



Checklist of insects associated with Jamun (*Syzygium cuminii* Skeels) from India

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ABSTRACT : Jamun (*Syzygium cuminii* Skeels) is an economically important tree in India, which also has medicinal properties. The survey of insects associated with Jamun in India was conducted and approximately 300 specimens belonging to five orders were collected, which comprises of 78 species mainly representing two orders i.e., Lepidoptera (34 species) and Hemiptera (26 species). The salient details of their locality, feeding behaviour and pest status have also been provided.

Keywords : *Syzygium cuminii*, associated insects, India

INTRODUCTION

Jamun, *Syzygium cumini* L. (Myrtaceae) is a very common, large evergreen tree of Indian subcontinent. The synonyms of *S. cumini* L. are : *Eugenia cumini* (L.) Druce, *Eugenia jambolana* Lam., *Myrtus cumini* L., *Syzygium jambolanum* DC. Common names are java plum, black plum, jambul and Indian blackberry. Its distribution range starts from Myanmar and extends up to Afghanistan. It grows naturally in tropical as well as in sub-tropical zones. It is generally cultivated in India. It tends to grow an umbrella like crown having dense foliage, thus gives pleasant cool shade during summer. Jamun is used as a carminative, against diarrhea, stomachache, astringent and also utilized in enlargement of the spleen and as a diuretic. The leaves have antibacterial properties and the bark is utilized against inflammations, while the seeds have antidiabetic properties. There are lot of major and minor pests which infest leaves, flowers, fruits, seeds and barks, but the perusal of literature reveals that there is no consolidated account available on the insects associated with jamun in India except a major contribution was made by Butani (1979). In this paper, an attempt has been made to provide the current status, nature of damage, pest status, hosts, updated classification of insects associated with jamun in India.

MATERIALS AND METHODS

Insects were collected in the field with aspirator, manually and aerial sweep net and at night with the help of light trap. The insects were killed by using tetrachloro ethane or ethyl acetate or benzene. These were stretched, pinned, labeled, identified, preserved in the wooden collection boxes and deposited in the National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi. The collected / reference specimens preserved in the National Pusa Collection were also examined and incorporated in the checklist.

RESULTS AND DISCUSSION

Survey-cum-collection study on insects associated with jamun in India were undertaken covering thirteen states/union territories namely Chandigarh, Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Punjab, Arunachal Pradesh, Tamil Nadu, Uttarakhand and Uttar Pradesh. The insect's records on Jamun available in the National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi have also been incorporated. Seventy eight insect species have been recorded representing order and their species i.e., Hemiptera (26 species), Coleoptera (8 species), Diptera (5 species), Lepidoptera (34 species), Thysanoptera (6 species). Among these, the Lepidoptera (34) shows the highest number of species, the Diptera (5) shows that the least number of species (Table 1).

The following sixteen species have been added from the records in National Pusa Collection (Insects) i.e., Hemiptera-5 (*Balocha maldanadoi kameswara* Rao & Ramakrishnan, *Wiloatma bifurcate* Webb, *Balocha tricolor* Distant, *Balocha anufrievi*, Rao & Ramakrishnan (Cicadellidae); *Dictyophara pallida* Walker (Fulgoridae); Lepidoptera-6 (*Hygroplasta spoliatella* Walker (Lecithoceridae); *Cania pulligonis* Swinhoe (Limacodidae); *Phlegetonia delatrix* Guenée, *Catephia mosara* Swinhoe (Noctuidae); *Bubonoxena ephippias* Meyrick, *Strepsicrates routhia*, Meyrick (Tortricidae); Diptera-4 (*Bactrocera caudata* Fabricius, *Bactrocera cucurbitae* Coquillett (Tephritidae) *Bactrocera diversa* (Coquillett), *Bactrocera tau* (Walker) (Tephritidae)), Coleoptera-1 (*Scymnus scymnus gracilis* Motschulsky (Coccinellidae)). Two species have recorded as new record from Indian Agricultural Research Institute, Campus, New Delhi viz., *Bruchidius minutissimus* Motschulsky (Coleoptera : Bruchidae) and *Noctuides* sp. (Lepidoptera : Pyralidae). Photographs of *Carea subtilis* Walker (Nolidae) (Figs. 1,2), *Noctuides* sp. (Figs. 3,4) and *Bruchidius minutissimus* Motschulsky (Bruchidae) (Fig. 5).

Table 1 : Checklist associated with *Syzygium cumini* Skeels.

S. No.	Order/Scientific name	Family	Distribution in India	Feeding behaviour	Status	References
HEMIPTERA						
1.	<i>Hahys dentatus</i> (F.)	Pentatomidae	Bihar	Suck the sap of tree trunk	Minor	*NPC, 1966; Butani, 1979
2.	<i>Anidiella aurantii</i> (Maskell)	Diaspididae	Wide distribution	Twigs and leaves	Minor	Butani, 1979
3.	<i>Ceroplastes rubens</i> (Maskell)	Coccidae	Wide distribution	Accumulation of sooty moulds	Minor	CABI, 2007
4.	<i>Drosicha stebbingi</i> (Green)	Margarodidae	Wide distribution		Not Known	CABI, 2007
5.	<i>Anidiella orientalis</i> (Newstead)	Diaspididae	Wide distribution	Direct feeding damage on leaves and removal of plant sap	Minor	Butani, 1979; CABI, 2007
6.	<i>Aspidiotus destructor</i> Signoret	Diaspididae	Wide distribution	Twigs and leaves	Minor	Butani, 1979
7.	<i>Duplaspidiotus tesseratus</i> (Grandpré and Charmoy)	Diaspididae	Wide distribution	Twigs and leaves	Minor	Butani, 1979
8.	<i>Parlatoria pseudopyri</i> , Kuwana	Diaspididae	Wide distribution	Twigs and leaves	Minor	Butani, 1979
9.	<i>Parlatoria marginalis</i> McKenzie	Diaspididae	Wide distribution	Twigs and leaves	Minor	Butani, 1979
10.	<i>Chloropulvinaria polygonata</i> (Green)	Coccidae	Wide distribution	Shoots and foliage	Minor	Butani, 1979
11.	<i>Chloropulvinaria psidii</i> (Maskell)	Coccidae	Wide distribution	Shoots and foliage	Minor	Butani, 1979
12.	<i>Coccus discrepans</i> (Green)	Coccidae	Wide distribution	Shoots and foliage	Minor	Butani, 1979
13.	<i>Vinsonia stellifera</i> (Westwood)	Coccidae	Wide distribution	Shoots and foliage	Minor	Butani, 1979
14.	<i>Trioza jambolanae</i> Grawford	Psyllidae	Wide distribution	Shoots and foliage	Minor	*NPC, 1914-1915; Butani, 1979
15.	<i>Megatrioza vitiensis</i> Kirkaldy	Psyllidae	Wide distribution	Shoots and foliage	Minor	Butani, 1979
16.	<i>Dialeurodes citri</i> (Ashmead)	Aleurodidae	Maharashtra, Tamil Nadu, Karnataka	Suck the cell sap from leaves	Major	Fletcher, 1917; Singh, 1931
17.	<i>Singhiella bicolor</i> Singh	Aleurodidae	Wide distribution	Suck the cell sap from leaves	Major	CABI, 2007
18.	<i>Balocha maldanadoi</i> Kameswara Rao and Ramakrishnan	Cicadellidae	Delhi	Not Known	Not Known	*NPC, 1975
19.	<i>Wilota bifurcata</i> Webb	Cicadellidae	Delhi	Not Known	Not Known	*NPC, 1974
20.	<i>Balocha tricolor</i> Distant	Cicadellidae	Delhi	Not Known	Not Known	*NPC, 1974
21.	<i>Dictyophara pallida</i> Walker	Fulgoridae	Bihar	Not Known	Not Known	*NPC, 1916
22.	<i>Balocha anufrievi</i> , Rao and Ramakrishnan	Cicadellidae	Delhi	Not Known	Not Known	*NPC, 1974-1975
23.	<i>Artemidorus pressus</i> Dist.	Lygaeidae	Bihar	Suck the cell sap from trunk	Not Known	Butani, 1979
24.	<i>Icerya aegyptiaca</i> Douglas	Margarodidae	Wide distribution	Not known	Minor	CABI, 2007
25.	<i>Maconellicoccus hirsutus</i> Green	Pseudococcidae	Wide distribution	Not known	Minor	CABI, 2007
26.	<i>Aleurocanthus rugosa</i> Singh	Aleurodidae	Wide distribution	Suck the cell sap from leaves	Minor	Butani, 1979

LEPIDOPTERA						
1.	<i>Acherontia styx</i> Westwood	Sphingidae	Wide distribution	Larvae feeding on leaves	Minor	CABI, 2007
2.	<i>Meridarchis reprobata</i> Fletcher and Surat	Carposimidae	Kashmir, Gujarat, Maharashtra and south India	Fruit borer	Minor	*NPC, 1914; Butani, 1979
3.	<i>Meridarchis scyrodes</i> Meyrick	Carposimidae	Wide distribution	Fruit borer	Minor	Butani, 1979
4.	<i>Indarbela quadrinotata</i> Walker	Cossidae	Wide distribution	Larvae feeding on bark	Minor	Butani, 1979
5.	<i>Indarbela tetraonis</i> Moore	Cossidae	Wide distribution	Larvae feeding on bark	Minor	Butani, 1979
6.	<i>Idiophantis acanthopa</i> Meyrick	Gelechiidae	Wide distribution	Feeding on leaves	Minor	Butani, 1979
7.	<i>Chrysocraspeda olearia</i> Guenée	Geometridae	Wide distribution	Feeding on leaves	Minor	Butani, 1979
8.	<i>Hyposidra successaria</i> Walker	Geometridae	Wide distribution	Mining leaves	Minor	Butani, 1979
9.	<i>Oenospila flavifuscata</i> Swinhoe	Geometridae	South India	Mining leaves	Minor	Venugopal, 1958
10.	<i>Acrocercops loxias</i> Meyrick	Gracillariidae	Wide distribution	Mining leaves	Minor	Butani, 1979
11.	<i>Acrocercops phaespora</i> Meyrick	Gracillariidae	Bihar, Delhi, Haryana, Punjab	Mining leaves	Major	Butani, 1979
12.	<i>Acrocercops syngamma</i> Meyrick	Gracillariidae	Delhi	Mining leaves	Minor	*NPC, 1941; Butani, 1979
13.	<i>Acrocercops testis</i> Meyrick	Gracillariidae	Bihar, West Bengal	Mining leaves	Minor	Butani, 1979
14.	<i>Antispila anna</i> Fletcher	Heliozelidae	Wide distribution	Leaf eater	Minor	*NPC, 1931; Butani, 1979
15.	<i>Metanastria hyrtaca</i> Cramer	Lasiocampidae	Bihar	Larvae feeding on leaves	Minor	*NPC, 1931; CABI, 2007
16.	<i>Triabala vishnou</i> Lefèbvre	Lasiocampidae	Karnataka	Feeding on leaves	Minor	Butani, 1976
17.	<i>Hygroplasta spoliatella</i> Walker	Lecithoceridae	Bihar, Delhi	Mining leaves	Not Known	*NPC, 1945
18.	<i>Cania pulligonis</i> Swinhoe	Limacodidae	Bihar	Feeding on leaves	Not Known	*NPC, 1913
19.	<i>Lymantria mathura</i> Moore	Lymantriidae	Wide distribution	Feeding on leaves	Major	CABI, 2007
20.	<i>Orygia postica</i> Walker	Lymantriidae	Wide distribution	Feeding on leaves	Major	CABI, 2007
21.	<i>Phlegetonia delatrix</i> Guenée	Noctuidae	Bihar	Larvae on leaves	Not Known	*NPC, 1931
22.	<i>Phlegetonia delatrix</i> Guenée	Noctuidae	Wide distribution	Larvae feeding on leaves	Minor	Butani, 1979
23.	<i>Catephia mosara</i> Swinhoe	Noctuidae	Bihar	Not Known	Not Known	*NPC, 1916
24.	<i>Carea subtilis</i> Walker	Nolidae	Wide distribution	Leaves	Minor	Butani, 1979
25.	<i>Exelastis atomosa</i> Walsingham	Pterophoridae	Wide distribution	Not known	Not known	Butani, 1979
26.	<i>Lepidogma</i> sp.	Pyralidae	South India	Webbing leaves	Minor	Butani, 1979; Annathakrishnan and Venugopal, 1955
27.	<i>Noctuoides</i> sp.	Pyralidae	New Delhi	Webbing leaves	Minor	New record
28.	<i>Orthaga</i> sp.	Pyralidae	Wide distribution	Webbing leaves	Minor	Butani, 1979
29.	<i>Bubonoxena ephippias</i> Meyrick	Tortricidae	Bihar	Larvae feeding on leaves	Not known	*NPC, 1931
30.	<i>Cellifera cellifera</i> Meyrick	Tortricidae	Wide distribution	Mining leaves	Minor	Butani, 1979
31.	<i>Cellifera mormopa</i> Meyrick	Tortricidae	Kerala	Not known	Not known	Aiyer, 1943

32.	<i>Dudua aprobola</i> Meyrick	Tortricidae	Wide distribution	Rolling the leaves	Minor	Butani, 1979
33.	<i>Homona coffearia</i> (Nietner)	Tortricidae	South India	Not known	Not known	Butani, 1979
34.	<i>Strepsicrates rhothia</i> , Meyrick	Tortricidae	Bihar	Larvae feeding on leaves	Not known	*NPC, 1931
	DIPTERA					
1.	<i>Bactrocera caudata</i> Fabricius	Tephritidae	Bihar	Leaves	Minor	*NPC, 1914
2.	<i>Bactrocera correcta</i>	Tephritidae	Bihar	Fruit borer	Minor	Butani, 1979
3.	<i>Bactrocera cucurbitae</i> Coquillett	Tephritidae	Bihar	Fruit borer	Not Known	*NPC, 1913
4.	<i>Bactrocera diversa</i> (Coquillett)	Tephritidae	Bihar	Fruit borer	Minor	*NPC, 1913
5.	<i>Bactrocera tau</i> (Walker)	Tephritidae	Bihar	Not known	Not known	*NPC, 1913
	COLEOPTERA					
1.	<i>Curculio c-album</i> Fabricius	Curculionidae	Bihar	Fallen fruits and bore feed		*NPC, 1914- 1915; Fletcher, 1917
2.	<i>Myllocerus undecimpustulatus</i> Faust	Curculionidae	Wide distribution	Not known	Not known	CABI, 2007
3.	<i>Myllocerus viridanus</i> (Fabricius)	Curculionidae	Wide distribution	Not known	Not known	CABI, 2007
4.	<i>Phrynocaria perrotteti</i> (Mulsant)	Coccinellidae	Wide distribution	Not known	Not known	*NPC, 1945
5.	<i>Scymnus scymnusgracilis</i> Motschulsky	Coccinellidae	Delhi	Not known	Not known	*NPC, 1950
6.	<i>Xylosandrus crassiusculus</i> (Motschulsky)	Scolytidae	Wide distribution	Feeds on bark	Not known	CABI, 2007
7.	<i>Xyleborus similis</i> Ferrari	Scolytidae	Wide distribution	Feeds on bark	Minor	CABI, 2007
8.	<i>Bruchidius minutissimus</i> Motschulsky	Bruchidae	Delhi	Feeding on leaves	Minor	New Record
	THYSANOPTERA					
1.	<i>Rhipiphorothers cruentatus</i> Hood	Thripidae	Wide distribution	Suck sap from the leaves	Major	Butani, 1979; Dahiya, and Lakra, 2001; CABI, 2007
2.	<i>Leeuwenia ramakrishnae</i> Ananthakrishnan	Phlaeothripidae	Wide distribution	Suck sap from the leaves	Minor	Ananthakrishnan, 1971
3.	<i>Mallothrips indica</i> Ramakrishna	Phlaeothripidae	Wide distribution	Suck sap from the leaves	Minor	Ananthakrishnan, 1971
4.	<i>Teuchothrips eugeniae</i> Seshadri and Ananthakrishnan	Phlaeothripidae	Wide distribution	Suck sap from the leaves	Minor	Ananthakrishnan, 1971
5.	<i>Retithrips syriacus</i> (Mayet)	Thripidae	Wide distribution	Infests flowers	Minor	CABI, 2007
6.	<i>Thrips florum</i> Schmutz	Thripidae	Wide distribution	Infests the flowers	Minor	Ananthakrishnan, 1971

* National Pusa Collection (Insects and mites), year of collection

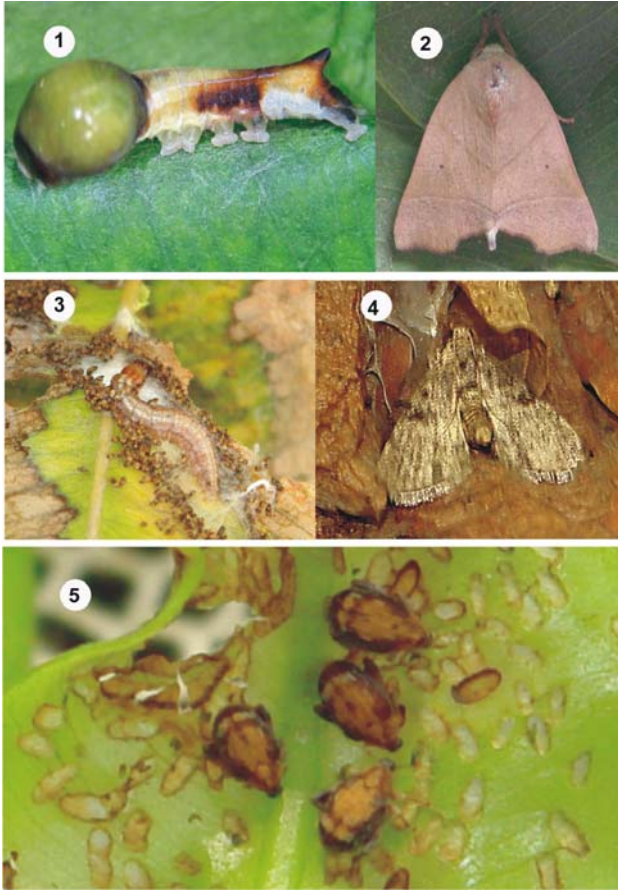


Fig.1-5. 1. Larva of *Carea subtilis* Walker (Nolidae), 2. Adult of *Carea subtilis* Walker (Nolidae), 3. Larva of *Noctuides* sp. (Pyralidae), 4. Adult of *Noctuides* sp. (Pyralidae), 5. *Bruchidius minutissimus* Motschulsky (Bruchidae).

In the checklist the families, genera and species are arranged alphabetically, and the pest status (major/minor) and host range is according to the literature cited. In India the research works of Butani (1979) provided valuable information on insects pests of jamun. The present study provides all the existing information on insects associated with jamun in India. The scientific names were updated from *Coleoptera Collection and Card Index* (NHM, London), Poorani (2004), *Lepindex* (Lepidoptera) (NHM, London), *Thysanoptera of World* (CSIRO, Australia), Diptera (ITIS, 2009).

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