

## Distributional records of some Parasitoids of Tetracneminae from India (Hymenoptera: Encyrtidae)

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### Introduction

The present paper deals with distributional records of some species belonging to the subfamily Tetracneminae. These are known to be parasitoids of pests of economically important agricultural crops. The study is based on a small collection of Tetracneminae made from some Indian States during 2012–2016. The paper contains distribution of 15 species of the subfamily Tetracneminae, including 6 species which are newly recorded from some Indian States. Several papers were earlier published on such records (Hayat et al., 2007; Hayat et al., 2008; Hayat & Khan, 2008; Hayat & Khan, 2009; Usman et al., 2013, 2014; Hayat & Veenakumari, 2014; Zeya et al., 2014; Zeya & Veenakumari, 2016; Hayat et al., 2015a; Hayat et al., 2015b).

Unless noted otherwise, the specimens are on cards. Citation is given for only 5 species (*Rhopus angulianus* Hayat (2008), *R. hebbalensis* Zeya & Hayat (2014), *R. kollamensis* Usman & Zeya (2013), *R. rymma* Hayat & Khan (2008), and *R. zoleno* Usman & Zeya (2013)) which were described after 2006, as citations to other species are available in Hayat (2006).

The following abbreviations are used in the text:

GBPUAT = Govind Ballabh Pant University of Agriculture and Technology, Pantnagar, Uttarakhand, India.

(MT) = Malaise traps. (This and two other abbreviations in brackets are used under 'Material examined' section to indicate the method of collection.)

(SN) = Sweep Net.

(YPT) = Yellow Pan Trap.

The following acronyms are used for the depositories:

NBAIR = ICAR, National Bureau of Agricultural Insect Resources, Bengaluru, India.

ZDAMU = Insect Collections, Department of Zoology, Aligarh Muslim University, Aligarh, India.

### Records of species

#### 1. *Anagyrus gracilis* (Hayat)

**Material examined.** INDIA: UTTAR PRADESH: Bareilly, Ramganga, 1 female (on slide No. EH. 2030) 15.iii.2015 (SN), Coll. M.M. Jamali; Aligarh, 6 females, 24.vi.2016 (SN); 1 female, 8.vi.2016 (SN); 1 female,

22.vi.2016 (SN); 1 female, 21.vi.2016 (SN), Coll. O.S Navik. (ZDAMU). ANDHRA PRADESH: East Godavari, Thimmapuram, 1 female 7.ii.2014 (SN), Coll. S.K Ahmad; East Godavari, Thimmapuram, 1 female 7.ii.2014 (SN), Coll. M.T Khan; Krishna, Chepalakundi, 1 female (slide No. EH.1949), 12.ii.2014 (SN), Coll. S.K. Ahmad. (ZDAMU).

**Distribution.** India: Andaman and Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Delhi, Himachal Pradesh, [?] Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand, West Bengal. (Madagascar; Nepal).

#### 2. *Apoleptomastix bicoloricornis* (Girault)

**Material examined.** INDIA: HIMACHAL PRADESH: Shimla, Nayyar, 2 females, 4 males, 7.viii.2014 (MT), Coll. K. Veenakumari (NBAIR). TAMIL NADU: Krishnagiri, Hosur, Uddanapalli, 1 female, 8.xii.2014 (MT), Coll. K. Veenakumari (NBAIR). UTTAR PRADESH: Aligarh, 1 female, 31. v.2016 (SN), Coll. O.S Navik; Muradabad, Mainather, 2 females, 23.iii.2015; Bareilly, Kareli, 8 females, 15.iii.2015(SN) Coll. M.M. Jamali; Hathras, Sasni, 1 female, 5.iii.2013 (SN), Coll. S.K. Ahmad. (ZDAMU).

**Distribution.** India: Andhra Pradesh, Arunachal Pradesh, Assam, Delhi, Himachal Pradesh, Jammu and Kashmir, Jharkhand, Karnataka, Kerala, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand, West Bengal. (Widely distributed from South Africa through India, Tadjhikistan and southern China to Australia).

#### 3. *Callipteroma sexguttata* Motschulsky

**Material examined.** INDIA: MAHARASHTRA: Kolhapur, road to Panhala, 2 females, 21.xi.2012 (SN), Coll. K. Veenakumari. (NBAIR). UTTAR PRADESH: Aligarh, 6 females, 25.xii.2014 (SN); 2 females, 5.i.2015(SN); 1 female, 23.xii.2014 (SN); Bareilly, Kareli, 1 female, 15.iii.2015 (SN), Coll.M.M. Jamali; Hathras, Sasni, on grass, 1 female, 5.iii.2013 (SN); Hathras, Sasni, on potato, 1 female, 5.iii.2013 (SN), Coll. M.T. Khan. (ZDAMU). HIMACHAL PRADESH: Solan, Baddi, 1

female, 2.x.2013(SN), Coll. P.T. Anwar & F.S.K. Amer. (ZDAMU). TAMIL NADU: Krishnagiri, Hosur, Uddanapalli, 1 female, 8.xii.2014 (MT), Coll. K. Veenakumari. (NBAIR).

**Distribution.** India: Arunachal Pradesh, Delhi, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand, West Bengal. (Cosmopolitan in the old World, also southern Europe, south and central former USSR, Middle East, Africa, Madagascar, and countries of Indo-pacific region).

#### 4. *Callipteroma testacea* Motschulsky

**Material examined.** INDIA: TAMIL NADU: Krishnagiri, Hosur, Uddanapalli, 1 female 27.xi.2014 (SN), Coll. K. Veenakumari. (NBAIR).

**Distribution.** India: Assam, Delhi, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh, Uttarakhand. (Africa; Madagascar; Pakistan; Srilanka; Bangladesh; Papua New Guinea; Australia).

#### 5. *Monstranisia antennata* (Narayanan)

**Material examined.** INDIA: UTTAR PRADESH: Aligarh, 1 female, 31.v.2016 (SN), Coll. O.S. Navik. (ZDAMU).

**Distribution.** India: Delhi, Odisha, Uttar Pradesh. (Egypt; Nigeria; Kenya; South Africa; Afghanistan; Pakistan).

#### 6. *Rhopus angulianus* Hayat [New record]

*Rhopus angulianus* Hayat, 2010: Female. Holotype female, India, Orissa [Odisha].

**Material examined.** INDIA: ANDHRA PRADESH: East Godavari, Thimmapuram, 1 females (on slide, No. EH. 2187), 7.ii.2014 (SN), Coll. M.T. Khan (ZDAMU).

**Distribution.** Andhra Pradesh (present record), Odisha.

#### 7. *Rhopus atys* Noyes & Hayat

**Material examined.** INDIA: KARNATAKA: Hessaraghatta, CIFA, 2 females (on slide, No. EH. 2204, EH. 2205), 27.iii.2014 (YPT); Chikkaballapur, Nandi Hills, Channagiri, 1 females (on slide, No. EH. 2206), 18.vi.2014 (YPT), Coll. K. Veenakumari (NBAIR).

**Distribution.** India: Andhra Pradesh, Assam, Delhi, Jharkhand, Karnataka, Kerala, Tamil Nadu, Uttar Pradesh.

#### 8. *Rhopus desantisiellus* Ghesquiere

**Material examined.** INDIA: ANDHRA PRADESH: East Godavari, Sarpavaram, 1 female (on slide, No. EH. 2189), 5.ii.2014 (SN), Coll. S.K. Ahmad (ZDAMU).

**Distribution.** India: Andhra Pradesh, Kerala, Odisha, Rajasthan, Uttar Pradesh, Uttarakhand. (Argentina).

#### 9. *Rhopus gramineus* Hayat

**Material examined.** INDIA: KARNATAKA: Bengaluru, Attur, 1 female (on slide, No. EH. 2192), 30.vii.2013 (YPT); Bengaluru, Hessaraghatta, Fisheries Division, 2 females (on slide, No. EH. 2193, EH. 2195), 26.iii.2014 (YPT); 1 female (on slide, No. EH. 2194), 27.iii.2014 (YPT); Hessaraghatta, CIFA, 1 female (on slide, No. EH. 2196), 27.iii.2014 (YPT), Coll. K. Veenakumari, (NBAIR). TAMIL NADU: Krishnagiri, Kalamangalam, Jakkari, 1 female (on slide, No. EH. 2192), 21.ii.2015 (YPT), Coll. K. Veenakumari (ZDAMU).

**Distribution.** India: Arunachal Pradesh, Delhi, Himachal Pradesh, Karnataka, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal. (Malaysia; Pakistan).

#### 10. *Rhopus hebbalensis* Zeya & Hayat

*Rhopus hebbalensis* Zeya & Hayat, in Zeya et al., 2014: 27. Female. Holotype female, India, Karnataka.

**Material examined.** INDIA: KARNATAKA: Hessaraghatta, CIFA, 1 females (on slide, No. EH. 2204, EH. 2191), 27.iii.2014 (YPT), Coll. K. Veenakumari (NBAIR).

**Distribution.** Karnataka.

#### 11. *Rhopus kollamensis* Usman & Zeya [New record]

*Rhopus kollamensis* Usman & Zeya, Usman et al., 2013: 118. Female. Holotype female, India, Kerala.

**Material examined.** INDIA: ANDHRA PRADESH: Guntur, Rajamandi, 1 female (on slide, No. EH. 2198), 10.ii.2014 (SN); 2 females, 10.ii.2014 (SN), Coll. M.T. Khan; Guntur, Kolanukonda, 1 female (on slide, No. EH. 2199), 11.ii.2014 (SN); 1 female, 11.ii.2014 (SN), Coll. S.K. Ahmad; Guntur, Kolanukkonda, 1 female (on slide, No. EH. 2200), 11.ii.2014 (SN); Krishna, Chepalakundi, 1 female (on slide, No. EH. 2201), 12.ii.2014 (SN), 1 female, 12.ii.2014 (SN), Coll. M.T. Khan. (ZDAMU).

**Distribution.** India: Andhra Pradesh (present record), Kerala.

#### 12. *Rhopus nigroclavatus* (Ashmead)

**Material examined.** INDIA: ANDHRA PRADESH: Vishakhapatnam, Kailashpuram, 2 females (on slide, No. EH. 2163, Eh. 2164), 2.ii.2014 (SN); East Godavari, VK Rayapuram, 1 female (on slide, No. EH. 2165), 5.ii.2014 (SN); East Godavari, Sarpavaram, 1 female (on slide, No. EH. 1386), 5.ii.2014 (SN), Coll. M.T. Khan; East Godavari, Thimmapuram, 1 female (on slide, No. EH. 2166), 7.ii.2014 (SN), Coll. S.K. Ahmad; East Godavari, Guntur, Rajamandi, 6 females (on slides, No. EH. 2167, EH. 2168, EH. 2169, EH. 2170, EH. 2171, EH. 2172), 10.ii.2014 (SN), Coll. S.K. Ahmad; Guntur, Kolanukunda, 3 females (on slides, No. EH. 2173, EH. 2174, EH. 2175), 11.ii.2014 (SN); Krishna, Chepalakundi, 2 females (on slides, No. EH.

2176, EH. 2177, 12.ii.2014 (SN), Coll. S.K. Ahmad (ZDAMU). DELHI: IARI, Pusa, 2 females (on slides, No. EH.2182, EH. 2183), 10.ii.2016 (SN), Coll. SB. Zeya (ZDAMU). MAHARASHTRA: Kolhapur, road of Panhala, 1 female (on slide, No. EH. 2157), 21.xi.2012 (SN), Coll. K. Veenakumari (NBAIR). ANI: South Andaman, Sippighala, 1 female (on slide, No. EH. 2158), 20.i.2013 (SN); Little Andaman, Hut Bay, Waterfall, 1 female (on slide, No. EH. 2160), 28.i.2013 (SN), Coll. K. Veenakumari (NBAIR). UTTAR PRADESH: Aligarh, Akrabad, 1 female (on slide, No. EH. 2159), 8.iii.2013 (SN), Coll. M.T. Khan (ZDAMU). KARNATAKA: Chikkaballapur, Nandi Hills, 1 female (on slide, No. EH. 2161), 22.vi.2013 (SN); Bengaluru, Adugodi, NIANP, 1 female (on slide, No. EH. 2162), 25.i.2014 (YPT); Bengaluru, Hesaraghatta, 2 females (on slide, No. EH. 2178, EH. 2179), 27.iii.2014 (YPT); Bengaluru, Hesaraghatta, Fisheries Division, 1 female (on slide, No. EH. 2180), 28.iii.2014 (YPT); Bengaluru, Jarakabande, Kavel, 1 female (on slide, No. EH. 2181), 7.vi. 2014 (MT); Coll. K. Veenakumari (NBAIR). UTTAR PRADESH: Aligarh, 2 females (on slides, No. EH.2032, 2034), 1 male (on slide, No. EH. 2033), 8.vi.2016 (SN), Coll. O.S. Navik (ZDAMU). UTTARAKHAND: Ramnagar Ghatti, 1 female (on slide, No. EH.1369), 30.x.2009 (SN), Coll. F.R. Khan; GBPUT, Pantnagar, 2 females (on slide, No. EH. 2184, EH. 2185), 6.vii.2016 (SN), Coll. O.S. Navik (ZDAMU).

**Distribution.** India: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Delhi, Haryana, Himachal Pradesh, Karnataka, Kerala, Odisha, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Uttar Pradesh, Uttarakhand, West Bengal. (Cosmopolitan)

**13. *Rhopus rymma* Hayat & F.R. Khan**

*Rhopus rymma* Hayat & Khan, in Hayat et al., 2008: 108. Female. Holotype female, India, Uttar Pradesh.

**Material examined.** INDIA: UTTAR PRADESH: Rampur, Benazir Bagh, 1 female (on slides, No. EH.2190), 21.iii.2015 (SN), Coll. M.M. Jamali (ZDAMU).

**Distribution.** India: Uttar Pradesh.

**14. *Rhopus segestes* Noyes & Hayat [New record]**

**Material examined.** INDIA: KARNATAKA: Hesaraghatta, CIFA, 2 females (on slide, No. EH. 2202; EH. 2203), 27.iii.2014 (YPT), Coll. K. Veenakumari (ZDAMU).

**Distribution.** India: Andhra Pradesh, Karnataka (present record), Kerala.

**15. *Rhopus zoleno* Usman & Zeya [New record]**

*Rhopus zoleno* Usman & Zeya, in Usman et al., 2013:123. Female. Holotype female, India, Uttar Pradesh.

**Material examined.** INDIA: ANDHRA PRADESH: East Godavari, Thimmapuram, 1 females (on slide, No. EH. 2187), 7.ii.2014 (SN), Coll. MT. Khan (ZDAMU).

**Distribution.** India: Andhra Pradesh (present record), Uttar Pradesh.

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## Letters

Dear scale insect community,

I recently started a postdoc in Laura Ross laboratory at the University of Edinburgh. For my project with Laura, we are looking for population of the obscure mealybug (*Pseudococcus viburni*) with accessory chromosomes. We would like to make a geographic survey of such populations and also use some of them for experimental work to better understand their transmission under Paternal Genome Elimination.

We would like to kindly ask if you have recently encountered the species and if so, would you be willing to send us a few females with ovisacs fixed in Carnoy fixative (ethanol: chloroform: acetic acid, 6:3:1) for 24 hours then transferred to 80-90% ethanol (by removing the fixative and adding ethanol).

This would allow us to look for accessory chromosomes.

Don't hesitate to contact me for any concerns or information regarding shipping.

—Isabelle Vea

Marie Curie Postdoctoral Fellow  
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I am looking for a good quality jpeg or tif file of a photograph of Prof. K. K. Verma for purpose of a book. The book is on the leaf beetles of New Caledonia, a subject Prof. Verma and Prof. Jolivet published several times.

In *Bionotes* 16 (2014) on page 31 you have published a photo that might suit this purpose. Could you share the file of this photograph? I thank you in advance.

—Ron Beenen

Martinus Nijhoffhove 51  
NL 3437 ZP Nieuwegein  
(The Netherlands).  
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Please find enclosed our MS entitled, 'Impact of ZnO Nanoparticles on the biodiversity of aquatic flora and fauna', for possible consideration in *Bionotes*.

We declare that the article is original and not submitted elsewhere for publication.

—Dr. Pijush Kanti Samanta

Assistant Professor  
Post Graduate Department of Physics  
Prabhat Kumar College  
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I am forwarding the following article for publication, for your consideration:

'Underutilized Mushrooms in India and its scope in cultivation and as possible food alternatives'.

The authors are : (i) Ms. Puja Kumari, Research student, (ii) Dr. Vijay Bihari Lal, Retd. Head of Deptt. of Zoology, Tilka Manjhi University, Bhagalpur, and (iii) Prof. Sunil Kumar Choudhary, Head of Deptt. of Botany, Tilka Manjhi University, Bhagalpur.

—Dr. Bijay Krishna

Retd. Dy. Director and H. O. O.,  
Botanical Survey of India,  
Ministry of Environment & Forest, Govt. of India;  
Presently at Patna (Bihar).

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