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**Crater mound nests of the ant, *Camponotus* sp. in a terrace garden in Bangalore****Abraham Verghese\*<sup>1</sup> and M. A Rashmi <sup>1</sup>***\*<sup>1</sup>Former Director ICAR-National Bureau of Agricultural Insect Resources and Former Head, ICAR-Indian Institute of Horticultural Research, Hesaraghatta, Bangalore, 560024, Karnataka, India**<sup>1</sup>Rashvee International Phytosanitary Research and Services, Bengaluru 560024, Karnataka, India.***Corresponding author: [abraham.avergis@gmail.com](mailto:abraham.avergis@gmail.com)**

As Himalayas are to us humans, so must be the nest mounds of their own making to an ant. In the last three months, we were fascinated by the mound making of the *Camponotus* ant, on a terrace in Bengaluru (12.9784°N, 77.6408°E) in all probability the *Camponotus parvus* Emery, a native to India and Oriental. Except for mainly regional records, habitats and perhaps a casual mention of seasonality, much of this ant's bioecology is not known.




The ant caught our attention when we found a crater nest adjacent to a brick (Fig. 1) on a levelled heap of soil bed on a terrace, on which vegetables are grown. This was the month of June, 2022. The mounds seemed to have come up in a few days. Soil was excavated and thrown out so geometrically circular, all round, that a funnel shaped crater was formed up to about a height of 5-7 cm with a diameter of 14-16 cm (Fig. 1). A hole in the centre leads perhaps to the nest cavity. That the crater is 'live' is evident only by the workers moving on and around the crater. It is not sure whether the brood is raised in about 20 days

times, but, after that the nest looked abandoned. At Bengaluru, the rains between June and August, have been between 100 to 150 mm and the nest building activities, seemed to coincide with the rains. The second and the third nests in July and August, respectively, were in two different earthen pots in which plants were already growing. The second nest was like the first one with a single funnel like opening. However, the third nest had three openings and one is not sure whether these were three colonies or a single colony. The bigger crater of the third nest seemed to be the 'mother' nest (Fig. 2). Unless excavated, which we did not want, one cannot be sure if the excavations were temporary shelter or brood rearing chambers.

The nest building by itself was interesting. Ants 'painfully' bring small blobs of soil (size of their head!) and release it outside the excavated hole. Gradually these blobs of mud fall on either side, and craters are formed all around and when tunnelling is complete, the crater formation (at about 7-8 cm height, based on two nests of observed) stops.

The blobs are formed as small mustard sized particles, perhaps mixed in a “sticky” saliva, for the crater soil were mild cement-like and when removed and spread, it hardens. Once the colony abandoned the nest, evident by the absence of ant activity, the funnel became a ‘saucer’ shaped (Fig. 3) depressions, the only tell-tale evidence of a once thriving ant colony, albeit, though for a short while.

In urban terrace gardens, when such active crater nests are found, care should be taken to avoid watering over them, avoiding sprays and manuring or any form of disturbance for about three weeks to encourage ant conservation.

	
<p>Fig. 1. A typical nest</p>	<p>Fig. 2. Three nests, workers and blobs of soil clearly seen</p>
	
<p>Fig. 3. Abandoned nest- a saucer-shaped depression</p>	

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## Earwigs as potential pests of groundnut

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Earwigs belong to insect order Dermaptera and are characterized by the presence of pair of sclerotized forceps-like cerci on the last abdominal segment and membranous hind wings tucked beneath short hardened forewings. These are tiny insects which live in chambers 1-inch deep inside debris or soil crevices. Unusual among non-social insects, mother earwigs care for their eggs and nymphs. Earwigs are abundant in America and Eurasia and are mostly scavengers but some species are omnivorous feeding on plants as well as preying on arthropods.

Earwigs species infesting groundnut in India are, *Euborellia* (= *Anisolabis*) *annulipes* (Lucas), *E. plebeja* (Dohrn), *Forcipula quadrispinosa* (Dohrn) and *E. stali* Dohrn (Barwal, 1985; Anitha, 1992; Nandagopal and Prasad, 2004). The former three earwig species are widely distributed across groundnut growing regions of India while, *E. stali* is mainly reported from Tamil Nadu (Burr, 1910; Thangarajan, 1939; Cherian and Basheer, 1940; Senguttuvan and Dhanakodi, 1997; Das and Ray, 1988; Srivastava, 2003).

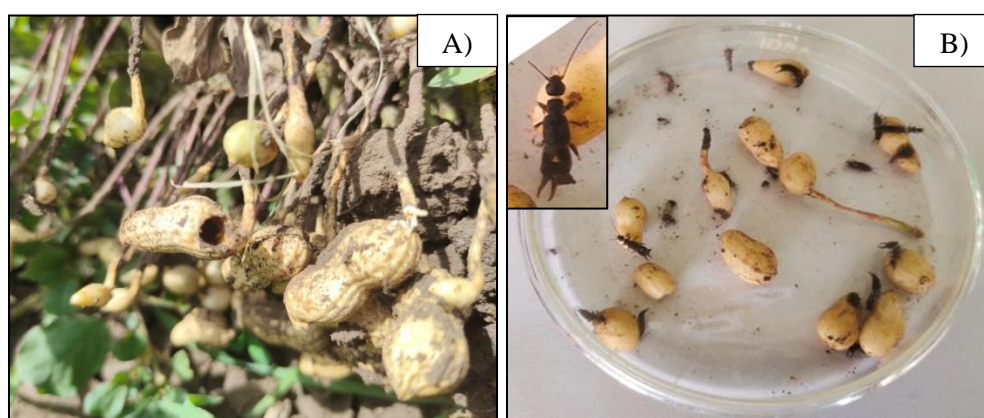
Adults are elongated, dark brownish to black insect measuring 30-35 mm in length.

Female earwigs lay 20-100 eggs in clusters on pods or in the soil. Eggs hatch in 3-11 days and nymphs pass through five instar stages to become adults. Nymphal period lasts between 30-60 days. Adults survive as long as 250 days and one generation takes 56-101 days. Both nymphs and adults of *E. stali* bore holes into tender groundnut pods and feed on the developing kernels/seeds and fill the pods with soil and/or excreta (Purushothaman *et al.*, 1970; Amin, 1988; Senguttuvan and Dhanakodi, 1997). On mature pods, earwigs fail to bore holes but can cause orange to brown colored superficial pits.

The earwig, *E. stali* on groundnut was observed from the pod developmental stage till harvest (Sahayaraj and Raju, 2003). Cherian and Basheer (1940) first recorded infestation of *E. stali* on groundnut pods and kernels at Coimbatore and South Arcot districts of Tamil Nadu. Senguttuvan and Dhanakodi (1997) also identified *E. stali* as a predominant pod borer of groundnut in Tamil Nadu. However, *E. stali* was also noted infesting groundnut pods in Bombay and Manipur (Barwal, 1985). At Tindivanam, Tamil Nadu, around 47% of pods of an introduced groundnut cultivar, Asiriya Mwitunde were earwig damaged wherein, 44% of matured pods and 52% of immature

Pods were found with bored holes (Purushothaman *et al.*, 1970). However, at Pudukkottai, Tamil Nadu both earwigs and wireworms caused pod damage ranging from 1.2 to 11.5% (Senguttuvan and Dhanakodi, 1997). Giridharan *et al.* (1985) reported that earwigs preferred Virginia bunch varieties (0.8-6.7%) over Virginia runner varieties (0.3-4.3%) of groundnut.

Since 2016, *E. stali* infestations were observed on groundnut in Saurashtra (21.4843°N, 70.4405°E), peninsular region of Gujarat. Pod damage by earwigs ranged from 2 to 25% in *Kharif* groundnut while in rabi-summer groundnut it ranged from 2 to 5% (Harish, 2021).



**Fig 1.** Characteristic earwig damage observed on groundnut. A) Hole bored on an immature pod; and B) Earwigs feeding on immature pods (**Inset:** Adult earwig).

### References:

- Amin, P.W. 1988. Insect and mite pests and their control. In: Groundnut. P.S. Reddy (Eds.): pp. 393-452 Indian Council of Agricultural Research, New Delhi.
- Anitha, V. 1992. Studies on groundnut pod borers. M.Sc. Thesis: pp. 87 Andhra Pradesh Agricultural University, Hyderabad.
- Barwal, R.N. 1985. Status of soil inhabiting insect pests of crops. *Journal of Soil Biology and Ecology*, **5**: 139-142.
- Burr, M. 1910. Fauna of British India: Dermaptera (Earwigs). pp. 217 Taylor & Francis, London.
- Cherian, M.C. and Basheer, M. 1940. *Euborellia stali* Dohrn (Forficulidae) as a pest of groundnut in South India. *Indian Journal of Entomology*, **2**: 155-158.
- Das, B.B. and Ray, S. 1988. Insect pest incidence on groundnut in Tripura. *Indian Journal of Entomology*, **50**: 387-388.

- Giridharan, S., Palanisamy, G.A., Sivasubramanian, P. and Subbulakshmi, B. 1985. Varietal reaction to earwig (*Euborellia stali* D.) in groundnut. *Madras Agricultural Journal*, **72(11)**: 640.
- Harish, G. 2021. Incidence of earwigs in groundnut. *DGR Newsletter*, **20(2)**: 3.
- Nandagopal, V. and Prasad, T.V. 2004. World list of insect and non-insect pests of groundnut and their natural enemies. pp: 140 National Research Center for Groundnut, Junagadh.
- Purushothaman, G., Das, G.G. and Venugopal, S. 1970. A note on *Euborellia stali* D. as a pest on *Asiriya Mwitunde*. *Madras Agricultural Journal*, **57(1)**: 44-45.
- Sahayaraj, K. and Raju, G. 2003. Pest and natural enemy complex of groundnut in Tuticorin and Tirunelveli districts of Tamil Nadu, India. *International Arachis Newsletter*, **23**: 25-29.
- Senguttuvan, T. and Dhanakodi, C.V. 1997. Control of pod borers of groundnut by soil application of insecticides in alfisols. *Journal of Oilseed Research*, **14**: 274-277.
- Srivastava, G.K. 2003. The Fauna of India and the adjacent countries-Dermaptera (Part-2): (Superfamily: Anisolaboidea), pp: 235 Zoological Survey of India, Kolkata.
- Thiagarajan, K.B. 1939. The habits of the common earwig of Annamalainagar, *Euborellia stali* (Dohrn). *Journal of the Bombay Natural History Society*, **40**: 721-723.

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