two important spiders observed were Green lynx spider (*Peucetia viridans*) and Striped lynx spider (*Oxyopes salticus*). (Table 2)

Table 2: Taxonomic position of the natural enemies involved during investigation

Natural enemies	Scientific name	Family	Order
Transverse lady beetle	<i>Coccinella transversalis</i> Thunberg	Coccinellidae	Coleoptera
Ladybird beetle	<i>Micraspis discolor</i> Fabricius	Coccinellidae	Coleoptera
Six-spotted zigzag ladybird beetle	<i>Cheilomenes sexmaculata</i> Fabricius	Coccinellidae	Coleoptera
Green lynx spider	<i>Peucetia viridans</i> Hentz	Oxyopidae	Araneae
Striped lynx spider	<i>Oxyopes salticus</i> Hentz	Oxyopidae	Araneae

Conclusion

Present investigation concludes

Reference

- Kulkarni SS, Naik KV, Jal gaonkar VN, Rege AV. Survey of pest infestations on the important medicinal plants of Konkan region of Maharashtra. *Pestology*. 2008; 32:31-33.
- Ramanna D. Investigations on pest complex of medicinal plants and their management with special reference to ashwagandha, *Withania somnifera* (Linn.). M.Sc. (Ag) Thesis, University of Agricultural Sciences, Dharwad, 2009, 88.
- Ramanna D, Prasad K, Goud KB. Investigations on pest complex of medicinal plants and their management with special reference to Ashwagandha (*Withania somnifera* Linn.), *Karnataka Journal of Agricultural Science*. 2010; 23(1):1971-1999.
- Nirmal A, Jayaram CS, Ganguli JL, Tirkey A. Scenario of insect pests on Ashwagandha (*Withania somnifera*) in the plains of Chhattisgarh. *Insect Environment*. 2015; 20(4):142-143.
- Kumar HR. Survey of pests of medicinal plants with special reference to biology and management of Epilachna beetle, *Henosepilachna vigintioctopunctata* Fabricius (Coleoptera: Coccinellidae) on Ashwagandha. *M.Sc. (Agri.) Thesis*, submitted to University of Agricultural Science, Dharwad, 2007, 83-86.
- Kumar V, Chandrashekar K, Sidhu OP. Synergistic action of neem and karanj to aphids and mites. *Journal of Entomological Research*. 2007; 31:121-124.