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Orginal Article

Annotated list of insect pests of *Vateria indica* L.

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Abstract

An annotated list of insects infesting *Vateria indica* L. is given in the paper. It includes 42 species of insect pests in which the presence of two species of sap suckers viz., *Coptosoma* sp. and *Krishna* sp., four species of defoliators viz., *Clytra* sp., *Gryllus* sp., *Isodemis serpentinana* (Walker) and *Nanophyes* sp. and an unidentified curculionid beetle on fruits and seed form first record on *V. indica.*

Keywords: *Vateria indica, insects, Western Ghats*

INTRODUCTION

Vateria indica L. (Syn. *Vateria malabarica,* Blume -Dipterocarpaceae), commonly known as Indian copal tree is endemic to peninsular India in the Western Ghats. It is an evergreen tree, habituated in moist deciduous, semi-evergreen and evergreen forests covering the states of Karnataka, Kerala and Tamil Nadu. Throughout its zone of distribution, the tree is found not only in the ghats but also on the tableland of Deccan and along Arabian Sea coast; its altitudinal range of distribution extending from about 200 ft up to 4000 ft. It forms nearly 90% of tree crops in certain localities adjoining streams (Kadambi, 2007). The tree is moisture-dependent and shade tolerant. It grows well in damp and rich soils with free drainage. The tree attains height up to 25-35m with cylindrical, smooth, white-grey bark. The fragrant flowers of this species are produced from March to May, and are pollinated by insects (Rao,1956). Timber is easy to work and used for plywood. Bark and leaf juice of the tree are medicinal. A gum-resin called Piney resin, White dammar or Dhupa is used as a varnish, as an illuminant in manufacture of candles, and as a substitute for incense and amber. Piney tallow (Malabar Tallow or Piney Thistle), a solid fatty substance, resembling tallow is obtained from the roasted seeds. It is also used in soaps and in confectionaries. The resinous substance, which oozes out from the bark is a good thermoelectric material. Stilbenoids obtained from it has anti-tumor effect (Ravikumar, 2000). The tree has been severely affected by overexploitation and habitat loss, and today, few healthy populations remain and the tree is critically endangered (Kadambi,1957). reported that the fruits are attacked by some weevil on falling on the ground and it is essential to collect them as soon as possible after fall. A large number of insects and diseases are known to damage both naturally regenerating forests and plantations in India although little statistics are available on the area affected by these insects(FAO, 2007).. In the context of unsuccessful conservation of *V indica* in its natural areas, ex-situ conservation strategies assume great

relevance for which nurseries are being established. In this context, detailed surveys were undertaken to study the insect pest problems of V. indica in nurseries of Karnataka. In this note, in addition to the insect pests observed on V. indica in nurseries an attempt has been made to prepare a synoptic list of insect pest of *V. indica*.

MATERIAL & METHODS

Three nurseries, which are raising the seedlings of *V. indica* in the Western-ghat region of Karnataka, were selected for the study purpose. They were Udane nursery in Subramanya taluk (13°11'60"N and 74°58'60"E, altitude 1843 m, annual rainfall 2500-4000 mm, temperature ranges between 24°-38°C), Medinadka nursery in Sullia taluk (12°33'29"N and 75°23'21"E, altitude 108 m, annual rain fall 3000-3500 mm, temperature ranges between 15°C-25°C) of Dakshin Kannada District and Lakunda nursery in Thirthahalli taluk (13°42'00"N and 75°14'00"E, altitude 591 m, annual rain fall 7000-8000 mm, temperature 16°C-33°C) of Shimoga Dist. Seeds are recalcitrant with vivipary at maturity. Approximately 2 to 3 lakhs seedlings of *V. indica* were raised per year in these nurseries. The period of sowing is July to August and usually 6-12 months old seedlings are used for plantations. The selected nurseries were surveyed from August 2009 to July 2011 at monthly intervals. The insects, which were active on the seedlings, were collected using Insect net and were sorted out and identified. The list of insects feeding on *V. indica* was prepared along with the insect pests so far reported on this tree.

RESULTS & DISCUSSION

The insect pests of *V. indica* include sap suckers, defoliators, wood borers and a fruit and seed feeders (Table 1). Mathur and Singh [4] in their review listed only 29 species of Coleopteran insects infesting *V. indica*. Nair (6) added three more coleopteran pests viz., *Crossotarsus saunders*, *Sbhaerotrypes* sp. and *Thamnugides cardamomi* of the family Curculionidae on this tree. Nair et al. [5] reported for the first time the infestation of two lepidopteran pests viz., bagworm *Pteroma plagiophelps* (Psychidae) and leaf-weber *Rhodoneura* sp. (Thyrididae) on *V. indica*. Viraktamath and Srinivasa [9] described a new species of Cicadellidae, Canopyana vateriae breeding on *V. indica*, which forms the first report of a sapsucker. In the present study, two species of sap suckers viz., *Coptosoma* sp. and *Krishna* sp. and four species of defoliators viz., *Clytra* sp., *Gryllus* sp., *Isodemis serpentinana* (Walker) and *Nanophyes* sp. and an unidentified curculionid beetle on the fruits and seeds were reported for the first time thereby bringing the total of insects so far reported on *V. indica* to 42. With increasing importance of conservation of *V.indica*, the problem of insect pest management needs more attention. Investigations on the bionomics and reproductive behavior and interactions of insect pests particularly in nurseries may lead to efficient management practices.

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Table 1. Insect pests of *Vateria indica*

Sl. No.	Insect species	Family	Order	Nature of damage	Reference
I. Sap Suckers					
1.	*Canopyana vateriae* Viraktamath & Srinivasa	Cicadellidae	Hemiptera	Sucks the sap of leaves	Viraktamath and Srinivasa, 2006
2.	*Coptosoma* sp.	Plataspidae	Hemiptera	Sucks the sap of leaves	New Report
3.	*Krishna* sp.	Cicadellidae	Hemiptera	Sucks the sap of leaves	New Report
II. Defoliators					
4.	*Clytra* sp.	Chrysomelidae	Coleoptera	Beetles makes holes on leaves	New Report
5.	*Gryllus* sp.	Gryllidae	Orthoptera	Feeds on the leaves in nursery	New Report
6.	*Isodemis serpentinana* (Walker)	Tortricidae	Lepidoptera	Feeds on the leaves in nursery	New Report
7.	*Nanophyes* sp.	Chrysomelidae	Coleoptera	Feeds on leaf blades and petiole floats	New Report
8.	*Pteroma plagiophelps* (Hamps)	Psychidae	Lepidoptera	Feeds on leaves in nursery and plantations	Nair *et al*., 2004
III. Wood Borers					
9.	*Basilianus stolickzae* (Kuwert)	Passalidae	Coleoptera	Beetle and larva bore in rotten wood.	Mathur and Singh, 1961
10.	*Calandra vateriae* (Maarshall)	Curculionidae	Coleoptera	Larva bores in dead wood	Mathur and Singh, 1961
11.	*Camptorrhinus scrobicollis* (Faust)	Curculionidae	Coleoptera	Larva bores in dead wood	Mathur and Singh, 1961
12.	*Crossotarusus quadricaudatus* (Strohmeyer)	Platypodidae	Coleoptera	Beetle bores in newly felled or fallen wood	Mathur and Singh, 1961
13.	*Crossotarsus saunders* (Chapuis)	Curculionidae	Coleoptera	Wood borer	Mathur and Singh, 1961
14.	*Cyphagogus corporaali* (Kleine)	Brenthidae	Coleoptera	Larva breeds in dead wood	Mathur and Singh, 1961
15.	*Cyphagogus westwoodi* (Parry)	Brenthidae	Coleoptera	Larva breeds in dead wood	Mathur and Singh, 1961
16.	*Diacavus furtivus* (Sampson)	Platypodidae	Coleoptera	Beetle bores in newly felled or fallen wood	Mathur and Singh, 1961
17.	*Diapus* sp.	Platypodidae	Coleoptera	Beetle bores in newly felled or fallen wood	Mathur and Singh, 1961
18.	*Dihammus griseoplagiatus* (Breuning)	Cerambycidae	Coleoptera	Larva bores in dead wood	Mathur and Singh, 1961
19.	*Dinoderus minutus* (Fabricius)	Bostrychidae	Coleoptera	Beetle bores in dead sapwood	Mathur and Singh, 1961
20.	*Heterobostrychus aequalis* (Waterhouse)	Bostrychidae	Coleoptera	Beetle and larva bore in dead sapwood	Mathur and Singh, 1961
21.	*Lyctus africanus* (Lesne)	Bostrychidae	Coleoptera	Larva bores in dead sapwood	Mathur and Singh, 1961
22.	*Massicus venustus* (Pascoe)	Cerambycidae	Coleoptera	Larva bores in heartwood of stumps fire-scorched poles and trees and, over-mature trees.	Mathur and Singh, 1961
23.	*Microtrachelizus accomodatus* (Kleine)	Brenthidae	Coleoptera	Larva bores in dead wood	Mathur and Singh, 1961
24.	*Minthea rugicollis* (Walker)	Bostrychidae	Coleoptera	Larva bores in dead sapwood	Mathur and Singh, 1961
25.	*Platypus latifinis* (Walker)	Platypodidae	Coleoptera	Beetle bores in newly felled or fallen wood	Mathur and Singh, 1961
26.	*Platyptus suffodiens* (Sampson)	Platypodidae	Coleoptera	Beetle bores in newly felled or fallen wood	Mathur and Singh, 1961
27.	*Ptilinus binodulus* (Motschulsky)	Anobiidae	Coleoptera	Larva bores in dead wood	Mathur and Singh, 1961
28.	*Rhodoneura* sp	Thyrididae	Lepidoptera	Larvae web the leaves and feed on it	Nair *et al.,* 2004
29.	*Rhaphipodus subopacus* (Gahan)	Cerambycidae	Coleoptera	Larva bores in dead wood	Mathur and Singh, 1961
30.	*Serixia vateriae* (Gaardner)	Cerambycidae	Coleoptera	Larva bores in dead wood	Mathur and Singh, 1961
31.	*Sinoxylon anale* (Lesne)	Bostrychidae	Coleoptera	Beetle and larva bore in dead sapwood	Mathur and Singh, 1961
32.	*Sinoxylon atratum atratum* (Lesne)	Bostrychidae	Coleoptera	Beetle and larva bore in dead sapwood	Mathur and Singh, 1961
33.	*Sphaerotrypes vateriae* (Beeson)	Scolytidae	Coleoptera	Beetle and larva bore in bark	Mathur and Singh, 1961
34.	*Sbhaerotrypes* sp.	Curculionidae	Coleoptera	Timber or wood borer	Mathur and Singh, 1961

35.	*Xyleborus butamali* (Beeson)	Scolytidae	Coleoptera	Beetle bores in newly felled or fallen wood	Mathur and Singh, 1961
36.	*Xyleborus granulipennis* (Eggers)	Scolytidae	Coleoptera	Beetle bores in newly felled or fallen wood	Mathur and Singh, 1961
37.	*Xyleborus semigranosus*(Blandford)	Scolytidae	Coleoptera	Beetle bores in newly felled or fallen wood	Mathur and Singh, 1961
38.	*Xyleborus testaceus* (Walker)	Scolytidae	Coleoptera	Beetle bores in newly felled or fallen wood	Mathur and Singh, 1961
39.	*Xylothrips flavipes* (Illiger)	Bostrychidae	Coleoptera	Beetle and larva bore in dead sapwood	Mathur and Singh, 1961
40.	*Zoodes quadridentatus* (Gahan)	Cerambycidae	Coleoptera	Larva bores in dead wood	Mathur and Singh, 1961
IV. Seed and Fruit Borers					
41.	*Thamnugides cardamomi*	Curculionidae	Coleoptera	Larvae and adults bore the fruits and seeds	Nair, 2007
42.	Unidentified	Curculionidae	Coleoptera	Larvae and adults bore the fruits and seeds	New Report