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Report of heavy infestation of the thrips, *Thrips parvispinus* on coriander in Bangalore, India

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Thrips parvispinus (Karny) (Thripidae: Thysanoptera), an invasive thrips has been recorded on papaya in Hawaii, *Gardenia* sp. in Greece and in vegetable crops like capsicum, green beans, potato, and brinjal from other countries (Murai *et al.*, 2009). Recently, it was reported serious on chillies in South India (Verghese, 2021; Nagaraju *et al.*, 2021; Nagaraju, 2021; Rashmi, 2021; Sireesha *et al.*, 2021; Kumari, 2021). In January, 2022, heavy infestation of *T. parvispinus* was seen on two-

week old to a month old, herbal coriander grown in pots (Fig.1). The dorsal side of the leaf had white specks, while the thrips were on the underside (Fig.2). The infested herbs were pulled out and destroyed, to prevent spread of the thrips. As coriander is a popular herb in terrace gardens, it is advocated to be vigilant and uproot and destroy early infestations to prevent spread. No other recommendations are advocated.



Fig. 1. Damage of *T. parvispinus* on coriander



Fig. 2. *T. parvispinus* on coriander

References

- Kumari. A, D., Bhasker. K and V. Suresh. 2021. A new invasive chilli thrips (*Thrips parvispinus*) in Telangana State, *Insect Environment*, **24 (4)**: 520 – 522.
- Sireesha, K., Prasanna, B. V. L., Vijaya Lakshmi, T. and Reddy, R. V. S. K. 2021. Outbreak of invasive thrips species *Thrips parvispinus* in chilli growing areas of Andhra Pradesh. *Insect Environment*, **24 (4)**: 514 – 519.
- Murai, T., Watanabe, H., Toriumi, W., Adati, T. and Okajima, S. 2009. Damage to vegetable crops by *Thrips parvispinus* Karny (Thysanoptera: Thripidae) and preliminary studies on biology and control. *Journal of Insect Science*, **10**: 166.
- Nagaraju, D. K., Vivek Uppar., Ranjith, M., Sriharsha., Ramesh, G., Om Prakash Verma., and Ravi Prakash. 2021. Occurrence of *Thrips parvispinus* (Karny) (Thripidae: Thysanoptera) in major chilli (*Capsicum annum*) growing areas of Karnataka, *Insect Environment*, **24 (4)**: 523-532.
- Nagaraju, D. K., 2021 Co-occurrence of thrips and anthracnose: In major chilli growing areas, *Insect Environment Blog* dated 21st December 2021
- Rashmi, 2021 Chilli thrips spreading in South India (Karnataka), *Insect Environment Blog* dated 09th December 2021.
- Verghese, 2021, High thrips infestation in South India, *Insect Environment Blog* dated 22nd November 2021.

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Screening of cashew varieties to identify tolerant or resistance types against apple and nut borer, *Citripestis eutrapphera* (Meyrick) (Lepidoptera: Pyralidae) in maidan parts of Karnataka, India

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Cashew (*Anacardium occidentale* L), belongs to the family Anacardiaceae, is widely grown for its highly nutritious and tasty kernels. Cashew is infested by more than 190 species of insects and mite pests in different cashew growing countries of the world (Sunderaraju, 1984). Of which, tea mosquito bug (*Helopeltis antonii* Sign.) and cashew stem and root borer (*Plocaederus ferrugineus* L.) are being major insect pests in cashew growing regions of India as well as in Karnataka (Anon., 2017). Nowadays, the mango fruit borer, *Citripestis eutrapphera* (Meyrick) became a major pest on cashew apples and nuts causing up to 12 percent loss in Karnataka (Aswathanarayana Reddy, 2016) and from Andaman Islands (Bhumannavar, 1991; Jacob *et al.*, 2004). Therefore, for the management of *C. eutrapphera*, growers solely depend on application of toxic chemicals. In view of this, the present work was carried to identify any tolerant or resistant cashew varieties for effective management of this pest.

Field experiment was carried out under ICAR – All India Coordinated Research

Project on Cashew operating at Horticulture Research and Extension Centre (HREC), Hogalagere (13°20'3" N Latitude and 78°17'34" E Longitude; elevation of 836 m above mean sea level), Kolar district, which falls in the Eastern dry zone (Zone-5) of Karnataka. Fifty-two released cashew varieties of ten years old planted at a spacing of 8m x 8m in different multi-location trial (MLT-II, III & V) blocks were screened from 2014 to 2021 for incidence of *C. eutrapphera*. From each variety, two plants were selected randomly and labelled for recording observations. Totally 104 plants from 52 varieties/germplasm were selected for recording observations. The data on number of healthy and damaged cashew apple and nuts by *C. eutrapphera* were counted and recorded in one square meter area at bottom, middle and upper canopy of each plant in all the four directions, and finally mean infestation / damage was worked out (Anon., 2017). Results indicated that none of the released cashew varieties screened showed either tolerance /resistance to attack of *C. eutrapphera*, indicating no varietal preference for infestation. The extent of

damage/infestation ranged from 10 to 17 percent on developing young cashew apples. The peak infestation of *C. eutraperha* as apple and nut borer of cashew was found during February to May, which coincides with apple and nut formation stage of the crop. These results are in agreement with the findings of Kori Nagaraj *et al.* (2020), who reported peak infestation of *C. eutraperha* on cashew during peak summer months in Bangalore condition, and as apple and nut borer on cashew during March - May months in maidan parts of Karnataka (Aswathanarayana Reddy, 2016). Hiremath *et al.* (2017) reported that the *C. eutraperha* infests seedlings and grafts of cashew in Kerala. Similarly, Jayanthi *et al.* (2014) also reported the occurrence of fruit borer, *C. eutraperha* from mainland causing extensive damage to immature fruits of mango (*Mangifera indica* L.) in Karnataka and Tamil Nadu. Soumya *et al.* (2016) reported that *C. eutraperha* was fairly well established in Kolar, Bengaluru Rural and Hassan districts of Karnataka. They were found infesting lime-sized mango fruits up to pre-harvest, when serious fruit rotting on tree sets in. Bana *et al.* (2018) observed incidence of an indigenous restricted fruit borer, *C. eutraperha* on mango in south Gujarat causing 5-45% damage / infestation. The correlation between *C. eutraperha* population and weather parameters revealed that sunshine hours influence its incidence in a positive manner ($r= 0.673$) whereas, rainfall showed a negative effect. The weather factors were observed to explain the variation in infestation to an extent of 48% and

this forewarning model might provide decision support for its IPM.

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References

- Anonymous, 2017, Annual Report - 2016-17, All India Coordinated Research Project on Cashew, ICAR - Directorate of Cashew Research, Puttur Pp 232.
- Aswathanarayana Reddy, N., B. Subramanyam, Vasudeva, K. R. and Rajendra, B. N., 2016, Population dynamics and management of cashew apple and nut borer, *Thylecoptila panerosema* (Lepidoptera: Pyralidae) in maidan parts of Karnataka. In: *Proceedings of National Seminar on Strategies for Development of Cashew*, held on 19-20 February at Regional Fruit Research Station, Vengurle, Maharashtra. Pp 63.
- Bana, J. K., Hemant Sharma and D. K. Sharma, 2018, Mango fruit borer, *Citripestis eutraperha* (Meyrick) in south Gujarat:

- need for domestic quarantine. *Indian Journal of Entomology*, **80**(3): 654-657.
- Bhumannavar, B. S., 1991, Record of *Citripestis eutraperha* Meyrick (Lepidoptera: Pyralidae) on *Mangifera andamanica* in India. *J. Bombay Nat. Hist. Soc.*, **88** (2): 299.
- Hiremath, S. R., Kumara, S. A. and Prathapan, K. D., 2017, First report of the mango fruit borer, *Citripestis eutraperha* Meyrick (Lepidoptera: Pyralidae) as a seedling borer of cashew, *Anacardium occidentale* L. (Anacardiaceae). *J. Lepid. Soc.*, **71**(2): 115-116.
- Jacob, T. K., Veenakumari, K. and Bhumannavar, B. S., 2004, Insect pests of cashew in the Andaman Islands. *Cashew*, **18** (4): 25–28.
- Jayanthi, P.D.K., Abraham Verghese, P.R. Shashank and Vivek Kemparaj, 2014, Spread of indigenous restricted fruit borer, *Citripestis eutraperha* (Meyrick) (Lepidoptera: Pyralidae) in mango: Time for domestic quarantine regulatory reforms. *Pest Management in Horticultural Ecosystems*, **20** (2): 227-230.
- Kori Nagaraj, Ramegowda, G.K., Aswathanarayana Reddy, N., Narabanchi, G.B. and Vishuvaradhana, 2020, Studies on apple and nut borer, *Citripestis eutraperha* Meyrick (Lepidoptera: Pyralidae) in cashew. In: *Proceedings of “XVII AZRA International Conference on Frontier Research in Applied Zoology and Insect Pest management Strategies: A way forward for Food and Nutritional Security”* from 12-14th, February, 2020 at UAS, Raichur, Karnataka, Pp 82-83.
- Soumya, B. R., Abraham Verghese, P. D. Kamala Jayanthi and S. K. Jalali, 2016, Need to strengthen quarantine between Andaman and Nicobar Islands and mainland India. *Current Science*, **111** (11): 1753 - 1756.
- Sundararaju, D., 1984, Studies on cashew pests and their natural enemies in Goa. *J. Plant. Crops*, **12**: 38-46.

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