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Journal of Threatened Taxa

Building evidence for conservation globally

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

NOTE

FIRST REPORT OF MANGO LEAF GALL MIDGE *PROCONTARINIA ROBUSTA* LI, BU & ZHANG (DIPTERA: CECIDOMYIIDAE) FROM INDIA

Duraikannu Vasanthakumar, Senthilkumar Palanisamy & Radheshyam Murlidhar Sharma

26 September 2020 | Vol. 12 | No. 13 | Pages: 16924–16926

DOI: 10.11609/jott.5447.12.13.16924-16926



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First report of mango leaf gall midge *Procontarinia robusta* Li, Bu & Zhang (Diptera: Cecidomyiidae) from India

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Currently, 22 species of gall midges (Diptera: Cecidomyiidae) are known to be associated with mango *Mangifera indica* L. (Anacardiaceae) (Gagné & Jaschhof 2017; Jiao et al. 2018) which includes 16 species belonging to the genus *Procontarinia*. *Procontarinia robusta* Li, Bu & Zhang known for its gall on the leaves of mango tree, was described from China in the year 2003 based on adult male and female (Li et al. 2003). Later, immature stages of this species were described by Cai et al. (2013). Even though a similar type of gall on mango is known from India (Jharkhand and Andhra Pradesh) (Kieffer 1909; Mani 1959), the identity of the causative agent is not known. Cai et al. (2013) have considered the causative agent of this gall as *P. robusta* based on the illustrations given by Kieffer (1909) and Mani (1959). The checklist of Indian gall midges revealed 394 species which includes 11 species of *Procontarinia* but the *P. robusta* has not been included in the list as it is known only from gall morphology not from insect life stages (Sharma 2009). Here, we report the occurrence of *P. robusta* in India based on the larva and pupa for the first time.

Mango leaves with cylindrical galls mentioned by Kieffer 1909 & Mani 1959 were collected from different

localities (in the vicinity of Tamhini, Pune District, Maharashtra; Guntur, Andhra Pradesh; and Singanallur Lake area, Coimbatore District, Tamil Nadu) (Figure 1) and transferred to the laboratory. Some galls were cut open to obtain immature stages (larvae and pupae) and the remaining galls were kept in a plastic bag to rear into adults. As adults had not emerged from the galls, efforts were made to identify the larva and pupa. The larvae and pupae were cleared by using 10% KOH and processed to prepare slides as per the method described by Kolesik et al. (2009). The slides mounted in Canada balsam were deposited in the National Zoological Collections of ZSI, Western Regional Centre, Pune.

Material examined: Larva and pupa (2 numbers each dissected and mounted on slides) collected as leaf galls (Ent 10/210) from Guntur, Andhra Pradesh (16.303°N & 80.482°E) on 29.v.2018, coll. Senthilkumar; two larvae in alcohol collected as gal (Ent 10/211) on 22.ix.2018 from Singanallur Lake area, Coimbatore, Tamil Nadu (10.994°N & 77.024°E), coll. Vasanthakumar D.; larvae and pupae (three numbers each in alcohol) collected as gall (Ent 10/212) on 09.viii.2019 from vicinity of Mulshi, Pune District, Maharashtra (18.501°N & 73.513°E), coll. D. Vasanthakumar.

Editor: R. Ramanibai, University of Madras, Chennai, India.

Date of publication: 26 September 2020 (online & print)

Citation: Vasanthakumar, D., S. Palanisamy & R.M. Sharma (2020). First report of mango leaf gall midge *Procontarinia robusta* Li, Bu & Zhang (Diptera: Cecidomyiidae) from India. *Journal of Threatened Taxa* 12(13): 16924–16926. <https://doi.org/10.11609/jott.5447.12.13.16924-16926>

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Funding: None.

Competing interests: The authors declare no competing interests.

Acknowledgements: We express our sincere thanks to Dr. Peter Kolesik for his immediate response when contacted to clarify the identity of the gall. We are grateful to the director, Zoological Survey of India, Kolkata and officer-in-charge, Western Regional Centre, ZSI, Pune for providing the necessary facilities. Thanks are also due to the staff of WRC, ZSI, Pune, for their constant encouragement.



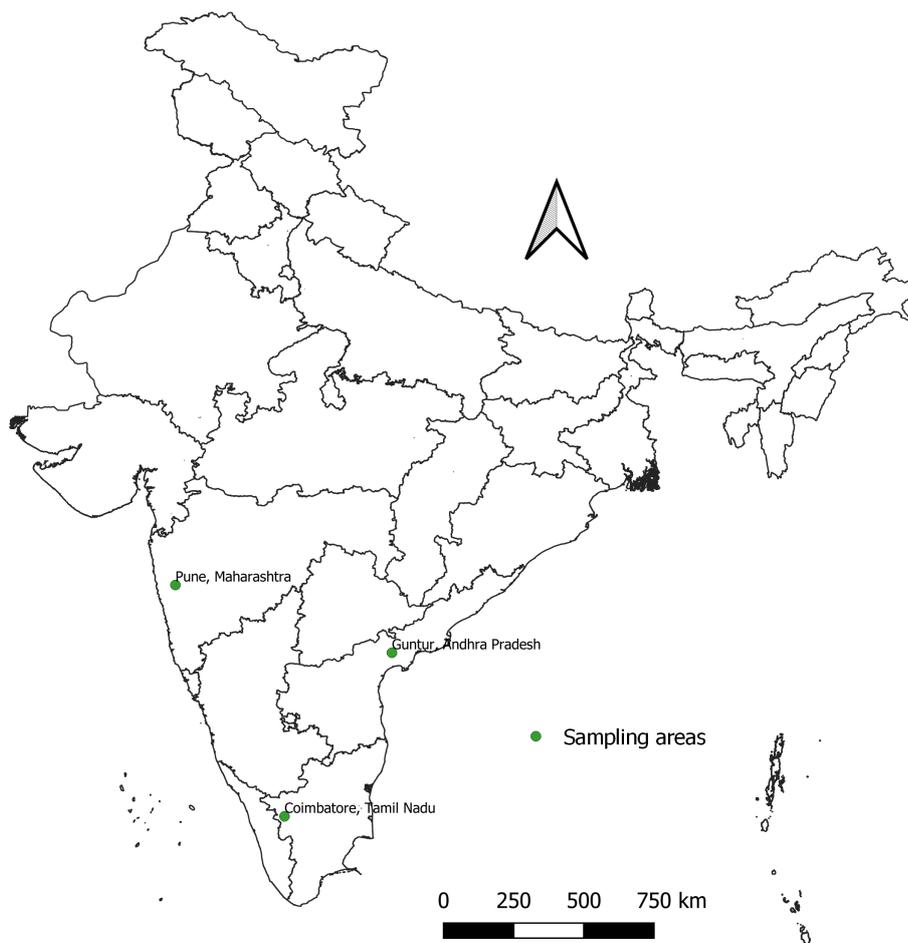


Figure 1. Details of sampling areas.

Diagnosis: Colour of larvae yellowish-white (Image 1A), antennae short, as long as wide. Sternal spatula long, narrow (270 μm) and trilobed, with large central lobe and minute lateral lobes (Image 1 B). No visible papillae on terminal segment as well as near sternal spatula as described by Cai et al. (2013). Antennal horns of pupa prominent, outer edge serrated (Image 1C). Prothoracic spiracle short, as long as wide. No visible facial papillae.

Gall: Leaf gall (Image 1D). Epiphyllous, cylindrical often obtusely conical, sessile, glabrous, brown to reddish-brown, shiny, hard, unilocular (Image 1E), indehiscent galls, 1mm in diameter at the base and 1–2.5 mm in height. The leaf epidermis bursts when the gall develops, leaving a structure resembling a calyx around the base. On the underside of the gall is a slightly discoloured blister with a necrotic area in the centre (Image 1F). At gall maturity, a round necrotic area appears at the gall's apex. Pupation takes place inside the gall. The pupal skin can be seen attached to the emergence hole (Image 1G) (Mani 2000).

Distribution: China, Indonesia, East Timor (Cai et al. 2013). India (new record)

Notes: *P. robusta* can be easily identified from its larva. A large central anterior lobe accompanied by a small lobe on either side of sternal spatula of larva is the key character to identify this species as described by Cai et al. (2013).

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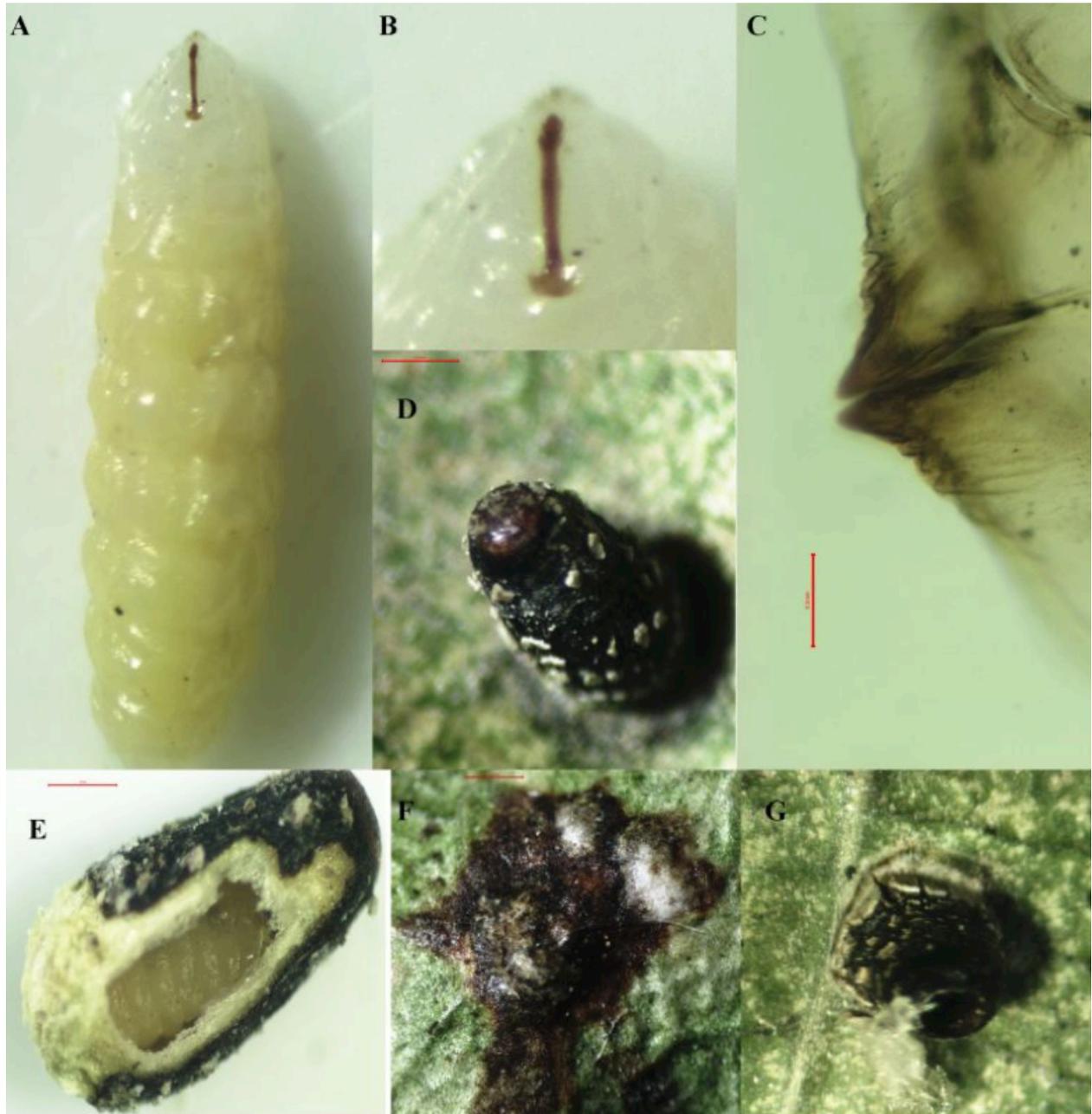


Image 1. A—larva | B—sternal spatula | C—antennal horns of pupa | D—leaf gall | E—dissected gall containing larva | F—underside of the gall | G—pupal exuviae. © D. Vasanthakumar.

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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

September 2020 | Vol. 12 | No. 13 | Pages: 16715–16926

Date of Publication: 26 September 2020 (Online & Print)

DOI: 10.11609/jott.2020.12.13.16715-16926

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