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First report of *Antrocephalus neogalleriae* (Hymenoptera: chalcididae) from India and other chalcididae distributional records

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Abstract

Antrocephalus neogalleriae Narendran and Achterberg is first reported from India. New distributional records of other chalcidids from Andaman and Nicobar (*Dirhinus deplanatus* and *Haltichella clavicornis*), Assam (*Brachymeria excarinata*), Goa (*B. carbonaria*, *D. anthracia*, *D. bakeri*, *Epitranus erythrogaster* and *Indoinvrea menoni*), Gujarat (*D. anthracia* and *Tropimeris monodon*), Himachal Pradesh (*B. minuta* and *Lasiochalcidia pilosella*), Karnataka (*D. anthracia*, *Kriechbaumerella ornatipennis*, *K. pulvinatus*, *Indoinvrea menoni* and *Uga sinensis*), Kerala (*D. anthracia*), Maharashtra (*B. croceogastralis*, *B. excarinata*, *Psilochalcis carinigena* and *Uga sinensis*), Meghalaya (*B. minuta*), Mizoram (*B. albicrus*), Odisha (*D. anthracia*), Rajasthan (*D. anthracia*, *D. auratus*, *E. erythrogaster*, *H. clavicornis* and *I. bouceki*) and Tamil Nadu (*Uga sinensis*) are documented.

Keywords: Chalcididae, first report, *Antrocephalus neogalleriae*, distributional records, India

Introduction

The Chalcididae are economically important pupal parasitoids of Lepidoptera and Diptera, although Hymenoptera, Coleoptera and Neuroptera are also attacked. The family also contains hyperparasitoids, ectoparasitoids and gregarious species. Most are idiobiont pupal or prepupal parasitoids, although some are known to be Koinobionts [3]. Few chalcidid species viz., *Brachymeria lasus* Walker, *B. excarinata* Gahan, *B. nosatoi* Habu, *B. euploae* Westwood, *B. hime attevae* Joseph *et al.* and *B. nephantidis* Gahan have shown their potential in the management of coconut black headed caterpillar in Kerala, India [6]. Even though this family is represented by approximately 1500 species under 96 genera globally [1] and further known for their diversity in tropical countries [3], it is known only by 31 genera and 225 species indicating that the Indian fauna is yet to be fully explored. Within Chalcididae, *Antrocephalus* is known by 39 species from Oriental region, but 20 species are known from India. This genus (and in fact the entire family) is very difficult to study taxonomically because so many species are in the process of evolution and come very close to *Hockeria* Walker [3, 7]. With this background, this study has been taken up to know the diversity of these parasitoids across India and in this process we record the recently described *Antrocephalus neogalleriae* for the first time from India and distribution of another nineteen chalcidid species from various states of India.

Materials and Methods

Parasitoids were collected from different states using yellow pan trap and sweep net. Collected specimens were card mounted using the standard procedure adopted by Noyes [9]. Images were captured using Leica stereo zoom microscope M205C and DMC 2900 camera. The acquired images were then processed using Adobe Photoshop 7.0. Voucher specimens are deposited with either NBAIR or EDAU.

Abbreviations: AAU – Anand Agricultural University, Anand, Gujarat; CIARI- Central Island Agricultural Research Institute, Port Blair, Andaman and Nicobar islands; CPRI- Central Potato Research Institute, Shimla, Himachal Pradesh; EDAU – Entomology Department, Annamalai University, Chidambaram, Tamil Nadu; IARI – Indian Agricultural Research Institute, Regional Station, Katrain, Himachal Pradesh; KAU- Kerala Agricultural University, Thrissur, Kerala; KVK-Krishi Vigyan Kendra, Uttara Kannada, Karnataka; MPUAT- Maharana Pratap University of Agriculture and Technology, Udaipur, Rajasthan; NBAIR- National Bureau of Agricultural Insect Resources, Bengaluru, Karnataka; YPT-Yellow pan trap.

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Results

First Report

Antrocephalus neogalleriae Narendran and Achterberg (Fig: 1a-d)

Species Diagnosis: All coxae and hind femora black; forewing hyaline with two infuscations (Fig: 1d); antenna black except pedicel, anellus and first funicular segment light brown (Fig: 1c); post marginal vein as long as marginal vein; apex of scutellum weakly emarginate; axillae densely pubescent (Fig: 1b); propodeum with distinct submedian carinae, surface areolate and punctate with dense silvery pubescence on either side (Fig: 1b); hind coxa with a prominent dorso-basal tooth; metasoma sessile, shorter than mesosoma; first gastral tergite smooth and shiny with a basal pit.

Material Examined: 1♀ on card, India, Goa, Old Goa, Ela, 14.vii.2016, YPT, NBAIR team.

Distribution: Vietnam^[8] and India (New record).

Comments: The characters mentioned in the original description exactly matches with the lone specimen collected from Goa except the colour of the pedicel, anellus and first funicle segment light brown (in the original description, this is mentioned as pink, but even in the holotype image (image 19 of^[8]) it is clearly visible as light brown).

Distributional Records

1. *Brachymeria albicrus* (Klug)

Material examined: 1♀ on card, India, Mizoram, Kolasib, 27.ii.2016, YPT, NBAIR team.

Distribution: India: Odisha, Tamil Nadu^[10], Pudhucherry^[4] and Mizoram (New record).

2. *Brachymeria carbonaria* (Zehntner)

Material examined: 1♂ on card, India, Goa, Old Goa, Ela, 17.vii.2015, sweep net, NBAIR team.

Distribution: India: Mizoram, Tamil Nadu^[5] and Goa (New record).

3. *Brachymeria croceogastralis* Joseph, Narendran and Joy

Material examined: 1♂ on card, Maharashtra, Bhimashankar, Pune, 25.xi.2016, sweep net, NBAIR team.

Distribution: India: Karnataka, Kerala, Tamil Nadu^[10] and Maharashtra (New record).

4. *Brachymeria excarinata* Gahan

Material examined: 1♀ on card, India, Dibrugarh, Assam 24.ii.2017, sweep net, NBAIR team; 1♀ on card, India, Maharashtra, Sinhgad Road, Pune, 7.xi.2014, sweep net, NBAIR team.

Distribution: India: Gujarat, Karnataka, Kerala, Tamil Nadu^[6], Bihar, Andaman and Nicobar Islands^[4], Assam and Maharashtra (New record).

5. *Brachymeria minuta* (Linnaeus)

Material examined: 1♂, 2♀ on card, India, Meghalaya, Shillong, Jowai, 14.vi.2017, sweep net, NBAIR team; 1♀ on card, India, Himachal Pradesh, Shimla, CPRI farm, 19.v.2016, YPT, NBAIR team.

Distribution: India: Karnataka, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal^[7] Andhra Pradesh^[4], Meghalaya and Himachal Pradesh (New record).

6. *Dirhinus anthracia* Walker

Material examined: 1♀ on card, India, Goa, Old Goa, Ela,

14.vii.2015, YPT, NBAIR team; 1♀ on card, India, Gujarat, Anand, AAU, 27.xi.2015, YPT, NBAIR team; 1♀ on card, India, Karnataka, Uttara Kannada, KVK, Sirsi, 23.vi.2016, YPT, NBAIR team; 2♀ on card, India, Kerala, Thrissur, KAU, 20.x.2016, sweep net, NBAIR team; 1♂, 1♀ on card, India, Odisha, Nayagarh, 27.i.2017, sweep net, NBAIR team; 1♀ on card, India, Rajasthan, Vallabhnagar, 21.xi.2015, sweep net, NBAIR team.

Distribution: India: Madhya Pradesh, Manipur, Punjab, Tripura, Uttar Pradesh^[7] Tamil Nadu, Pudhucherry, Andhra Pradesh, Bihar, Mizoram^[4], Goa, Gujarat, Karnataka, Kerala, Odisha and Rajasthan (New record).

7. *Dirhinus auratus* Ashmead

Material examined: 1♀ on card, India, Rajasthan, Udaipur, MPUAT, 26.xi.2016, YPT, NBAIR team.

Distribution: India: Delhi, Karnataka, Kerala, Madhya Pradesh, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal^[10] Pudhucherry, Andhra Pradesh, Bihar, Manipur^[4] and Rajasthan (New record).

8. *Dirhinus bakeri* (Crawford)

Material examined: 1♀ on card, India, Goa, Old Goa, Ela, 14.vii.2015, YPT, NBAIR team.

Distribution: India: Delhi, Karnataka, Kerala, Madhya Pradesh, Odisha, Tripura, Uttar Pradesh and West Bengal^[10], Tamil Nadu^[4] and Goa (New record).

9. *Dirhinus deplanatus* Boucek and Narendran

Material examined: 1♀ on card, India, Andaman, CIARI campus, 21.ii.2016, sweep net, NBAIR team.

Distribution: India: Bihar, Delhi, Odisha, Tamil Nadu^[10] and Andaman and Nicobar islands (New record).

10. *Epitranus erythrogaster* Cameron

Material examined: 1♂, 1♀ on card, India, Goa, Old Goa, Ela, 14.vii.2015, YPT, NBAIR team; 1♀ on card, India, Rajasthan, Udaipur, MPUAT, 26.xi.2016, YPT, NBAIR team; 1♀ on card, India, Sikkim, Pakyong, 20.viii.2016, YPT, NBAIR team.

Distribution: India: Karnataka, Kerala, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal^[2], Pudhucherry, Bihar, Manipur, Andaman and Nicobar islands^[4], Goa, Rajasthan and Sikkim (New record).

11. *Haltichella clavicornis* (Ashmead)

Material examined: 1♂ on card, India, Rajasthan, MPUAT Udaipur, 26.xi.2015, YPT, NBAIR team; 1♀ on card, India, South Andaman, Chidiya Tapu, Port Blair, 4.iii.2016, sweep net, Ankita Gupta.

Distribution: India: Kerala, Tamil Nadu, West Bengal^[7], Uttar Pradesh^[10] Rajasthan and Andaman and Nicobar islands (New record).

12. *Indoinvrea bouceki* Roy and Farooqi

Material examined: 1♀ on card, India, Rajasthan, Vallabhnagar, 21.xi.2015, sweep net, NBAIR team.

Distribution: India: Delhi, Uttar Pradesh^[10] and Rajasthan (New record).

13. *Indoinvrea menoni* Roy and Farooqi

Material examined: 5♀ on card, India, Goa, Old Goa, Ela, 14.vii.2015, YPT, NBAIR team; 1♀ on card, India, Karnataka, Doddaballapura, 15.viii.2015, YPT, NBAIR team.

Distribution: India: Delhi, Uttar Pradesh ^[10], Goa and Karnataka (New record).

14. *Kriechbaumerella ornatipennis* (Cameron)

Material Examined: 1♀ on card, India, Karnataka, Kanakapura, Thalaghattapura, 30.vii.2015, YPT, NBAIR team.

Distribution: India: Uttar Pradesh, Calcutta, Kerala, Bihar, Tamil Nadu, Pudhucherry ^[7] and Karnataka (New record).

15. *Kriechbaumerella pulvinatus* (Cameron)

Material examined: 1♀ on card, India, Karnataka, Bengaluru, Savandurga, 5.i.2016, YPT, NBAIR team; 1♀ on card, India, Karnataka, Kolar, Malur, 5.viii.2015, YPT, NBAIR team.

Distribution: India: Kerala ^[7], Uttar Pradesh ^[10] and Karnataka (New record).

16. *Lasiochalcidia pilosella* (Cameron)

Material examined: 1♂ on card, Himachal Pradesh, IARI, Regional Station, Katrain, Apple orchard, 22.v.2016, YPT, NBAIR team.

Distribution: India: Karnataka, Kerala, Pudhucherry, Tamil Nadu, Haryana ^[7], Gujarat ^[10] and Himachal Pradesh (New record).

17. *Psilochalcis carinigena* (Cameron)

Material examined: 1♀ on card, India, Maharashtra, Sinhgad Road, Pune, 7.xi.2014, sweep net, NBAIR team.

Distribution: India: Gujarat, Karnataka, Kerala, Madhya Pradesh, Tripura, West Bengal ^[8], Bihar, Andaman and Nicobar island ^[4] and Maharashtra (New record).

18. *Tropimeris monodon* Boucek

Material examined: 1♀ on card, India, Gujarat, Anand, AAU, 27.xi.2015, YPT, NBAIR team.

Distribution: India: Andhra Pradesh, Kerala, Maharashtra ^[10] and Gujarat (New record).

19. *Uga sinensis* Kerrich

Material examined: 3♀ on card, India, Karnataka, Kanakapura, Thalaghattapura, 30.vii.2015, YPT, NBAIR team; 2♀ on card, India, Maharashtra, Bhimashankar, 22.ii.17, sweep net, NBAIR team; 4♀ on card, India, Tamil Nadu, Salem, author, 23.x.15, sweep net, Ayyamperumal.

Distribution

India: Kerala ^[7], Karnataka, Maharashtra and Tamil Nadu (New record).

Conclusion

Survey was conducted for chalcidid parasitoids in the following states / union territories: Andaman and Nicobar, Assam, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Meghalaya, Mizoram, Odisha, Rajasthan and Tamil Nadu. As a result, *Antrocephalus neogalleriae* was recorded for the first time from India and distribution of another nineteen chalcidid species in various states of India were documented.

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References

1. Aguiar AP, Deans AR, Engel MS, Forshage M, Huber JT, Jennings JT, *et al.* In: Z.-Q. Zhang (ed.), Animal Biodiversity: an outline of higher-level classification and survey of taxonomic richness. *Zootaxa*. 2013; 3703:51-62
2. Bouček Z. Oriental chalcid wasps of the genus *Epitranus*. *Journal of Natural History*. 1982; 16:577-622.
3. Delvare G. Order Hymenoptera, family Chalcididae. *Arthropod fauna of the UAE*. 2017; 6:225-274.
4. Gowriprakash, Manickavasagam S, Kanagarajan R. New records of chalcidid (Hymenoptera: Chalcididae) pupal parasitoids from India. *Biodiversity Data Journal*. 2016; 4:1-21.
5. Gowriprakash J, Manickavasagam S, Gupta A. First report of *Brachymeria carbonaria* (Zehntner), *Megachalcis timorensis* Boucek and *Tropimeris excavata* Steffan (Hymenoptera: Chalcidoidea) from India. *Munis Entomology & Zoology*. 2018; 13(1):196-200.
6. Joseph KJ, Narendran TC, Joy PJ. Oriental *Brachymeria*. A monograph on the Oriental species of *Brachymeria* (Hymenoptera: Chalcididae). University of Calicut, *Zoology Monograph*. 1973, 215.
7. Narendran TC. Oriental Chalcididae (Hymenoptera: Chalcidoidea). *Zoological Monograph, Department of Zoology, University of Calicut*. 1989, 440.
8. Narendran TC, Achterberg VC. Revision of the family Chalcididae (Hymenoptera, Chalcidoidea) from Vietnam, with the description of 13 new species. *Zoo Keys*. 2016; 576:1-202.
9. Noyes JS. Collecting and preserving chalcid wasps (Hymenoptera: Chalcidoidea). *Journal of Natural History*. 1982; 16:315-334.
10. Noyes JS. Universal Chalcidoidea Database. World Wide Web Electronic Publication, 2018. www.nhm.ac.uk/entomology/chalcidoids/index.html. Last updated March 2018.

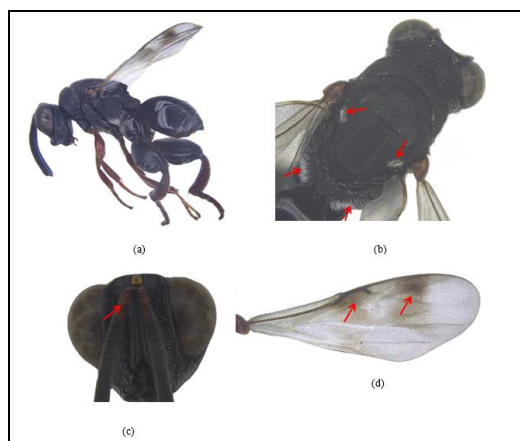


Fig 1: *Antrocephalus neogalleriae* Narendran and Achterberg; a) Habitus; b) Mesosoma c) Head frontal view d) Fore wing