



Two new species of *Acroceratitis* Hendel (Diptera: Tephritidae) and an updated key for the species from India

K. J. DAVID^{1,4}, D. L. HANCOCK² & S. RAMANI³

¹National Bureau of Agricultural Insect Resources, Bangalore-560024, Karnataka, India

²8/3 McPherson Close, Edge Hill, Cairns, Queensland 4870, Australia

³Department of Entomology, University of Agricultural Sciences, Bangalore-560065, India

⁴Corresponding author. E-mail: davidento@gmail.com

Abstract

Two new species of genus *Acroceratitis* Hendel, namely *A. parastriata* David & Hancock, **sp. nov.** and *A. breviscapa* David, Ramani & Hancock, **sp. nov.**, are described from India. *A. histrionica* (de Meijere) is recorded for the first time from India. An updated key to Indian species of *Acroceratitis* is also provided.

Key words: Tephritidae, Gastrozonini, Poaceae, India, Karnataka

Introduction

Acroceratitis Hendel belongs to the bamboo and grass-feeding tribe Gastrozonini of subfamily Dacinae (Hancock and Drew, 1999; Kovac *et al.*, 2006). Dohm *et al.* (2014) studied the biology and host use patterns of Gastrozonini, including seven species of *Acroceratitis*, most of them reared from dead or felled shoots of the bamboos *Bambusa polymorpha* Munro, *Dendrocalamus strictus* (Roxburgh), *D. pendulus* Ridley, *Gigantochloa scortechinii* Gamble and *Melocalamus compactiflorus* (Kurz) Benth (Poaceae: Bambusoideae). The Gastrozonini are considered to be a monophyletic tribe with 141 described species placed in 25 genera (Kovac *et al.*, 2006; Wang and Chen, 2002; De Meyer, 2006; Hancock, 2008; Hancock and Marshall, 2012). Of the fifteen *Acroceratitis* species known so far (Hancock and Drew, 1999), seven have been reported previously from India (Agarwal and Sueyoshi, 2005; David and Ramani, 2011). Two new species are described here, together with a new record and an updated key for all the species of *Acroceratitis* now known from India.

Material and methods

Specimens deposited in National Bureau of Agricultural Insect Resources, Bangalore, India (NBAIR) were studied. Specimens were collected from Bangalore and Madikeri (Karnataka, India) by luring the flies to chopped tender bamboo shoots kept near the base of the bamboo thickets. Images of the specimens were taken using Leica DFC 420 camera mounted on Leica M205A stereozoom microscope; images of genitalia were acquired using Leica DFC 425 mounted on Leica DMLB 100S; the images were stacked and combined to a single image using Combine ZP (Hadley, 2011). Terminology adopted here follows White *et al.* (1999).

Systematics

Genus *Acroceratitis* Hendel

Acroceratitis Hendel, 1913: 82. Type species *Acroceratitis plumosa* Hendel, by original designation.

4. Postpronotal lobe yellow without black spot and third abdominal tergite brownish to black *A. tenmalaica* Hancock and Drew
 - Postpronotal lobe yellow with large black spot (Figs 5 & 9); third abdominal tergite either brownish to black or fulvous 5
5. Abdominal tergites fulvous, at most with black basal margins on tergites III and IV (Figs. 25 & 26) 6
 - Third abdominal tergite brownish to black (Fig. 1) 7
6. Scutellum with three black patches separated by yellow stripes (Fig. 24); oviscape (1.2 mm) shorter than combined length of abdominal tergites (2.34 mm) *A. ceratitina* (Bezzi)
 - Scutellum black apically, devoid of yellow stripes; oviscape (2.45 mm) as long as combined length of abdominal tergites (2.48 mm) (Fig. 26) *A. striata* (Froggatt)
7. Oviscape short (0.85 mm) (Fig. 16); wing with subapical band fused with posterior apical band (Fig. 17)
 - Oviscape longer (1.47 mm) (Fig. 4); wing with subapical band free from posterior apical band (Fig. 6)
 *A. breviscapa* David, Ramani and Hancock, **sp. nov.**
 *A. parastriata* David and Hancock, **sp. nov.**
8. Scutellum with broad apical black patches; abdomen without submedial dark patches on tergites III–V . . . *A. separata* (Bezzi)
 - Scutellum predominantly yellow with apical black spots (Fig. 23); dark submedial patches present on abdominal tergites III–V (Fig. 17) 9
9. Wing with bands in apical areas distinct (Fig. 20); scutellum with distinct black spots (Fig. 23) *A. bimacula* Hardy
 - Wing with bands in apical areas indistinct; scutellar spots vestigial or absent. *A. distincta* (Zia)

Acknowledgments

We thank the Director, National Bureau of Agricultural Insect Resources (NBAIR), Bangalore, India, for the facilities. The first author is grateful to Dr. N. Bhaktavatsalam, Principal Scientist, NBAIR and Dr. K. Veenakumari, Principal Scientist, NBAIR for the specimens.

References

- Agarwal, M.L. & Sueyoshi, M. (2005) Catalogue of Indian Fruit flies (Diptera: Tephritidae). *Oriental Insects*, 39, 371–433.
<http://dx.doi.org/10.1080/00305316.2005.10417450>
- Bezzi, M. (1913) Indian trypaneids (fruit flies) in the collection of the Indian Museum, Calcutta. *Memoirs of the Indian Museum*, 3, 53–175.
- David, K.J. & Ramani, S. (2011) An illustrated key to fruit flies (Diptera: Tephritidae) from Peninsular India and the Andaman and Nicobar Islands. *Zootaxa*, 3021, 1–31.
- De Meyer, M. (2006) Systematic revision of the fruit fly genus *Carpophthoromyia* Austen (Diptera, Tephritidae). *Zootaxa*, 1235, 1–48.
- Dohm, P., Kovac, D., Freidberg, A., Rull, J. & Aluja, M. (2014) Basic Biology and Host Use Patterns of Tephritid Flies (Phytalmiinae: Acanthonevrini, Dacinae: Gastrozonini) Breeding in Bamboo (Poaceae: Bambusoidea). *Annals of the Entomological Society of America*, 107 (1), 184–203.
<http://dx.doi.org/10.1603/an13083>
- Hadley, A. (2011) Combine ZP. Available from: <http://hadleyweb.pwp.blueyonder.co.uk/CZM/News.htm> (accessed 23 August 2014)
- Hancock, D.L. (2008) A new species of *Proanoplomus* Shiraki from Borneo, with notes on *P. cinereofasciatus* (de Meijere) and the *Anoplomus* group of genera (Diptera: Tephritidae: Gastrozonini). *Australian Entomologist*, 35 (3), 97–106.
- Hancock, D.L. & Drew, R.A.I. (1999) Bamboo-shoot fruit flies of Asia (Diptera: Tephritidae: Ceratitidinae). *Journal of Natural History*, 33, 633–775.
<http://dx.doi.org/10.1080/002229399300164>
- Hancock, D.L. & Marshall, S.A. (2012) New records of fruit flies from northern Vietnam, with description of a new genus and species of Adramini (Diptera: Tephritidae: Trypetinae). *Australian Entomologist*, 39 (2), 55–64.
- Hardy, D.E. (1973) The fruit flies (Tephritidae-Diptera) of Thailand and bordering countries. *Pacific Insects Monograph*, 31, 1–353.
- Hendel, F.G. (1913) H. Sauter's Formosa-Ausbeute. Acalyprate Musciden (Dipt.). *Entomologische Mitteilungen*, 2, 33–43.
- Kovac, D., Dohm, P., Freidberg, A. and Norrbom, A.L. (2006). Catalog and revised classification of the Gastrozonini (Diptera: Tephritidae: Dacinae). In: Freidberg, A. (Ed.), *Biotaxonomy of Tephritoidea*. Proceedings of the First Tephritidologist Meeting, Israel, 28 May-2 June, 2000. *Israel Journal of Entomology*, 35–36. pp. 163–196. [Entomological Society of Israel; xii + 599 pp.]
- Wang, X.-J. & Chen, X.-L. (2002). A revision of the genus *Gastrozona* Bezzi from China (Diptera: Tephritidae). *Acta Entomologica Sinica*, 45 (4), 507–515.
- White, I.M., Headrick, D.H., Norrbom, A.L. & Carroll, L.E. (1999) Glossary. In: Aluja, M. & Norrbom, A.L. (Eds.), *Fruit Flies (Tephritidae): Phylogeny and Evolution of Behavior*. CRC Press, Boca Raton, pp. 73–113.