



Insect Discoveries:

ICAR-IARI National Pusa Collection

(2017-2022)

www.iari.res.in

Dr. P.R. Shashank
Dr. Naresh M. Meshram
Dr. Nithya Chandran
Dr. Debjani Dey



Division of Entomology
ICAR-Indian Agricultural Research Institute
Pusa Campus, New Delhi - 110012

**Insect Discoveries:
ICAR-IARI National Pusa Collection
(2017-2022)**

**Dr. P.R. Shashank
Dr. Naresh M. Meshram
Dr. Nithya Chandran
Dr. Debjani Dey**

**Division of Entomology
ICAR-Indian Agricultural Research Institute
Pusa Campus, New Delhi - 110012
<http://www.iari.res.in/>**

Published in June, 2023

TB-ICN: 303/2023

Correct citation

P.R. Shashank, N.M. Meshram, Nithya Chandran and Debjani Dey (2023). Insect Discoveries: ICAR-IARI National Pusa Collection (2017-2022), Indian Agricultural Research Institute, New Delhi, India. pp. 68.

© 2023 Indian Agricultural Research Institute, New Delhi- 110 012, India

For details contact

Head

Division of Entomology,

ICAR-Indian Agricultural Research Institute

New Delhi - 110 012 India



भा.कृ.अ.प. - भारतीय कृषि अनुसंधान संस्थान, नई दिल्ली - ११००१२
ICAR - INDIAN AGRICULTURAL RESEARCH INSTITUTE
NEW DELHI – 110012



डॉ. विश्वनाथन चिन्नसामी
संयुक्त निदेशक (अनुसंधान)
Dr. Viswanathan Chinnusamy
Joint Director (Research)

Phone (off.) : 011-25843379
E-mail: jd_research@iari.res.in;
jointdirector.res@gmail.com;
v.chinnusamy@icar.gov.in

FOREWORD

The production of enough food, feed and biofuel to meet the demands of the world's expanding population is becoming a major challenge. The world's arable land cannot be increased because nearly all of the world's productive land is already in use. Securing high and quality yield while making agricultural production environmentally friendly is a global challenge. In terms of both species' richness and abundance, insects have achieved phenomenal success. Insects dominate the planet by occupying around 66% of all the animal species. Insects are important because of their ecological role, and influence on agriculture, human health, and natural resources. Insect diversity is critical for the sustainability of agriculture. By protecting and conserving insect biodiversity, farmers can increase crop yields, reduce their reliance on chemical pesticides, and maintain a healthy ecosystems that support both agriculture and biodiversity conservation. At the same time, we should also take care of herbivorous insects which inflict damage to 18% of world agricultural production.

Despite the fact that significant work has been done in documenting agrobiodiversity, the changing climate, cropping patterns, various human interventions and quick adaptation of insects to these uncertainties, necessitate continuous monitoring, documentation and analysis of insect diversity. There are many insect pests and beneficial insects still waiting to be discovered. Understanding the known species in more detail and discovery of new species help to understand the pestiferous nature if any or beneficial insects to explore them for biological control and pollination services.

ICAR- Indian Agricultural Research Institute (IARI) is one of the pioneering organizations working on entomology from 1905 onwards. National Pusa Collection for Insects (NPC) is a key section of the Division of Entomology. The NPC is one of the India's oldest and largest insect collection of agricultural important insects, housing over five lakh insect specimens. It comprises historical collections, dating from the early-1900s. Over the last 50 years, NPC has directly contributed to the discovery and description of more than 1500 new arthropod species. Several taxonomic treatises on agriculturally important insects belonging to different orders have been published by the scientists of ICAR-IARI.

This publication on "Insect Discoveries: ICAR-IARI National Pusa Collection" highlights the contributions of ICAR-IARI to the description of new species, new records, and new pests from 2017 to 2022. I consider this compilation is significant document to show our commitment to insect diversity studies.

I congratulate the team of Entomology scientist working on insect systematics in bringing out this document to create awareness about insect diversity.

e. Viswanathan 31/1/24

(Viswanathan Chinnusamy)



कीट विज्ञान संभाग
भारतीय कृषि अनुसंधान संस्थान, नई दिल्ली –110 012
DIVISION OF ENTOMOLOGY
Indian Agricultural Research Institute, New Delhi 110012



Dr. Mukesh K. Dhillon, FNAAS
Head & Principal Scientist

MESSAGE

Human and insects co-exist together in an ecosystem and contribute to the Earth's biodiversity. In addition to this, insects are very important for ecosystem services, and maintaining the balance of agro-ecosystem by controlling the crop damaging pest species. Loss of biodiversity and pest-natural enemy dynamics is changing day by day due to various factors including crop cultivation practices. Thus, this is high time to document the insect species prevailing in different ecosystems, understanding their ecological importance, population structure and find ways to conserve them.

The Division of Entomology, ICAR-IARI, New Delhi has made significant contributions in the field of insect systematics since 1905. This Division has core strength in research facilities and museum collection for advanced systematic and taxonomic studies in various insect groups. With this background, the Division of Entomology has compiled the significant outcomes from studies on insect systematics carried out during 2017-2022 in the form of a bulletin titled, "Insect Discoveries: ICAR-IARI National Pusa Collection (2017-2022)". This publication also provides updated information on newly discovered species as well as the new records of the world from India.

I congratulate Drs. P.R. Shashank, N.M. Meshram, Nithya Chandran and Debjani Dey for their sincere efforts and significant contributions, and appreciate the IARI Entomology faculty, staff and research scholars for their help in bringing out this publication successfully. This publication will benefit the students, research scholars, scientists and entomologist all over the world. I am sure this publication will be a great help to various Institutes and Universities for identification of the insect specimens.


(M.K. Dhillon)

PREFACE

It is estimated that there are around 10 million different species on earth out of which insects make up 80-90% of all the species. The diversity of insects is remarkable, they are found in almost every habitat on Earth and perform a wide range of ecological roles such as pollination, seed dispersal and nutrient cycling. Some of them are agricultural pests, vectors for diseases and some of them have potential industrial and medicinal uses.

Understanding the diversity of the insects and their distribution across the globe can help in developing effective pest management strategies, aid in controlling vector-borne diseases, discovering of new compounds and development of new biotechnological applications and can help us understand how different species are responding to changes in the environment, and how they may be impacted by climate change.

In agriculture, insects can also cause adverse impact to crop which can results to reduced yields and lower crop quality. By identifying the specific insect, it might be useful in agriculture for pest management, crop protection, monitoring pest population, biodiversity conservation and research purposes.

National Pusa Collection (NPC) is a section of the Division of Entomology, ICAR- Indian Agricultural Research Institute, New Delhi. Division of Entomology is one of the first five Divisions of the Indian Agricultural Research Institute established in 1905. The Division has pioneered investigations in insect systematics and economic entomology vis-a-vis important crop pests. The main objectives and activities of NPC are research and explorations, consultation and outreach and teaching and human resource development in taxonomy. So, far there is no compiled publication even though NPC has described more than 1500 species new to the science. This will be the first attempt to compile the National Pusa Collection scientists' contributions to the description of new species, new records, and new pests from 2017-2018 through 2021-2022 which will be helpful to gather knowledge in one location, and various stakeholders can utilize the catalogue as a ready reference for future use.

AUTHORS

Acknowledgements

The authors are thankful to Dr. Ashok Kumar Singh, the Director and Dr. Viswanathan Chinnusamy, the Joint Director (Research), IARI, New Delhi for providing necessary facilities to maintain the National Pusa Collection (NPC) facility to conserve the biodiversity of insects and render services to various Institutes and Universities for identification of the insect specimens. We express our gratitude to Dr. Anupama Singh, the Dean and Joint Director (Education), IARI for her support and encouragement. Authors are also thankful to research scholars Ms. Stuti, Dr. Varun Saini, Mr. N.N. Rajgopal, Mr. Anand Harshana, Ms. Jyoti J., and technical staff Dr. Babita who helped in collating materials. We thank our supporting staff Mr. Ramkumar and all other administrative staff of Division of Entomology for their technical support. We thank all the senior entomologists from Division of Entomology who worked in taxonomy at NPC for their support and dedication.

Introduction

Insects are the most diverse group of animals on Earth, making up more than half of all known living organisms. Understanding the diversity and distribution of insects is crucial for understanding the overall biodiversity of the planet. Insects play important roles in many ecosystems, such as pollination, seed dispersal, and nutrient cycling. Some insects are agricultural pests, vectors for diseases, they have potential industrial and medicinal uses and understanding their diversity and distribution can help in developing effective pest management strategies, aid in controlling vector-borne diseases, discovery of new compounds and the development of new biotechnological applications and insects can help us understand how different species are responding to changes in the environment, and how they may be impacted by climate change.

It is estimated that there are around 10 million species of insects on Earth, although the exact number is still unknown. This estimate is based on the number of known species and estimates of the total number of species that have yet to be discovered. The concept of a species is one of the fundamental units of biological classification, which is used to organize and understand the diversity of life on Earth. In biology, a species is a group of organisms that are similar in form and function and are able to interbreed and produce fertile offspring. Organisms that belong to the same species are considered to be more closely related to each other than to organisms from other species.

The description of new species offers systematic rank in the hierarchy tree. It is significant because their knowledge of a species history, status, and importance within an ecosystem helps to conserve them in nature. Finding new species is a difficult and drawn-out procedure that can only be accomplished by biologists and taxonomists. Taxonomists are scientists who research the naming and classification of organisms. They seek to comprehend the connections between various species and create systems for naming and classifying them. The goal of taxonomy is to understand the diversity of life on Earth, and to provide a framework for organizing and communicating information about different organisms. Taxonomists use a variety of techniques and approaches to study organisms, including observation, dissection, and analysis of DNA and other genetic information. They often specialize in a particular group of organisms, such as plants, insects, or fish. They are also responsible for describing new species and revising existing classifications as new information becomes available. Taxonomists work in a variety of settings, including academic institutions, museums, government agencies, and private research organizations. They also work in fields such as agriculture, forestry, medicine and conservation biology. The Global Taxonomy Initiative (GTI) is a UN Convention on Biological Diversity (CBD) cross-cutting issue that aims to address the lack of taxonomic knowledge and expertise in many regions of the world and, as a result, to improve decision-making in conservation, sustainable use, and equitable sharing of the benefits derived from genetic resources.

In agriculture, insects can cause significant damage to crops, which can lead to reduced yields and lower crop quality. Different types of insects can cause different types of damage, and some insects are considered to be major pests of specific crops. Insect identification is important in agriculture because it allows farmers and other agricultural professionals to effectively manage pest populations and protect crops from damage. By identifying the specific insects that are causing problems, farmers can select the most appropriate and effective control measures.

Here are a few instances of how identification of insects might be useful in agriculture:

- **Pest management:** By identifying the insects that are causing problems, farmers can select the most appropriate control measures, such as pesticides, biological control methods, or cultural practices.
- **Prophylactic crop protection:** Identifying insect pests early on can help farmers take action to protect their crops before significant damage is done. For example, if a farmer identifies a population of aphids on a crop, they can take steps to control the population before it causes significant damage.
- **Monitoring:** Insect identification can also be used to monitor pest populations over time. By tracking the presence and abundance of different insects, farmers can detect changes in pest populations and take action to prevent problems before they occur.
- **Biodiversity Conservation:** By identifying the insects present in an ecosystem, farmers can take steps to conserve beneficial insects, such as pollinators, which are important for maintaining the health of the ecosystem and supporting crop production.
- **Research:** Insect identification is also important for research in agriculture, as it allows scientists to study the biology and behaviour of different insects and understand how they interact with crops.

Overall, insect identification is a critical tool for managing pest populations and protecting crops in agriculture, and it helps farmers and other agricultural professionals make informed decisions to maintain crop health and productivity.

National Pusa Collection (NPC) is an integral section of the Division of Entomology, ICAR-Indian Agricultural Research Institute, New Delhi. Division of Entomology is one of the first five Divisions of the Indian Agricultural Research Institute established in 1905. The Division has pioneered investigations in insect systematics and economic entomology vis-a-vis important crop pests. Over the last 100 years, NPC has directly contributed to the discovery and description of more than 1500 arthropod species previously unknown to science. Several taxonomic treatises on agriculturally important insects belonging to orders Lepidoptera, Coleoptera, Hemiptera, Orthoptera, and Hymenoptera, and class Acarina have been published. NPC comprises historical collections, dating from the early-1900s.

Insect taxonomists at NPC, are providing biologists, extension workers, farmers, biosecurity agents, and quarantine authorities, accurate and timely pest identification. As a national service for pest diagnostics, every year, on average over 2000 specimens are identified by the NPC taxonomists. NPC, by providing names of arthropod specimens for the stakeholders, has been instrumental in responding to national and regional pest management needs. Also, as a part of the entomology curriculum we offer courses to masters and doctoral students in insect taxonomy. Museum specimens are used in classes to educate students on insect diversity and taxonomy. Top of Form

The objective of this catalogue titled “IARI-National Pusa Collection Insect Discoveries” is to compile the National Pusa Collection scientists’ contributions to the description of new species, new records, and new pests from 2017–2018 through 2021–2022. It will be helpful to gather knowledge in one location, and various stakeholders can utilise the catalogue as a ready reference.

Brief History of National Pusa Collection (NPC)

Eminent entomologists like H.M. Lefroy, T.B. Fletcher and M.G.R. Menon laid strong foundation for insect systematics research in National Pusa Collection (NPC). Faunistic surveys led to the establishment of the National Pusa Collection, one of the largest collections of its kind in this part of the world. Now this collection houses more than half a million specimens of which 0.1 million are authentically identified, comprising about 20,000 species. Over the last 50 years, NPC has directly contributed to the discovery and description of more than 1500 arthropod species previously unknown to science.

The first mention of the insect collection at ICAR-IARI, then Imperial Agricultural Research Institute, was in its annual scientific report as follows “during the year 1907 to 1909 the third assistant to H. M. Lefroy was Mr. G. R. Dutt, has been in charge of economic records and collections, and has done original work on aculeate Hymenoptera. The assistant in charge of the collections, Mr. D. Nowrojee, did excellent work with the arrangement and upkeep of the general insect collections.” During this time H.M. Lefroy wrote a series of ground-breaking books, including Indian Insect Pests (1906) and Indian Insect Life: A manual of the insects of the plains (Tropical India) (1909), an 800-page guide with many hand-painted illustrations and still in print.

By 1916-17, steady progress was made in additions of specimens and arrangement of the collection. Rearrangement and compilation of specimens of Lepidoptera (including the Microlepidoptera), Coleoptera, Orthoptera and part of Rhynchota was completed and placed in series. The identification of the collection of Diptera was undertaken by Mr. Brunetti. All the specimens were identified by parceling them to the experts. This was identified and returned back. Some of the experts are listed below

- Mr. H. Andrewes - Carabidae
- Dr. G. A. K. Marshall - Curculionidae
- Dr. Karl Jordan- Anthribidae
- Mr. G. J. Arrow - Rutelidae
- Mr. G. J. Arrow. Partly - Melolonthidae
- Mr. C. J. Gahan - Cerambycidae
- Mr. G. Lewis - Histeridae
- Mr. Rowland E. Turner - Sphegidae
- Dr. C. M. Wheeler - Formicidae
- Mr. Rohwer - Tenthredinidae
- Mr. E. Meyrick - Microlepidoptera

Over the years great progress was made in identification of specimens in addition to the augmentation. By 1919 the collection had become large and important from systematic point of view. Specimens were started to be shifted from paraffin waxed box to cabinets. By this time the Microlepidoptera collection, contained in cabinets, was by far the largest. About thousands of specimens were received every year. Numerous collections of Indian insects were received and named and returned as far as possible. These included collections sent by the Forest Research Institute, the Provincial Agricultural Departments, the Bombay Natural History Society, and by numerous correspondents collection in India. The collection by this time was a major source material for describing the Indian insect fauna and played a pivotal role in meeting the resolution of the Third Entomological Meeting, held at Pusa in February 1919, to catalogue of all described Indian Insects.

By 1920, Pusa collection had more than 7000 named species of Indian insects with

Microlepidoptera inside cabinets comprising 700 named species. Orthoptera, Neuroptera, Ryncota were all in fair order and Odonata was revised by then. Dipteran collection in entomological and pathological entomology was amalgamated in to one. By 1921-22 it had around one million specimens. Good deal of work was done in sorting out and collection of Diptera.

During the years 1922-23 many catalogues and revision were done for example Major F. C. Frazer published many novelties on Odonata in Memoirs of IARI and Journal of Bombay Natural History Society, Mr. B.P. Uvarov on short horned grasshoppers, second and third part of Catalogue on Culicidae and Bombyliidae by Mr. R. Senior White.

During 1923-24 the period major identification was done by the following workers:

- Lt. Col F.C. Fraser - Odonata
- Mr. Morgan Hebard – Dermaptera, Blattidae and Mantidae
- Mr. B.P. Uvarov - Acrididae
- Dr. H. Scott-Chrysomelidae
- Dr. Horn - Cicindelidae
- Dr. K. G. Blair-Meloidae
- Mr. G. Hermann Alexander Ochs- Gyrinidae
- Mr. P. Esben-Petersen - Neuroptera
- Mr. E. Meyrick - Micro-Lepidoptera
- Mr. W.S. Patton - Diptera
- Mr. R. Garcia Mercet- Hymenoptera.

Many card catalogues and fauna volumes were kept updated.

During 1921-60, NPC contributed significantly to “Catalogue of Indian Insects” series which is an inter-departmental publication, which is edited by a standing committee of entomologists appointed by the Entomological meetings held in India published by Indian Council of Agricultural Research, New Delhi. The catalogue is divided into 5 volumes and covers 29 parts. Volume 1 deals with Part I to Part IX. It covers Acrydidae, Culicidae, Bombyliidae, Trypetidae, Nitidulidae, Stapylinidae, Lasiocampidae, Amatidae and Zygaenidae. Volume 2 gives a detailed account of Part X to Part XVII. This volume covers Stephanidae, Brenthidae, Tabanidae, Cicindelidae, Palpicornia, Cecidomyidae, Cosmopterygidae and Yponomeutidae. Volume 3 is devoted to Part XVIII i.e., Carabidae. Volume 4 covers in detail Part XIX to Part XXV. This volume deals with Gyrinoidea, Alucitidae, Lycidae, Phalonidae Chlidanotidae, Chalcidoidea, Evanidae and Thysanoptera. Volume 5 of the book describes the Part XXVI to Part XXIX. This volume deals with Serphoidea, Isoptera, Anthribidae and Asilidae.

This is the list of 29 parts of Catalogue of Indian Insects

Pt. 1. Acrididae (Tettigidae) by T. Bainbrigge Fletcher, 1921

Pt. 2. Culicidae, by Ronald Senior-White, 1923

Pt. 3. Bombyliidae, by R. Senior-White

Pt. 4. Trypetidae (Trypaneidae) by R. Senior-White, 1924

Pt. 5. Nitidulidae, by S.N., Chatterjee, 1924

Pt. 6. Staphylinidae, by Malcolm Cameron, 1925

Pt. 7. Lasiocampidae, by T. Bainbrigge Fletcher, 1925

Pt. 8. Amatidae (Syntomidae) by T. Bainbrigge Fletcher, 1925

Pt. 9. Zygaenidae, by T. Bainbrigge Fletcher, 1925

Pt. 10. Stephanidae, by G.R. Dutt, 1926

Pt. 11. Brenthidae by R. Kleine, 1926

- Pt. 12. Tabanidae by R. Senior-White, 1927
- Pt. 13. Cicindelidae by M. Heynes-Wood & C. Dover, 1928
- Pt. 14. Palpicornia by A. d'Orchymont, 1928
- Pt. 15. Cecidomyiidae by R. Senior-White, 1928
- Pt. 16. Cosmopterygidae by T. Bainbrigge Fletcher, 1928
- Pt. 17. Yponomeutidae by T. Bainbrigge Fletcher, 1928
- Pt. 18. Carabidae By H.E. Andrews, 1930
- Pt. 19. Gyrinoidea by G. Ochs, 1930.
- Pt. 20. Alucitidae (Pterophoridae) by T. Bainbrigge Fletcher, 1931
- Pt. 21. Lycidae by R. Kleine, 1931
- Pt. 22. Phaloniadae & Chlidanotidae by T. Bainbrigge Fletcher, 1931
- Pt. 23. Chalcidoidea by M.S. Mani, 1938
- Pt. 24. Evanidae by M.S. Mani, 1939
- Pt. 25. Thysanoptera by T.V. Ramakrishna & V. Margabandhu, 1940
- Pt. 27. Isoptera by R. Lal & R.D. Menon, 1953
- Pt. 28. Anthribidae (Coleoptera) by R.N. Mathur, 1957
- Pt. 29. Asilidae: Diptera by R. Lal, 1960

From 1909 the collection increased from 2221 to 8815 named species by 1926 with majority being Lepidoptera (3606) followed by Coleoptera (2470). By this time Pusa collection was also getting request from foreign entomologists regarding supply of Indian Insects. For example, *Idiocerus atkinsoni* to Mr. Whitehead, Canada, Indian Honey bees to Mavromonstakis, Cyprus.

Following a devastating earth quake on 15th January 1934, Pusa Collection was shifted to New Delhi. Proper rearrangement and card cataloguing was undertaken. Large numbers of Insects occurring in Pusa were collected to fill the damage in collection which occurred due to the disaster. During this period the insect pest identification service was undertaken as a part of pest advisory. During 1936-37 card cataloging progressed with about 25000 specimens of 2000 species being catalogued. Many new species received as donation were added to the collection.

After 1940 many taxonomists contributed to the NPC namely

- Dr. M.G.R. Menon - All insects, Psocoptera
- Dr. E.S. Narayanan- Hymenoptera
- Dr. B.R. Subbarao - Hymenoptera
- Dr. H.S. Pruthi - Hemiptera
- Dr. S.I. Farooqi - Hymenoptera
- Dr. S. Ghai - Acarina
- Dr. U. Ramakrishnan - Hemiptera
- Dr. S.L. Gupta - Lepidoptera
- Dr. R.K. Anand - Meloidae and Chrysomelidae
- Dr. V.V. Ramamurthy - Curculionidae and Scarabaeidae
- Dr. S. Joshi - Acarina

During 2005 to 2016, Network Project on Insect Biosystematics (NPIB) funded by Indian Council of Agricultural Sciences, New Delhi started in NPC. This project was headed by Dr. V.V. Ramamurthy and comprised of 13 different centers all over India. Modernization of NPC has been carried out through NPIB. NPC launched its own website <http://npc.iari.res.in/> in 2019. More details about publications and who are working in different groups is available online.

Main objectives and activities of NPC

1. **Research and explorations:** Collection, identification and preservation of reference collections of insect specimens. Description of new genera and species of insects in India.
2. **Consultation and outreach:** Providing national insect identification service to biologists, extension workers, farmers, biosecurity agents, and quarantine authorities.
3. **Teaching and human resource development in taxonomy:** As a part of the entomology curriculum, we offer courses to graduates, masters and doctoral students in insect taxonomy/diversity. We also conduct taxonomy training to different stake holders.

Preservation and maintenance of insects

Insects that are larger are usually mounted using non-corrosive entomological pins of various sizes, depending on the size of the insects. Once mounted, they are dried properly in an autoclave to remove moisture. Insects that are too small are double mounted on card points, card platforms, minute pins, etc., depending on the group. Immature stages like larvae, grubs, and other soft-bodied insects are preserved in 70%–95% alcohol. Small and soft-bodied insects (whiteflies, thrips, scales, aphids) and mites, taxonomically important body parts like wings, legs, mouthparts, genitalia, etc. that are preserved on permanent slides. Slides are maintained in separate slide cabinets.

All specimens are labelled with the correct name of locality, date of collection, collector's name, host or habitat records, collection method, parts of the sample, latitude, longitude, accession number generated, determiner's name with identification details, or any other relevant group information. Authentically determined specimens are provided with an accession number, and a register is being maintained with the details of accession numbers generated. Determined specimens and type specimens are grouped into different orders and kept separately in insect cabinets. Type specimens are labelled using red labels and housed separately in fireproof type cabinets. A separate type register is also being maintained for all the type specimens deposited. A separate section for voucher specimens is also maintained in the museum.

Insect Discoveries: ICAR-IARI National Pusa Collection (2017-22)

A summary

The Insect Discoveries from ICAR-IARI National Pusa Collection during the year 2017-22 has been compiled with two new genera, one new subgenus, 75 new species and 23 new records from India. The new species belongs to four important orders viz., Coleoptera, Hemiptera, Hymenoptera and Lepidoptera. New records include five major insect orders Coleoptera, Diptera, Hemiptera, Hymenoptera and Lepidoptera.

❖ Two genera and one subgenus of insects new to science from India

Hemiptera

1. Chandra Meshram, 2017 (Type species: *Chandra dehradunensis*)
2. *Vittaliana* Sunil & Meshram, 2020 (Type species: *Vittaliana reticulata*)

Hymenoptera

1. *Crossocerus* (*Panjal*) Saini & Dey, 2022 (Subgenus) (Type species: *C. (Panjal) dutti*)

❖ 75 species of insects new to science from India

Coleoptera

1. *Eucryptorrhynchus khasiensis* Devi & Dey, 2017
2. *Lanelater andamanensis* Chandran & Dubey, 2021

Hemiptera

3. *Anagonalia lapnanensis* Rai & Meshram, 2019
4. *Bambusiphaga unispina* Ramya & Meshram, 2019
5. *Baseprocessa patkaensis* Meshram, 2021
6. *Calodia deergha* Viraktamath & Meshram, 2019
7. *Calodia keralica* Viraktamath & Meshram, 2019
8. *Calodia kumari* Viraktamath & Meshram, 2019
9. *Calodia neofusca* Viraktamath & Meshram, 2019
10. *Calodia periyari* Viraktamath & Meshram, 2019
11. *Calodia tridenta* Viraktamath & Meshram, 2019
12. *Durgades sineprocessus* Meshram, 2018
13. *Eoeyrysa sagittaria* Ramya, Bartlett & Meshram, 2020
14. *Flatfronta dibangi* Meshram, Nikoshe & Stuti, 2019
15. *Flatfronta utara* Meshram, Nikoshe & Stuti, 2019
16. *Glaberana acuta* Viraktamath & Meshram, 2019
17. *Glaberana purva* Viraktamath & Meshram, 2019
18. *Hecalus shanayai* Nikoshe & Meshram, 2020
19. *Hecalus tumidus* Nikoshe & Meshram, 2020
20. *Hishimonus adi* Stuti, Sunil, Singaravel & Meshram, 2020
21. *Igerna gladiota* Meshram & Stuti, 2021
22. *Japanagallia dolabra* Meshram, 2018
23. *Mahellus cardoni* Viraktamath & Meshram, 2017
24. *Mahellus unguulatus* Viraktamath & Meshram, 2017
25. *Mohunia manohari* Meshram, 2021
26. *Myittana bidentata* Ramaiah & Meshram, 2021
27. *Nirvana subsuturalis* Meshram & Stuti, 2017
28. *Olidiana fletcheri* Viraktamath & Meshram, 2019
29. *Olidiana lanceolata* Viraktamath & Meshram, 2019

30. *Olidiana umroensis* Viraktamath & Meshram, 2019
31. *Olidiana unidentata* Viraktamath & Meshram, 2019
32. *Paradorydium kirkaldyi* Meshram, 2018
33. *Parasogata sexpartita* Ramya, Bartlett & Meshram, 2020
34. *Pseudosubhimalus asymmetricus* Meshram & Niranjana, 2020
35. *Pseudosubhimalus dalangensis* Meshram & Niranjana, 2020
36. *Pseudosubhimalus katraini* Meshram & Niranjana, 2020
37. *Pseudosubhimalus lachungenensis* Meshram & Niranjana, 2020
38. *Pseudosubhimalus trilobatus* Meshram & Niranjana, 2019
39. *Singillatus parapectitus* Viraktamath & Meshram, 2019
40. *Singillatus serratispatulatus* Viraktamath & Meshram, 2019
41. *Sophonia intricate* Meshram, 2017
42. *Sophonia tridentata* Meshram, 2017
43. *Sophonia vidarvya* Meshram, 2017
44. *Thomsonia asymmetrica* Nikoshe & Meshram, 2020
45. *Trinoridia dialata* Viraktamath & Meshram, 2019
46. *Trinoridia ochrocephala* Viraktamath & Meshram, 2019
47. *Trinoridia piperica* Viraktamath & Meshram, 2019
48. *Trinoridia ramamurthyi* Viraktamath & Meshram, 2019
49. *Trinoridia saraikela* Viraktamath & Meshram, 2019
50. *Trinorida timlivana* Viraktamath & Meshram, 2019
51. *Trinoridia dialata* Viraktamath & Meshram, 2019
52. *Trinoridia ochrocephala* Viraktamath & Meshram, 2019
53. *Univagris tenebra* Rajgopal & Meshram, 2018
54. *Webboldia andamana* Viraktamath & Meshram, 2019
55. *Webboldia burmanica* Viraktamath & Meshram, 2019
56. *Xenovarta viraktamathi* Meshram, Stuti & Hashmi, 2018
57. *Zhangolidia weicongi* Viraktamath & Meshram, 2019

Hymenoptera

58. *Agraulomyrmex damohensis* Harshana & Dey, 2021
59. *Crossocerus (Thao) nitidicarpus indicus*, Saini & Dey, 2022
60. *Dasyproctus helenae*, Saini & Dey, 2022
61. *Ectemnius Hypocrabro harshae* Saini & Dey, 2022
62. *Ectemnius Hypocrabro nandaniae* Saini & Dey, 2022
63. *Piyuma chapraensis* Saini & Dey, 2021
64. *Rhopalum gulmargense* Saini & Dey, 2022
65. *Sycoscapter benghalensis* Pramanik & Dey, 2019
66. *Sycoscapter benjaminiae* Pramanik & Dey, 2019
67. *Walkerella tridentate* Pramanik & Dey, 2017

Lepidoptera

68. *Acanthoclitia bengaluruensis* Reddy & Shashank, 2022
69. *Baburia chettalliensis* Shashank & Santhosh, 2022
70. *Baburia tinsukiaensis* Shashank, 2022
71. *Conogethes sahyadriensis* Shashank, Kammar, Mally & Chakravarthy, 2018
72. *Frisilia chandrai* Park & Shashank, 2019
73. *Frisilia yangbaei* Park & Shashank, 2019
74. *Grapholita constricta* Reddy and Shashank, 2022
75. *Thaumatotibia ramamurthyi* Shashank and Reddy, 2022

❖ 23 species of insects are new records/ Combination

Coleoptera

1. *Cryptalaus nodulosus* (Waterhouse, 1877) (New combination)

2. *Xylotrechus smeii* (Laporte de Castelnau & Gory, 1841) (New Host Record)

Diptera

3. *Eumerus vestitus* Bezzi, 1912

Hemiptera

4. *Hishimonus knightiellus* Viraktamath & Anantha Murthy, 2014
5. *Olidiana brevis* (Walker, 1851)
6. *Olidiana perculata* (Distant, 1908)
7. *Trinridia tripectinata* (Nielson, 1982)
8. *Rastrococcus iceryoides* (Green, 1908) (New host record)

Lepidoptera

9. *Alciphanes clavata* Park, 2001
10. *Antoculeora ornatissima* (Walker, 1858)
11. *Ctenoplusia mutans* (Walker, 1865)
12. *Ctenoplusia tarassota* (Hampson, 1913)
13. *Dactyloplusia impulsiva* (Walker, 1865)
14. *Dervishiya cadambae* (Moore, 1865)
15. *Harutaeographa brumosa* Yoshimoto, 1994
16. *Hemiglaea costigera* Hreblay & Ronkay, 1998
17. *Nyctycia asymmetrica* Hreblay & Ronkay, 1998
18. *Owadaglaea barna* Hreblay & Ronkay, 1998
19. *Owadaglaea elongata* Hreblay & Ronkay, 1998
20. *Owadaglaea triangulifera* Hreblay & Ronkay, 1998
21. *Phyllonorycter populifoliella* (Treitschke, 1833)
22. *Spodoptera frugiperda* (J.E. Smith, 1797)
23. *Zonoplusia ochreatea* (Walker, 1865)

Chandra Meshram, 2017



Type status: Holotype

Sex / stage: Male / Adult

Etymology: The genus is named after Prof. Chandrashekhara A. Viraktamath in recognition of his monumental contributions to leafhopper taxonomy.

Location: New Chakrata, Muktapakhari, Dehradun, Uttarakhand

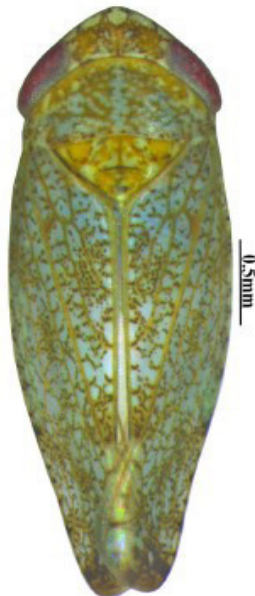
Remarks: **New genus described.** The new species can easily be identified by pygofer with lobe broadly truncate in lateral view, connective Yshaped, stem & arms subequal.

Publication: Meshram N.M., Shashank P.R. & Sinha T. 2017. A new genus of leafhopper Subtribe Paraboloponina (Hemiptera: Cicadellidae) with molecular phylogeny of related genera. PLoS ONE, 12 (5): e0177644.

.....

Vittaliana

Sunil & Meshram, 2020



Type status: Holotype

Sex / stage: Male / Adult

Etymology: This genus was named after the place of collection, Vittal in Kerala, India.

Location: Vittal, Kasargod, Kerala

Remarks: **New genus described.** This genus is placed in the subtribe Opsiina of Opsiini based on all these characters macropterous; ovipositor not protruding far beyond pygofer apex and subgenital plates with a lateral row of macrosetae; aedeagal shafts divided near to base.

Publication: Sunil, Meshram N.M., Hashmi T.R. & Shashank P.R. 2020. A new genus *Vittaliana* belonging to the tribe Opsiini (Hemiptera: Cicadellidae) from India & its molecular phylogeny. PeerJ, 8:9515.

Panjaj
Saini & Dey, 2022

Crossocerus (Panjaj) dutti Saini & Dey, 2022



Sex/stage: Male/Adult



Etymology: The subgenus name is based after its type locality and species named after Mr. G. R. Dutt.

Location: Gulmarg, Jammu and Kashmir



Remarks: New subgenus can be identified by recurrent vein joining submarginal cell beyond its middle; clypeal medial apical margin with a distinct protruding tridentate lobe along with lateral.

Publication: Saini V. & Dey D. 2022. *Panjaj*, a new subgenus of the genus *Crossocerus* (Hymenoptera: Crabronidae), with description of a new species from Pakistan. *Zoosystematica Rossica*. 31 (1): 87–97.



Anagonalia lapnanensis Rai & Meshram, 2019



Sex/stage: Male/Adult

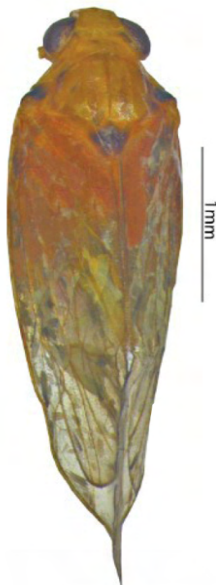
Etymology: This species is named after the place of collection, Lapnan, in Arunachal Pradesh.

Location: Lapnan, Arunachal Pradesh

Remarks: Morpho-variants are observed in this species.

Publication: Rai, S. & Meshram, N.M. 2019. A new leafhopper species of the genus *Anagonalia* from India (Hemiptera, Cicadellidae, Cicadellinae). *ZooKeys*, 1004: 141–148.

Bambusiphaga unispina Ramya & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species name alludes to the presence of spine like process at the mid-lateral part of phallosome.

Location: Palampur, Himachal Pradesh

Remarks: **New genus recorded.** The new species can easily be identified by the aedeagus broad basally, narrowed apically, with one long, caudal process & originating mid-ventrally, almost reaching the apex of the shaft with acute apex.

Publication: Ramya, N. & Meshram N.M. 2019. New record of the genus *Bambusiphaga* (Hemiptera: Delphacidae: Tropidocephalini) from India with description of a new species. *Zootaxa*, 4658 (1): 197–200.

Baseprocessa patkaensis Meshram, 2021



Sex/stage: Male/Adult

Etymology: The species is named for the mountain range “*patkai*” in the place of collection

Location: Thinsa, Arunachal Pradesh

Remarks: This species can easily be identified by the pygofer with the caudoventral process irregularly serrated on the ventral margin & the dorsal margin glabrous.

Publication: Meshram N.M., Ramaiah M., Shashank P.R. & Stuti. 2021. New record of the genus *Baseprocessa* (Hemiptera: Cicadellidae: Coelidiinae) from India with description of a new species. *Zootaxa*, 4999 (5): 479–483.

Calodia deergha Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species name in Sanskrit meaning long for processes of the aedeagal shaft.

Location: Courtallam, Tamil Nadu

Remarks: *C. deergha* resembles *C. ostenta* in general habitus but differs in having the distal process of the aedeagus 2x longer than the proximal process

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

Calodia keralica
Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species is named after Kerala state in India where the material was collected.

Location: Kasargod, Kerala

Remarks: *C. keralica* resembles *C. ostenta* in the structure of the aedeagus, but differs in having a blade like, caudoventral process of the pygofer & a small spine at the apex of the subgenital plate

Publication: Viraktamath, C.A. & Meshram, N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

Calodia kumari
Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: This species is named after Dr. A.R.V. Kumar who collected the specimen.

Location: Belgaum, Karnataka

Remarks: This species closely resembles *C. neofusca* in the structures of the male genitalia but can be easily distinguished by the unequal subapical aedeagal processes & by the proximal process bearing four long secondary spines.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

Calodia neofusca
Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species name is descriptive for its superficial resemblance to *C. fusca* (Melichar).

Location: Chettalli, Karnataka

Remarks: This species closely resembles *C. fusca* in the structure of the male genitalia but can be easily distinguished by the presence of numerous long spines in the distal $\frac{3}{4}$ of the proximal process of the aedeagus

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

Calodia periyari
Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species is named after the Periyar National Park & Wildlife Sanctuary close to Thekkady, the type locality.

Location: Thekkady, Kerala

Remarks: *C. periyari* resembles *C. kodikanelensis* Nielson & *C. ostenta* (Distant) but differs in the relative size of the aedeagal processes & ventral pygofer process.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

Calodia tridenta
Viraktamath & Meshram, 2019



Sex/stage: Male/ Adult

Etymology: The name tridenta is descriptive for the 3 branched proximal process of the aedeagus.

Location: Nelliampathy, Kerala

Remarks: *Calodia tridenta* similar to *C. subcrista* & can be easily distinguished by the trifurcate proximal process of the aedeagus which is bifurcate in *C. subcrista*.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1):001–091.

Durgades sineprocessus
Meshram, 2018



Sex/stage: Male/ Adult

Etymology: The species name (Latin: sineprocessus meaning without process) alludes to the preatrium of aedeagus lacking elongate processes.

Location: Kinnaur District, Powari, Himachal Pradesh

Remarks: This species can easily be identified by short, blunt projection rather than an elongate spine posteroventrally on the preatrium of the aedeagus.

Publication: Meshram N.M., Stuti R., Rajgopal N.N. & Ramya N. 2018. Two new species of tribe Agalliini (Hemiptera: Cicadellidae: Megophthalminae) with note on intraspecific variations. *Zootaxa*, 4378 (3): 442–450.

Eoeurysa sagittaria
 Ramya, Bartlett & Meshram, 2020



Sex/stage: Male/Adult

Etymology: The species name comes from the Latin word ‘*sagittaria*’, meaning ‘arrow’, in reference to the arrow head shape of the apex of the aedeagus.

Location: Rampur Una, Himachal Pradesh

Remarks: This species can easily be identified by the flattened body & the progressively broadening frons.

Publication: Ramya N., Bartlett C. & Meshram N.M. 2020. Two new species of planthoppers from India (Hemiptera: Auchenorrhyncha: Delphacidae) in the genera *Parasogata* & *Eoeurysa*. European Journal of Taxonomy, 724: 93–108.



Flatfronta dibangi
 Meshram, Nikoshe & Stuti, 2019

Sex/stage: Male/Adult

Etymology: The species name “*dibangi*” refers to bamboo plant in local dialect.

Location: Basar, Arunachal Pradesh

Remarks: Reported on feeding on Bamboo

Publication: Meshram, N.M., Nikoshe, A.P. & Stuti. 2020. Two new species of bamboo feeding leaf hopper genus *Flatfronta* (Hemiptera, Cicadellidae, Deltocephalinae) from India. Zootaxa, 4758 (1): 176– 180.

NEW SPECIES



Flatfronta utara Meshram, Nikoshe & Stuti, 2019

Sex/stage: Male/Adult

Etymology: The species name “*uttara*” (Sanskrit, meaning North) refers to the Northern region of India where it was collected.

Location: Basar, Arunachal Pradesh

Remarks: Reported on feeding on Bamboo

Publication: Meshram, N.M., Nikoshe, A.P. & Stuti. 2020. Two new species of bamboom feeding leafhopper genus *Flatfronta* (Hemiptera, Cicadellidae, Deltocephalinae) from India. *Zootaxa*, 4758 (1): 176–180.

Glaberana acuta Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species name is descriptive for the pointed caudodorsal process of the pygofer.

Location: Umroi, Meghalaya

Remarks: It differs from *G. khasiensis* in having a more acute caudodorsal process of the pygofer. Specimens from Manipur have the pygofer process slightly asymmetrically developed, one being longer & serrated, & the other typical.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.



Glaberana purva
Viraktamath & Meshram, 2019

Sex/stage: Male/ Adult

Etymology: The species name (Sanskrit: purva meaning East) refers to the Eastern region of India where the species lives.

Location: Ukhrul, Manipur

Remarks: *Glaberana purva* similar to *G. aproboscidea* (Zhang) & *G. mengshuengensis* (Zhang) from China but differs in the shape of the pygofer prolongation which is smoothly rounded with apical crenulations typical.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe *Coelidiini* (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1):001–091.



Hecalus shanayai
Nikoshe & Meshram, 2020

Sex/stage: Male/ Adult

Etymology: This species is named in honour of “Miss Shanaya” (daughter of the corresponding author) for her support to the author to pursue his passion in leafhopper taxonomy.

Location: Chikhaldara, Maharashtra

Remarks: *H. shanayai* can be distinguish in having the aedeagal shaft foliate in the apical 0.2 with a sparsely serrated margin, the dorsal margin with a short subapical tooth, & lacking middorsal lateral expansions.

Publication: Nikoshe, A.P., Meshram, N.M., Stuti & Dey, D. 2020. Indian Hecalina (Hemiptera: Cicadellidae: Deltocephalinae: Hecalini) with description of three new species. *Zootaxa*, 4881 (3): 573– 585.



Hecalus tumidus
Nikoshe & Meshram, 2020

Sex/stage: Male/Adult

Etymology: The species name (Latin: *tumid* meaning swollen) alludes to the swollen aedeagal shaft.

Location: Kinnaur, Himachal Pradesh

Remarks: *Hecalus tumidus* sp. nov. externally resembles *H. ghaurii* (Distant) but differs in having the head shorter & the aedeagal shaft swollen in the subapical 1/3.

Publication: Nikoshe, A.P., Meshram, N.M., Stuti & Dey, D. 2020. Indian Hecalina (Hemiptera: Cicadellidae: Deltocephalinae: Hecalini) with description of three new species. *Zootaxa*, 4881 (3): 573–585.



Hishimonus adi
Stuti, Sunil, Singaravel
& Meshram, 2020

Sex/stage: Male/Adult

Etymology: This new species name, a noun, is the name of the group of indigenous “*Adi*” people inhabiting the type locality.

Location: Basar, Arunachal Pradesh

Publication: Stuti., Sunil., Singaravel, M. & Meshram, N.M. 2020. A new species of the genus *Hishimonus* Ishihara, 1953 (Hemiptera: Cicadellidae: Deltocephalinae) with a new record from India. *Zootaxa*, 4750 (1): 131–137

Igerna gladiota Meshram & Stuti, 2021



Sex/stage: Male/Adult

Etymology: This species is named after the sword like pygofer process

Location: Lapnan, Arunachal Pradesh

Remarks: This species can easily be identified by the pygofer with sword like process arising on posteroventral margin of pygofer exceeding the posterodorsal margin of pygofer & X segment with long, tubular, elongate anal collar process

Publication: Meshram N.M. & Stuti. 2021. A new species of the genus *Igerna* (Hemiptera: Cicadellidae: Megophthalminae) from India. *Biologia*, 76:3721–3725.

Japanagallia dolabra Meshram, 2018



Sex/stage: Male/Adult

Etymology: The species name (Latin: *dolabra* meaning pickaxe) alludes to the apically pickaxe shaped dorsal aedeagal processes.

Location: Lachung, Sikkim

Remarks: This species can easily be identified by pygofer with ventrally & dorsally directed point process, aedeagus shaft short, with two small curved processes on mid ventral margin.

Publication: Meshram N.M., Stuti R., Rajgopal N.N. & Ramya N. 2018. Two new species of tribe Agalliini (Hemiptera: Cicadellidae: Megophthalminae) with note on intraspecific variations. *Zootaxa*, 4378 (3): 442-450.

Mahellus cardoni
Viraktamath & Meshram, 2017



Sex/stage: Male/Adult

Etymology: The species is named after the collector, Mr. P. Cardon.

Location: Sulawesi, Indonesia

Remarks: This species can easily be identified by the subgenital plate more or less of uniform width throughout with apex rounded & the style with apical half abruptly narrowed into thin process.

Publication: Meshram N.M. & Viraktamath C.A. 2017. A review of the coelidiine leafhopper genus *Mahellus* (Hemiptera: Cicadellidae: Coelidiinae) with description of two new species from the Oriental region. *Zootaxa*, 4258 (3): 271–280.



Mahellus ungulatus
Viraktamath & Meshram, 2017



Sex/stage: Male/Adult

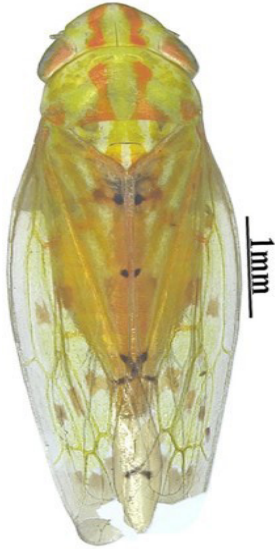
Etymology: The species name alludes to the finger like extensions of the pygofer process.

Location: Sukna, West Bengal

Remarks: This species can easily be identified by much narrower apophysis of the style.

Publication: Meshram N.M. & Viraktamath C.A. 2017. A review of the coelidiine leafhopper genus *Mahellus* (Hemiptera: Cicadellidae: Coelidiinae) with description of two new species from the Oriental region. *Zootaxa*, 4258 (3): 271–280.

Mohunia manohari
Meshram, 2021



Sex/stage: Male/Adult

Etymology: This species is named after the Late Mr. Manohar Meshram (Father of the Author) for his continuous support & encouragement to the author to pursue his passion in leafhopper taxonomy

Location: Basar, Arunachal Pradesh

Remarks: This species can easily be identified by aedeagus compressed, connected membranously to the connective, inverted J shaped & without dorsal apodemes.

Publication: Meshram N.M. 2021. A new bamboo feeding species, *Mohunia manohari* sp. nov., (Hemiptera: Cicadellidae: Deltocephalinae) & first record of the genus from India. Zootaxa, 5061 (1): 192–198.

Myittana bidentata
Ramaiah & Meshram, 2021



Sex/stage: Male Adult

Location: Pantnagar : Uttarakhand

Etymology. Species name “bidentata” alludes to pair of short processes on the shaft

Remarks: The new species can be distinguished by the aedeagal shaft in lateral view with an acute & hooked apex; shaft with a pair of short anteriorly directed processes laterad of proximal margin of gonopore

Publication: Ramaiah M. & Meshram, N.M. 2021. A new species of bamboo-feeding leafhopper genus *Myittana* from India (Hemiptera: Cicadellidae). Zootaxa, 4996(1): 189–193.

NEW SPECIES



Nirvana subsuturalis Meshram & Stuti, 2017

Sex/stage: Male/Adult

Etymology: This new species is named so because of its resemblance to *N. suturalis*

Location: Barapani, Meghalaya

Remarks: This species can easily be identified by median longitudinal black and traversing crown, pronotum & scutellum bordered with red longitudinal and pygofer lobe slightly oval, with several macrosetae posteriorly.

Publication: Meshram N.M. & Stuti R. 2017. A new species of genus *Nirvana* (Hemiptera: Cicadellidae: Evacanthinae) with note on female genitalia from India. *Zootaxa*, 4303 (2): 264–272.



Olidiana fletcheri Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: This species is named after Dr. Murray J. Fletcher (Australia) in recognition of his contributions to the leafhopper taxonomy.

Location: Pamlum, Meghalaya

Remarks: *O. fletcheri* resembles *O. fasciculata* (Nielson) but differs in having: Aedeagus with subapical process curved & with spicules restricted to distal 1/5 prolongation.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

Olidiana lanceolata Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species name is descriptive for the long, narrow pygofer ventral process.

Location: Ranipool, Sikkim

Remarks: *Olidiana lanceolata* has male genital structures similar to the Chinese species *O. tongmaiensis* (Zhang 1994) but differs in having the caudoventral pygofer process unforked apically

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

Olidiana umroensis Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species is named for the locality, Umroi airport, Shillong.

Location: New Dawki, Jaintia hills

Remarks: *Olidiana umroensis* resembles *O. tongmaiensis* Zhang from China but can be easily distinguished by the unequally forked ventral pygofer process & by the more than six pairs of apical teeth on the aedeagal shaft.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

Olidiana unidentata Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

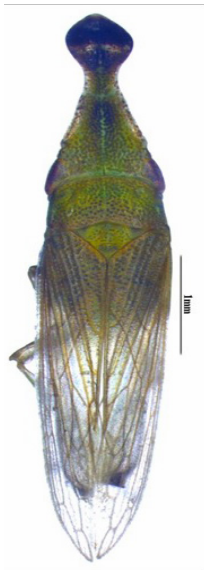
Etymology: The species name is descriptive for the angulate projection at midlength of aedeagal shaft.

Location: Margherita, Assam

Remarks: *O. unidentata* resembles *O. perbrevis* (Nielson) in the structure of the aedeagus but can be easily distinguished by the angulate projection at the shaft midlength & by the caudoventral pygofer process which is shorter & not exceeding the caudodorsal margin of pygofer.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

Paradorydium kirkaldyi Meshram, 2018



Sex/stage: Male/Adult

Location: Powri : Kinnaur: Himachal Pradesh, India.

Etymology. The species is named after Prof. G.W. Kirkaldy for his monumental contributions towards classification & leafhopper taxonomy.

Remarks: Subapical region of vertex more narrower as compared to *P. khasianum*.

Publication: Rajgopal, N.N., Stuti, Meshram, N.M. & Shashank, P.R. 2018. DNA barcoding & description of new species of *Paradorydium Kirkaldy* (Cicadellidae: Deltocephalinae:Eupelicini) from India. *Journal of Asia Pacific Entomology*, 21(3): 1059–1063.



Parasogata sexpartita
**Ramya, Bartlett & Meshram,
 2020**

Sex/stage: Male/ Adult

Etymology: The species name is derived from the Latin term ‘sex’, meaning ‘six’, plus ‘partita’, meaning ‘parted’, a reference to the number of subapical spines on the aedeagus

Location: Jharnapani, Nagaland

Remarks: This species is similar to *P. binaria* & can be distinguished by an aedeagus with six radiating spines.

Publication: Ramya N., Bartlett C. & Meshram N.M. 2020. Two new species of planthoppers from India (Hemiptera: Auchenorrhyncha: Delphacidae) in the genera *Parasogata* & *Eoeurysa*. European Journal of Taxonomy, 724: 93–108.

Pseudosubhimalus asymmetricus
Meshram & Niranjana, 2020



Sex/stage: Male/ Adult

Etymology: Species name *asymmetricus* alludes to asymmetrical subapical processes on aedeagus.

Location: Dalang, Himachal Pradesh

Remarks: This species is closely associated with *Ptilobata*, Meshram & Niranjana (2019) in certain characters but differs in having, aedeagus C-shaped, shaft uniformly broad throughout its length, with serrated acute apex subapical processes asymmetrical.

Publication: Niranjana, G.N., Meshram, N.M., Stuti., Sunil & Nikoshe, A.P. 2019. Four new species of the genus *Pseudosubhimalus* (Hemiptera: Cicadellidae) from the Indian subcontinent. Zootaxa, 4894 (2): 269–277 .

Pseudosubhimalus dalangensis Meshram & Niranjana, 2020



Sex/stage: Male/ Adult

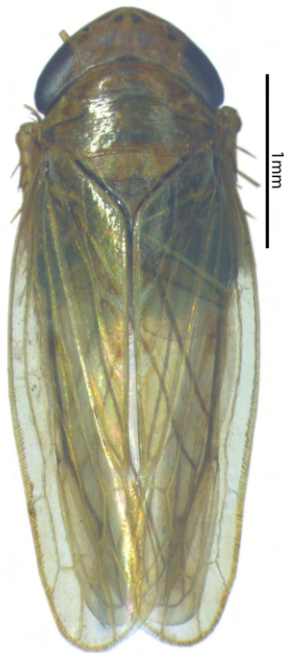
Etymology: The epithet refers to the type locality, Dalang.

Location: Dalang, Himachal Pradesh

Remarks: This species is similar to *P. yatungensis* but differs in having the aedeagus bifurcated apically with serrated subapical processes.

Publication: Niranjana, G.N., Meshram, N.M., Stuti., Sunil & Nikoshe, A.P. 2019. Four new species of the genus *Pseudosubhimalus* (Hemiptera: Cicadellidae) from the Indian subcontinent. *Zootaxa*, 4894 (2): 269–277 .

Pseudosubhimalus katraini Meshram & Niranjana, 2020



Sex/stage: Male/ Adult

Etymology: The epithet refers to the type locality, Katrain.

Location: Katrain, Himachal Pradesh

Remarks: This species is characterized by in having the aedeagal shaft is widest at the base, gradually narrowed apically, the lateral projections lack serrated margins & ventral subapical conical projections.

Publication: Niranjana, G.N., Meshram, N.M., Stuti., Sunil & Nikoshe, A.P. 2019. Four new species of the genus *Pseudosubhimalus* (Hemiptera: Cicadellidae) from the Indian subcontinent. *Zootaxa*, 4894 (2): 269–277 .

NEW SPECIES



Pseudosubhimalus lachungensis Meshram & Niranjana, 2020

Sex/stage: Male/Adult

Etymology: The epithet refers to the type locality, Lachung.

Location: Lachung, Sikkim

Remarks: *P. lachungensis* is unique & differs from all the other species of *Pseudosubhimalus* by the aedeagus with four processes, with both pairs having crenulations on the lateral margins.

Publication: Niranjana, G.N., Meshram, N.M., Stuti., Sunil & Nikoshe, A.P. 2019. Four new species of the genus *Pseudosubhimalus* (Homoptera: Cicadellidae) from the Indian subcontinent. *Zootaxa*, 4894 (2): 269–277 .



Pseudosubhimalus trilobatus Meshram & Niranjana, 2019

Sex/stage: Male/Adult

Etymology: Species name refers to the three lobed apex of aedeagus.

Location: Dalang Maidan, Himachal Pradesh

Remarks: This species is characterized by in having aedeagal shaft narrowed apically, with trilobed apex in dorsal view. Gonopore subapical placed above base of the processes.

Publication: Niranjana, G.N., Meshram, N.M., Shashank, P.R., Stuti & Hashmi, T.R. 2019. Tribe reassessment of the subhimalayan leafhopper genus *Pseudosubhimalus* (Homoptera: Cicadellidae) based on molecular phylogeny. *PeerJ*, 7:7162.

Singillatus parapectitus Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species is named for its external resemblance to *Olidiana pectita* (Distant).

Location: Chidu, Arunachal Pradesh

Remarks: *Singillatus parapectitus* externally resembles *S. ventrospinatus* (Nielson) but differs in having the sub-genital plate with an apical stout spine & the aedeagal shaft with a series of apical teeth.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.



Singillatus serratispatulatus Viraktamath & Meshram 2019



Sex/stage: Male/Adult

Etymology: The species name is descriptive for the serrated spatulate caudoventral process of the male pygofer.

Location: Tengnoupal Sita road, Manipur

Remarks: This species can easily be identified by the pygofer with a serrate, spatulate caudoventral process & caudally directed basal spine.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.



Sophonia intricata Meshram, 2017

Sex/stage: Male/Adult

Etymology: The species name alludes to very complicated structure of the aedeagus

Location: Katrain, Himachal Pradesh

Remarks: This species can easily be identified by style slender, preapical lobe robust, apophysis slender, apex with very long beak like extension.

Publication: Meshram N.M. 2017. Review of the genus *Sophonia* (Hemiptera: Cicadellidae) with three new species from India. *Zootaxa*, 4243 (3): 577–588.



Sophonia tridentata Meshram, 2017

Sex/stage: Male/Adult

Etymology: The species name alludes to the tridentate spine-like process on the pygofer process

Location: Gangtok, Sikkim

Remarks: This species can easily be identified by pygofer ventral process with subapical spine-like tridentate process below which single spine arises & aedeagal shaft with subapical processes each with spine in the middle laterally

Publication: Meshram N.M. 2017. Review of the genus *Sophonia* (Hemiptera: Cicadellidae) with three new species from India. *Zootaxa*, 4243 (3): 577–588.

NEW SPECIES



Sophonia vidaryya Meshram, 2017

Sex/stage: Male/Adult

Etymology: The species name (Sanskrit: *vidaryya* meaning hoodless) alludes to the aedeagal shaft lacking a hood like expansion anteriorly.

Location: Barapani, Meghalaya

Remarks: This species can easily be identified by shaft apex with lateral processes acuminate in posterior view, curved strongly ventrad in lateral view .

Publication: Meshram N.M. 2017. Review of the genus *Sophonia* (Hemiptera: Cicadellidae) with three new species from India. *Zootaxa*, 4243 (3): 577–588.



Thomsonia asymmetrica Nikoshe & Meshram, 2020

Sex/stage: Male/Adult

Etymology: The species name alludes to the asymmetrical subapical processes of the aedeagus.

Location: Barapani, Meghalaya

Publication: Nikoshe, A.P., Meshram, N.M., Stuti & Dey, D. 2020. Indian Hecalina (Hemiptera: Cicadellidae: Deltocephalinae: Hecalini) with description of three new species . *Zootaxa*, 4881 (3): 573– 585.

Trinoridia dialata
Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species name is descriptive for the long, dialated setaceous process of the aedeagal shaft.

Location: Srivardhan, Maharashtra

Remarks: This species is characterized by in having aedeagus with four subapical spines three narrow spines & one large, inflated process with secondary processes.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. Zootaxa, 4653 (1): 001–091.

Trinoridia ochrocephala
Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species name is descriptive for the distinctive yellowish brown head.

Location: Nelliampathy, Kerala

Remarks: This species is characterized by in having the different arrangement & configuration of the aedeagal processes.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. Zootaxa, 4653 (1): 001–091.

NEW SPECIES

Trinoridia piperica Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: This species is named after one of its host plant genera, *Piper*.

Location: Nelliampathy, Kerala

Remarks: *T. piperica* resembles *T. tripectinata* but differs in having five subapical processes on the aedeagal shaft compared to three in the latter species

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. Zootaxa. 4653 (1): 001–091.

Trinoridia ramamurthyi Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: This species is named after Prof. V.V. Ramamurthy for his contributions to insect taxonomy.

Location: Bangalore, Karnataka

Remarks: This species breeds on brinjal (*Solanum melongena* L.) & the adults were also found on Piper betle, & Lantana.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. Zootaxa, 4653 (1): 001–091.

NEW SPECIES



Trinoridia saraikela Viraktamath & Meshram, 2019

Sex/stage: Male/Adult

Etymology: This species is named after its type locality & to be treated as noun in apposition.

Location: Saraikela, Jharkhand

Remarks: *T. saraikela* resembles *T. tripectinata* but can be differentiated by the relative lengths of the three subapical processes on the aedeagal shaft & by the strongly asymmetrical styles

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. Zootaxa. 4653 (1): 001–091.



Trinorida timlivana Viraktamath & Meshram, 2019

Sex/stage: Male/Adult

Etymology: This species is named after the place of the type locality Timli forest & to be treated as noun in apposition.

Location: Dehradun, Uttarakhand

Remarks: *Trinorida timlivana* resembles *T. ochrocephala* in male genitalia features but differs in the bifid proximal process compared to trifid proximal process in *T. ochrocephala*.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. Zootaxa. 4653 (1): 001–091.

Univagris tenebra
Rajgopal & Meshram, 2018



Sex/stage: Male/Adult

Etymology: The species name (Latin: tenebra meaning dark) alludes to the dark body color of the species

Location: Banjar, Himachal Pradesh

Remarks: This species can easily be identified by subgenital plate without stout setae submarginally, aedeagus blunt at apex, with well developed dorsal apodemes & shaft closely appressed towards ventral process.

Publication: Rajgopal N.N. & Meshram N.M. 2018. Second species of unusual leafhopper genus *Univagris* (Hemiptera: Cicadellidae: Deltocephalinae) from India. *Zootaxa*, 4514 (3): 425–430.

Webboldia andamana
Viraktamath & Meshram, 2019



Sex/stage: Male/Adult

Etymology: The species is named after the type locality & is noun in apposition.

Location: South Andaman, Andaman & Nicobar

Remarks: *W. andamana* is similar in male genitalia features to *W. webbi*, & can be distinguished from the latter by the two apical & one subapical aedeagal processes

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.

NEW SPECIES



Webbolidia burmanica Viraktamath & Meshram, 2019

Sex/stage: Male/ Adult

Etymology: The species is named after the former name of Myanmar.

Location: Lashio, Upper Burma, Myanmar

Remarks: *W. burmanica* resembles *W. webbi* (Nielson) in male genitalia features but differs by the pygofer caudo dorsal process with truncate apex

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1): 001–091.



Xenovarta viraktamathi Meshram, Stuti & Hashmi, 2018



Sex/stage: Male/ Adult

Etymology: The species is named after Prof. C. A. Viraktamath in recognition of his monumental contributions to leafhopper taxonomy.

Location: Basar, Arunachal Pradesh

Remarks: This species can easily be identified by the more rounded apex of the forewing & simple symmetrical aedeagus with a pair of subapical lateral processes

Publication: Meshram N.M., Stuti R. & Hashmi T.R. 2018. First record of the leafhopper genus *Xenovarta Viraktamath* (Hemiptera: Cicadellidae: Deltocephalinae) from India with description of anew species. *Zootaxa*, 4532 (3): 444–446.

Zhangolidia weicongi
Viraktamath & Meshram, 2019



Sex/stage: Male/ Adult

Etymology: This species is named after the Chinese leafhopper worker Dr. Wei Cong for his contributions to leafhopper taxonomy.

Location: Sijang Mongjang, Senapati, Manipur

Remarks: *Z. weicongi* can be readily distinguished from the remaining two known species by two setose apical processes on the aedeagal shaft compared to a single, apical process in the other species.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. *Zootaxa*, 4653 (1):001–091.

.....

Agraulomyrmex damohensis
Harshana & Dey, 2021



Sex/stage: Worker

Location: Madhya Pradesh, India.

Etymology: The species name refers to its type locality

Remarks: **New genus recorded.** Smallest species under the genus *Agraulomyrmex*. It distinctly differs from other known species by having nine segmented antennae.

Publication: Harshana A. & Dey D. 2021. First record of the ant genus *Agraulomyrmex* Prins, 1983 (Formicidae: Formicinae) from India, with description of a new species. *Oriental Insects*, 56 (3): 428-436.

.....
Crossocerus (Thao)
nitidicorpus indicus
Saini & Dey, 2022



Sex/stage: Male/Adult

Etymology: The species name is based after its type locality country.

Location: Gulmarg, Jammu and Kashmir

Remarks: New subspecies can be identified by median notch on pronotal collar and median lobe of clypeus.

Publication: Saini V. & Dey D. 2022. First record of subgenus *Thao* Tsuneki, 1982 (Hymenoptera: Crabronidae: Crabronini) from India: a new subspecies and a key to all subspecies of *Crossocerus (Thao) nitidicorpus* Tsuneki. *Zootaxa*, 5159 (1): 117–124.

Dasyproctus helenae
Saini & Dey, 2022

Sex/stage: Male/Adult

Etymology: The species name is based after Late Mrs. Helen Court (Crabronidae Expert)

Location: Chhattisgarh: Banhar



Remarks: New subspecies can be identified by deep clypeal emargination of median lobe, scapal basin deeply excavated and absence of fine longitudinal sulcus between posterior ocelli, larger distance between orbital fovea and median ocellus and spots on metasoma.

Publication: Saini V. & Dey D. 2022. *Dasyproctus helenae*, a new species of solitary hunting wasp from India and a checklist of *Dasyproctus* Lepeletier de Saint Fargeau and Brullé, 1835 from the Indian subcontinent (Hymenoptera: Crabronidae: Crabronini). *Zootaxa*, 5195 (1): 155–162.

Ectemnius (Hypocrabro) harshae
Saini & Dey, 2022

Sex/stage: Male and Female/Adult

Location: Uttarakhand, Bhimtal

Etymology: Name based on the first author mother.



Remarks: New species can be identified by presence of clypeus with distinct median carina and median lobe slightly truncate apically, lateral spots on metasoma on body.

Publication: Saini V. & Dey D. 2022. Two new species of the solitary hunting wasp genus *Ectemnius* (Hymenoptera Crabronidae), with a key to the Indian species of the subgenus *Hypocrabro*. *Bulletin of Insectology*, 75(2):211–221.

NEW SPECIES

Ectemnius (Hypocrabro) nandaniae Saini & Dey, 2022

Sex/stage: Male/Adult



Etymology: The species name is based after first author sister

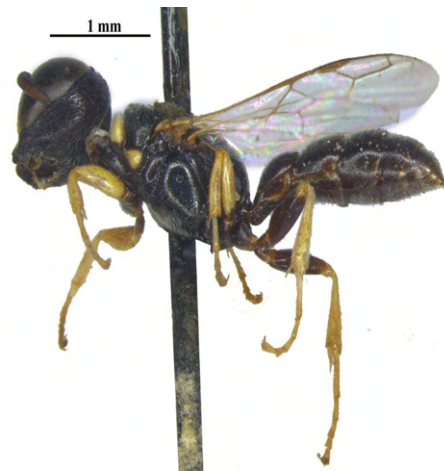
Location: Sumbal, Jammu and Kashmir

Remarks: New species can be identified by coloration and length of antennomeres, median lobe of clypeus and black bisinuate band dorsally, fore and mid femora expanded basally, lateral spots on metasoma

Publication: Saini V. & Dey D. 2022. Two new species of the solitary hunting wasp genus *Ectemnius* (Hymenoptera Crabronidae), with a key to the Indian species of the subgenus *Hypocrabro*. Bulletin of Insectology, 75(2):211–221.

Piyuma chapraensis Saini & Dey 2021

Sex/stage: Male/Adult



Etymology: The species name is based after its type locality.

Location: Chapra, Bihar

Remarks: New species can be identified by dorsal surface of propodeum sparsely punctate, scutellum completely yellow, postscutellum yellow except lateral margins.

Publication: Saini V. & Dey D. 2021. The solitary wasp genus *Piyuma* Pate, 1944 (Hymenoptera: Crabronidae: Crabroninae) in India, with description of a new species. Oriental Insects, 56(3): 379-391.

Rhopalum gulmargense
Saini & Dey, 2022



Sex/stage: Male/Adult

Etymology: The species name is based after its type locality.

Location: Gulmarg, Jammu and Kashmir

Remarks: New species can be identified by presence of orbital fovea, broader face, antennal sockets contiguous and supraorbital projection.

Publication: Saini V. & Dey D. 2022. Description of *Rhopalum* (s. str.) *gulmargense* n. sp. with a key to the Indian species of the subgenus *Rhopalum* Stephens, 1829 s. str. (Hymenoptera: Crabronidae: Crabronini). *Zootaxa*, 5105 (1): 139–144.



Sycoscapter benghalensis
Pramanik & Dey, 2019

Sex/stage: Male and Female/Adult



Host: *Ficus benghalensis*

Location: Delhi, West Bengal, India

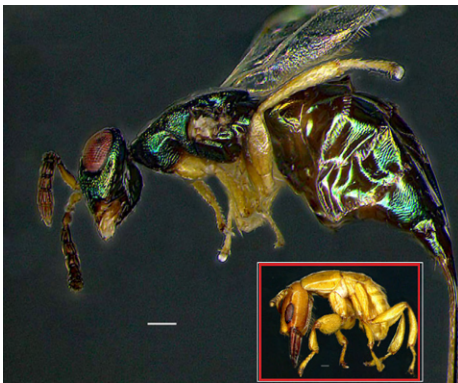
Etymology: This species is named after its fig host.

Remarks: Male and female exhibit sexual dimorphism as shown in figure Female (green colour) and male (brown).

Publication: Pramanik A. & Dey D. 2019. Two new fig wasp species of genus *Sycoscapter* Saunders, 1883 (Hymenoptera: Chalcidoidea: Pteromalidae) with a key to species of the genus from India. *Taiwania*, 64(2): 139-148.

Sycosapter benjaminiae Pramanik & Dey, 2019

Sex/stage: Male and Female/Adult



Host: *Ficus benjamina*

Location: Arunachal Pradesh, India.

Etymology. This species is named after its fig host

Remarks: Male and female exhibit sexual dimorphism as shown in figure Female (green colour) and male brown).

Publication: Pramanik A. & Dey D. 2019. Two new fig wasp species of genus *Sycosapter* Saunders, 1883 (Hymenoptera: Chalcidoidea: Pteromalidae) with a key to species of the genus from India. *Taiwania*, 64(2): 139–148.

Walkerella tridentate Pramanik & Dey, 2017

Sex/stage: Male and Female/Adult

Host: *Ficus amplissima*



Location: Delhi, India

Etymology: Name based on the tridentate mandible of males.

Remarks: Male and female exhibit sexual dimorphism as shown in figure female (green colour) and male (brown).

Publication: Pramanik A. & Dey D. 2017. A new species of *Walkerella* Westwood (Chalcidoidea: Pteromalidae: Otitesellinae) from India. *Journal of Asia Pacific Entomology*, 20: 207–213.

NEW SPECIES

Acanthoclita bengaluruensis, Reddy & Shashank, 2022



Sex/stage: Male/Adult

Etymology: The specific name refers to the name of the type locality Bengaluru, Karnataka, India.

Location: Kommasandra, Dommasandra, Thigala Chowdadenahalli; Bengaluru, Karnataka

Publication: Reddy, K.M., & Shashank, P.R. 2022. Three new species of the tribe Grapholitini (Lepidoptera: Tortricidae: Olethreutinae) from India. *Zootaxa*, 5219(6): 534–542.

.....

Baburia chettalliensis, Shashank & Santhosh, 2022



Sex/stage: Male/Adult

Etymology: The species is named after type locality, Chettalli, Kodagu, Karnataka, India

Location: Chettalli, Karnataka

Publication: Naik, S., & Shashank, P.R. 2022. Description of two new species of the genus *Baburia* Koak, 1981 (Lepidoptera: Tortricidae: Olethreutinae) from India. *Zootaxa*, 5091(1): 173–181.

Baburia tinsukiaensis, Shashank, 2022



Sex/stage: Male/Adult

Etymology: The species is named after the type locality, Tinsukia, Assam, India.

Location: Tinsukia, Assam

Publication: Naik, S., & Shashank, P.R. 2022. Description of two new species of the genus *Baburia* Koak, 1981 (Lepidoptera: Tortricidae: Olethreutinae) from India. *Zootaxa*, 5091(1): 173–181.

.....
Conogethes sahyadriensis,
Shashank, Kammar, Mally & Chakravarthy, 2018



Sex/stage: Male/Adult

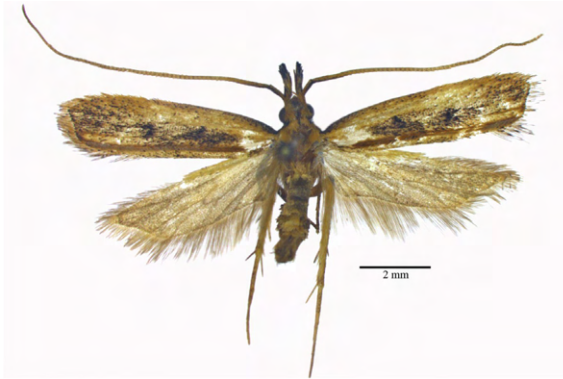
Etymology: This species is named after the Sanskrit word ‘sahyadri’, meaning “The Benevolent Mountains” which is another name for the western Ghats, the type locality of this species.

Location: Karnataka, Kerala

Remark: Pest of cardamom (*Elettaria cardamomum*)

Publication: Shashank, P.R, Kammar, V., Mally, R., and Chakravarthy, A. 2018. A new Indian species of shoot and capsule borer of the genus *Conogethes* (Lepidoptera: Crambidae), feeding on cardamom. *Zootaxa*, 4374(2): 215–234.

Frisilia chandrai, Park & Shashank, 2019



Sex/stage: Male/Adult

Etymology: This species is named in honor of Dr. Chandrashekara A. Viraktamath, renowned taxonomist of India.

Location: Bidar, Karnataka

Publication: Park, K.T. & Shashank, P.R. 2019. A catalogue of Indian species of the genus *Frisilia* Walker (Lepidoptera: Lecithoceridae), with descriptions of two new species from India and South East Asia. *Oriental Insects*, 53(1): 142–150.

.....
Frisilia yangbaei, Park & Shashank, 2019



Sex/stage: Male/Adult

Etymology: The species is named in honour of Dr Yang Seup Bae, a leading Korean lepidopterist who collected the type specimen.

Location: Cambodia, Thailand.

Publication: Park K.T. and Shashank P.R. 2019. A catalogue of Indian species of the genus *Frisilia* Walker (Lepidoptera: Lecithoceridae), with descriptions of two new species from India and South East Asia. *Oriental Insects*, 53(1):142–150.

Grapholita constricta, Reddy & Shashank, 2022



Sex/stage: Male/Adult

Etymology: The specific name *constricta* refers to deep ventral valval constriction.

Location: Dommasandra, Bengaluru, Karnataka

Publication: Reddy, K.M., & Shashank, P.R. 2022. Three new species of the tribe Grapholitini (Lepidoptera: Tortricidae: Olethreutinae) from India. *Zootaxa*, 5219(6), 534–542.

.....
Thaumatotibia ramamurthyi, Shashank & Reddy, 2022



Sex/stage: Male/Adult

Etymology: The species name is given after Dr. V.V. Ramamurthy for his contribution to the Indian insect taxonomy.

Location: Chikkavaderapura, Bengaluru, Karnataka

Publication: Reddy, K.M., & Shashank, P.R. 2022. Three new species of the tribe Grapholitini (Lepidoptera: Tortricidae: Olethreutinae) from India. *Zootaxa*, 5219(6), 534–542.

Cryptalaus nodulosus (Waterhouse, 1877)



Sex/stage: Male/Adult

Host: Not Known

Location: Andaman and Nicobar Islands

Distribution: India

Remarks: New to Nicobar Islands. Endemic species to Andaman and Nicobar Islands, species was transferred from Genus *Alaus* to *Cryptalaus*

Publication: Nithya Chandran & Anil Kumar Dubey. 2020. Redescription of *Cryptalaus nodulosus* (Waterhouse, 1877), New Combination (Coleoptera: Elateridae) from the Andaman and Nicobar Islands, India. *The Coleopterists Bulletin*, 74(4), 659–666 .

Xylotrechus smei (Laporte de Castelnau & Gory, 1841)



Sex/stage: Male/Adult

Host: Red sandal wood

Location: Telangana

Distribution: India (Deccan; N-E. India; Uttar Pradesh; West Bengal; Calcutta; Madhya Pradesh), Bhutan, Afghanistan (Kabul), Myanmar, Thailand, Damar, Tanzania & Nepal.

Remarks: New Host record for Red sandal wood.

Publication: Kavi Sidharthan, V., Bharati Patel., Nithya Chandran and Swapnendu Pattanaik 2022. *Xylotrechus smei* (Cerambycidae: Cerambycinae: Clytini): A potential threat to Red Sanders cultivation. *Phytoparasitica*, 51: 1–11.

Eumerus vestitus
Bezzi, 1912



Sex/stage: Male/Adult

Host: Tomato

Location: New Delhi

Distribution: Egypt, UAE, Yemen and the Arabian Peninsula

Remarks: This study reports the first distributional record of the species from the Oriental region.

Publication: Anooj S.S., Kalia V., Krishna G.K. & Ghopade K.D. 2020. New biogeographic distribution record of phytophagous syrphid, *Eumerus vestitus* Bezzi, its biosystematics, host preferences and association behavior. International Journal of Tropical Insect Science, 1–12.



Hishimonus knightiellus
Viraktamath &
Anantha Murthy, 2014

Sex/stage: Male & Female

Location: India (Haryana)

Distribution: India

Remarks: Previously recorded from Borneo, Malaysia, Sri Lanka & China.

Publication: Stuti., Sunil., Singaravel, M. & Meshram, N.M. 2020. A new species of the genus *Hishimonus* Ishihara, 1953 (Hemiptera: Cicadellidae: Deltocephalinae) with a new record from India. Zootaxa, 4750 (1): 131–137.



Olidiana brevis
(Walker, 1851)

Sex/stage: Female/Adult

Location: India (Assam: Marghertia, Tripura)

Distribution: India, Bangladesh, China, Vietnam, Thailand

Remarks: This species first time new record from India

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. Zootaxa, 4653 (1):001–091.



Olidiana perculata
(Distant, 1908)

Sex/stage: Male/Adult

Host: NA

Location: Imphal, Manipur

Distribution: India, Myanmar

Remarks: This species is first time recorded from India Earlier it has been recorded from Myanmar.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. Zootaxa, 4653 (1): 001–091.



Trinridia tripectinata (Nielson, 1982)

Sex/stage: Female/Adult

Host: NA

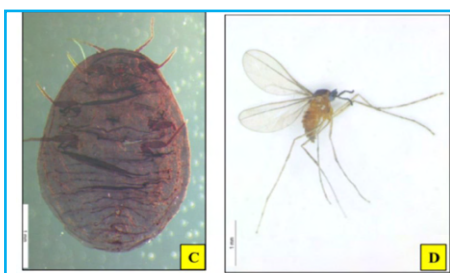
Location: India (Ishanca & Nagar, Tripura)

Distribution: India

Remarks: This species is new record from India.

Publication: Viraktamath C.A. & Meshram N.M. 2019. Leafhopper tribe Coelidiini (Hemiptera: Cicadellidae: Coelidiinae) of the Indian Subcontinent. Zootaxa, 4653 (1): 001–091.

Rastrococcus iceryoides (Green, 1908)



Host: Arecanut*, *Mangifera indica*, *Citrus* spp., *Gossypium hirsutum* L.; *Cocos nucifera* L.; *Psidium guajava* L.; *Manilkara zapota* (L.); *Ficus carica* L.; *Theobroma cacao* L.

Location: West Bengal, India

Remarks: Pest of several agricultural and horticultural crops. New host record for arecanut from the Indo Gangetic plains of northern India.

Publication: Haldar J., Dey D., Rai A.B. 2018. New host record of *Rastrococcus iceryoides* (Green, 1908) (Hemiptera: Pseudococcidae), an emerging pest of arecanut from West Bengal, India. National Academy Science Letters, 42 (1): 1–3.

Alciphanes clavata
Park, 2001



Sex/stage: Male/Adult

Host: Not Known

Location: Jharkhand

Distribution: India (South India), Ceylon, Indochina, Taiwan, Sumatra, Java, Bali, Sulawesi.

Remarks: New record to India.

Publication: Pathania, P.C., Shashank, P. R. & Park, K.T. 2021. Two new species records of Lecithoceridae (Gelechioidea: Lepidoptera) from India. Zootaxa, 4920(4): 4920.

Antoculeora ornatissima
(Walker, 1858)



Sex/stage: Male/Adult

Host: Not Known

Location: Uttarakhand, Himachal Pradesh, Jammu and Kashmir and Sikkim

Distribution: India, Pakistan, China, Japan and Russia.

Publication: Sinha, T., Shashank, P.R., & Chattopadhyay, P.C. 2018. DNA barcoding and morphological characterization of moth *Antoculeora ornatissima* (Walker, 1858) (Lepidoptera: Noctuidae), a new range record from western Himalayan region of India. Journal of Threatened Taxa, 10(13): 12817–12820.

Ctenoplusia mutans
(Walker, 1865)



Sex/stage: Male / Adult

Host: Not Known

Location: Arunachal Pradesh

Distribution: India (South India), Ceylon, Indochina, Taiwan, Sumatra, Java, Bali, Sulawesi.

Remarks: New record to Northeast India.

Publication: Twinkle, T., Shashank, P.R., & Chattopadhyay, P.C. 2020. DNA barcoding and Taxonomic account on some selected species of subfamily Plusiinae (Lepidoptera: Noctuidae) from India. Zootaxa, 4845(4): 451–486.

Ctenoplusia tarassota
(Hampson, 1913)



Sex/stage: Male / Adult

Host: Not Known

Location: Uttarakhand and Himachal Pradesh

Distribution: India (West Bengal, Sikkim, Meghalaya), Java, Bali

Remarks: New record to Western Himalaya India.

Publication: Twinkle, T., Shashank, P.R., & Chattopadhyay, P.C. 2020. DNA barcoding and Taxonomic account on some selected species of subfamily Plusiinae (Lepidoptera: Noctuidae) from India. Zootaxa, 4845(4): 451–486.

Dactyloplusia impuls (Walker, 1865)



Sex/stage: Male / Adult

Host: Not Known

Location: Arunachal Pradesh

Distribution: India (Tamil Nadu), Sri Lanka, South China, Sunderland, Sulawesi, New Guinea, Philippines, Malaysia.

Remarks: New record to North East India.

Publication: Twinkle, T., Shashank, P. R., & Chattopadhyay, P. C. 2020. DNA barcoding and Taxonomic account on some selected species of subfamily Plusiinae (Lepidoptera: Noctuidae) from India. Zootaxa, 4845(4): 451–486.

Dervishiya cadambae (Moore, 1865)



Sex/stage: Male / Adult

Host: Grape (*Vitis vinifera*)

Location: Maharashtra

Distribution: India

Remarks: This is the first record of *D. cadambae* occurrence on *V. vinifera*.

Publication: Yadav, D.S., Mhaske, S.H., Ranade, Y.H., Ghule, S.B., Shashank, P.R., & Yakovlev, R. (2020). First record of occurrence of *Dervishiya cadambae* on grapevine, *Vitis vinifera*, along with its morphological and molecular identification and pathogenicity evaluation potential of *Metarhizium brunneum* as its biocontrol agent. Bulletin of Insectology, 73(1), 137–148.

Harutaeographa brumosa
Yoshimoto, 1994



Sex/stage: Male / Adult

Host: Not Known

Location: India (Sikkim, Gangtok)

Distribution: India, Nepal, China

Remarks: Fairly common species of the southern Himalayas in November at elevations between 2000–2800 m a.s.l.

Publication: Shashank, P.R. & Benedek, B. 2020. New records of Noctuid moths (Lepidoptera, Noctuidae) from India, Bhutan and China. *Journal of Insect Biodiversity*, 20(1), 26–34.

Hemiglaea costigera
Hreblay & Ronkay, 1998



Sex/stage: Female / Adult

Host: Not Known

Location: India (Sikkim, Gangtok)

Distribution: India, Nepal, Bhutan

Remarks: Was known only by the Holotype male. The female genitalia is described here for the first time.

Publication: Shashank, P.R. & Benedek, B. 2020. New records of Noctuid moths (Lepidoptera, Noctuidae) from India, Bhutan and China. *Journal of Insect Biodiversity*, 20(1), 26–34.

Nyctycia asymmetrica
Hreblay & Ronkay, 1998



Sex/stage: Male / Adult

Host: Not Known

Location: India (Sikkim, Gangtok)

Distribution: India, Nepal

Remarks: Although the paratype series of *asymmetrica* does include females, the female genitalia have not been pictured nor described previously.

Publication: Shashank, P.R. & Benedek, B. 2020. New records of Noctuid moths (Lepidoptera, Noctuidae) from India, Bhutan and China. *Journal of Insect Biodiversity*, 20(1), 26–34.

Owadaglaea barna
Hreblay & Ronkay, 1998



Sex/stage: Male / Adult

Host: Not Known

Location: India (Sikkim, Gangtok)

Distribution: India, Nepal

Remarks: One of the more frequent and widely distributed *Owadaglaea* species of the Southern Himalayas.

Publication: Shashank, P.R. & Benedek, B. 2020. New records of Noctuid moths (Lepidoptera, Noctuidae) from India, Bhutan and China. *Journal of Insect Biodiversity*, 20(1), 26–34.

Owadaglaea elongata
Hreblay & Ronkay, 1998



Sex/stage: Male/Adult

Host: Not Known

Location: India (Sikkim, Gangtok)

Distribution: India, Nepal

Remarks: One of the high altitude moth species.

Publication: Shashank, P.R. & Benedek, B. 2018. A new range record of noctuid moth *Owadaglaea elongata* (Lepidoptera: Noctuidae: Xyleninae) from India. *Journal of Threatened Taxa*, 10(6), 11812–11814

Owadaglaea triangulifera
Hreblay & Ronkay, 1998



Sex/stage: Male/Adult

Host: Not Known

Location: India (Sikkim, Gangtok)

Distribution: India, Nepal

Remarks: This species was previously reported from East (Mechi, Taplejung area) and West Nepal (Bheri, North of Dailekh).

Publication: Shashank, P.R. & Benedek, B. 2020. New records of Noctuid moths (Lepidoptera, Noctuidae) from India, Bhutan and China. *Journal of Insect Biodiversity*, 20(1), 26–34.

Phyllonorycter populifoliella (Treitschke, 1833)



Sex/stage: Male/Adult

Host: Poplar, *Populus* sp.

Location: India (Ladakh, Leh)

Distribution: Russia, Finland, Lithuania, Germany, France, India

Remarks: Leaf miner on poplar

Publication: Shashank, P. R., Narendra Singh, Anand Harshana, Twinkle Sinha & Natalia Kirichenko. 2021. First report of the poplar leaf miner, *Phyllonorycter populifoliella* (Treitschke) (Lepidoptera: Gracillariidae) from India. *Zootaxa*, 4915(3): 435–450.

Spodoptera frugiperda (J.E. Smith, 1797)



Sex/stage: Male and female/Adult and larvae

Host: Maize

Location: Nepal

Distribution: Neotropical, Africa, parts of Asia

Remarks: Major invasive pest of maize in India and Nepal

Publication: Ajaya Shree Ratna Bajracharya, Binu Bhat, Premnidhi Sharma, P. R. Shashank, Naresh M. Meshram and Tahseen Raza Hashmi. 2019. First record of fall army worm *Spodoptera frugiperda* (J. E. Smith) from Nepal. *Indian Journal of Entomology*, 81(4): 635–639.

Zonoplusia ochreata
(Walker, 1865)



Sex/stage: Male / Adult

Host: Not Known

Location: Uttarakhand, Arunachal Pradesh, Meghalaya.

Distribution: India (Karnataka), Japan, Sundaland, Philippines, Queensland, Sri Lanka, Indonesia, Sulawesi.

Remarks: New record to North and North East India.

Publication: Twinkle, T., Shashank, P.R., & Chattopadhyay, P.C. 2020. DNA barcoding and Taxonomic account on some selected species of subfamily Plusiinae (Lepidoptera: Noctuidae) from India. Zootaxa, 4845(4): 451–486.



Published in June, 2023

TB-ICN: 303/2023

Correct citation

P.R. Shashank, N.M. Meshram, Nithya Chandran and Debjani Dey (2023). Insect Discoveries: ICAR-IARI National Pusa Collection (2017-2022), Indian Agricultural Research Institute, New Delhi, India. pp. 68.

© 2023 Indian Agricultural Research Institute, New Delhi- 110012, India

For details contact
Head
Division of Entomology,
ICAR-Indian Agricultural Research Institute
New Delhi 110012, India