

FIELD NOTE

The Invasive Mealybug *Hypogeococcus pungens* (Hemiptera: Pseudococcidae): Continues Its Spread in India

Nernakallu N. Rajgopal* and Sunil Joshi

ICAR - National Bureau of Agricultural Insect Resources (ICAR-NBAIR), Post Bag No. 2491, H.A. Farm post, Bellary Road, Bengaluru, 560024, Karnataka, India.

*raju924rg@gmail.com

India has witnessed numerous insect introductions and invasions in recent decades, many of which involve sap-sucking pests, with scale insects (Hemiptera: Coccothraupidae) constituting the majority. *Hypogeococcus pungens* Granara de Willink, 1981 (Hemiptera: Sternorrhyncha: Pseudococcidae) is a Neotropical (South America) origin mealybug (Poveda-Martinez et al., 2019) and represents complex of at least five cryptic species with strong host specific associations (Poveda-Martinez et al. 2020). It has been reported from 23 countries on 23 different host plants belonging to 18 genera in 5 plant families, Amaranthaceae, Apocynaceae, Cactaceae, Malvaceae and Portulacaceae (García Morales et al., 2016). The mealybug was introduced from Argentina to Queensland, Australia and also released in South Africa as biological control agent for control of invasive cacti. Although its introduction was initially considered successful for invasive cacti weed management, the mealybug subsequently emerged as an important threat to ornamental plants, other native cacti and other plant species in many parts of the world.

Joshi et al. (2024) reported the mealybug for the first time from India (Andhra Pradesh, Karnataka, and Tamil Nadu), along with three

new host records: *Alternanthera brasiliana*, *A. ficoidea*, and *Portulaca* sp. (Amaranthaceae). Recently, Poorani and Thanigairaj (2026) reported *Alternanthera sessilis* (L.) R.Br. ex DC, a widespread weed and leafy vegetable, as an additional host from Tamil Nadu. During recent field surveys in Magadi (Ramanagara District) and Chintamani (Chikkaballapura District), Karnataka, we collected the mealybug from different host plants for further study. The specimens were identified based on permanent slide mounts using the descriptions provided by Joshi et al. (2024). The specimens studied are preserved in ICAR-NIM collections of the ICAR-NBAIR, Bengaluru.

Under field conditions, *H. pungens* can be readily recognized by its characteristic colonization pattern, forming dense, cottony white masses in the axillary regions of host plants. Slide-mounted adult females are distinguished by a combination of diagnostic characters: body round to oval; antennae seven-segmented; three circuli present between abdominal segments IV and V; claw lacking a denticle; and both claw and tarsal digitules distinctly clubbed (Fig. 1A).

Based on available literature, five species of *Alternanthera* (*A. paronychioides*, *A. pungens*, *A. brasiliana*, *A. ficoidea*, and *A. sessilis*) and



Fig. 1: A. *Hypogeococcus pungens* Granara de Willink, Mounted female; B-F. Host plants: B. *Portulaca umbraticola* Kunth (Portulacaceae); C. *Achyranthes aspera* L. (Amaranthaceae); D. *Gomphrena celosioides* Mart. (Amaranthaceae); E. *Alternanthera pungens* Kunth (Amaranthaceae); F. *Alternanthera sessilis* (L.) R.Br. ex DC (Amaranthaceae).

Gomphrena globosa (Amaranthaceae), together with two species of *Portulaca* (*P. oleracea* and *P. quadrifida*) (Portulacaceae), have been reported as host plants of *H. pungens* (Garcia Morales et al., 2016; Joshi et al., 2024; Poorani & Thanigairaj, 2026). Subsequent surveys revealed a continued expansion of this invasive mealybug in southern India, accompanied by the colonization of additional host plants. The present study reports three new host plant records: *Achyranthes aspera* L. (Fig. 1C), *Gomphrena celosioides* Mart. (Fig. 1D) (Amaranthaceae) and *Portulaca umbraticola* Kunth (Portulacaceae) (Fig. 1B), thereby indicating expansion of the known host range of *H. pungens* in India and documenting its first association with the genus *Achyranthes* (Amaranthaceae). In addition, the occurrence of *H. pungens* on *A. pungens* (Fig. 1E) and *A. sessilis* (Fig. 1F) in Karnataka confirms its continued spread within the region.

Feeding by dense population of *H. pungens* on stems, nodes, and axillary shoots causes severe deformation, chlorosis, stunting, and dieback, often leading to complete desiccation of susceptible weed hosts and substantial aesthetic damage to ornamental plants in landscapes and nurseries. In addition to ornamental species, several of its recorded host plants are common weeds, some of which are also valued as leafy vegetables and medicinal plants in traditional Indian systems of medicine, such as *Alternanthera sessilis*, *Achyranthes aspera* and *Gomphrena celosioides*. The ability of *H. pungens* to exploit both cultivated ornamentals and widespread weed hosts is likely to facilitate its establishment, persistence, and dispersal across agricultural, urban, and natural ecosystems. These findings provide updated information on the distribution and host range of *H. pungens* in India and highlight the need for continuous surveillance, early detection, and effective phytosanitary

measures to limit its further spread and minimize its potential economic, ecological, and horticultural impacts.

Acknowledgements

Research was supported by the Indian Council of Agricultural Research, Department of Agricultural Research and Education, Government of India. We acknowledge to Mr K. Harish for laboratory assistance.

References

- García Morales, M., Denno, B. D., Miller, D. R., Miller, G. L., Ben-Dov, Y., & Hardy, N. B. (2016). *ScaleNet: a literature-based model of scale insect biology and systematics*. Database. <http://scalenet.info>. Accessed 06 June 2026. <https://doi.org/10.1093/database/bav118>
- Granara de Willink, M. C. (1981). Nueva especie de *Hypogeococcus* Rau de Tucumán, República Argentina (Homoptera: Pseudococcidae). *Neotrópica*, 27, 61-65.
- Joshi, S., Rajgopal, N. N., Amarendra, B., Asritha, C., Karthik, C. M., Venkatesan, T., & Sushil, S. N. (2024). First report of invasive mealybug *Hypogeococcus pungens* Granara de Willink (Hemiptera: Coccothraupidae: Pseudococcidae) in India. *Phytoparasitica*, 52, 92. <https://doi.org/10.1007/s12600-024-01214-x>
- Poorani, J., & Thanigairaj, R. (2026). A new host plant for *Hypogeococcus pungens* Granara de Willink (Hemiptera: Pseudococcidae), a recent invasive mealybug in South India. Specimen, 72. <https://doi.org/10.56222/28166531.2026.72>
- Poveda-Martinez, D., Aguirre, M. B., Logarzo, G. A., Calderón, L., Colina, A., de la Hight, S. D., Triapitsyn, S. V., Diaz-Soltero, H., & Hasson,

E. (2019). Untangling the *Hypogeococcus pungens* species complex (Hemiptera: Pseudococcidae) for Argentina, Australia, and Puerto Rico based on host plant associations and genetic evidence. PLoS One, 14(7), e0220366. <https://doi.org/10.1371/journal.pone.0220366>

Poveda-Martinez, D., Aguirre, M. B., Logarzo, G. A., Hight, S. D., Triapitsyn, S. V., Diaz-Sotero, H., Vitorino, M. D., & Hasson, E. (2020). Species

complex diversification by host plant use in an herbivorous insect: The source of Puerto Rican cactus mealybug pest and implications for biological control. Ecology and Evolution, 10(19), 10463-10480. <https://doi.org/10.1002/ece3.6702>