Journal of Entomology and Zoology Studies

Available online at www.entomoljournal.com

JEZS Journal of Entomology and Zoology Studies

ISSN 2320-7078
JEZS 2014; 2 (2): 14-15

Received: 09-04-2014
Accepted: 03-05-2014

Neelima Talwar
Associate Professor, Department of Zoology, P.G.G.C.G.-42, Chandigarh

Correspondence:
Neelima Talwar
Associate Professor, Department of Zoology, P.G.G.C.G.-42, Chandigarh

A Review on Pest Potential of *Tanymecus* (Coleoptera: Curculionidae: Brachyderinae)

Neelima Talwar

ABSTRACT
Tanymecus indicus Faust associated mainly with wheat has been found attacking *Trifolium alexandrinum* locally called as berseem in Chandigarh and surrounding areas. Out of forty five species collected from India, biology of *T. hispidus* Marshall *T. princeps* Faust, *T. sciurus* Oliver and *T. simplex* Marshall has been recorded by other workers. Outside India, species like *T. dilaticollis* Gyllenhaal, *T. pallidus* Reitter, *T. confusus* Say, *T. lacaena* (Herbst) and *T. palliatus* (Fabricius) have been found attacking a number of plant families like Asteraceae, Fabaceae, Chenopodiaceae, Amaranthaceae, Polygonaceae, Convolvulaceae, Brassicaceae and Urticaceae from Europe and Asia.

Keywords: Pest, Brachyderinae, *Tanymecus*, Root feeder.

1. Introduction
Curculionidae, the largest weevil family has so far been reported to have 4600 genera and 51000 described species. The weevils have adapted to all types of plants [1, 2]. Two distinct groups i.e., short snouted and long snouted weevils are met within this family. There is a mark distinction in their pattern of oviposition, place of larval and pupal development. *Tanymecus indicus* is a short snouted weevil, laying eggs in soil. The resulting larvae feed on the roots. Its pest potential along with other *Tanymecus* species is discussed in this communication.

2. Observations & Discussions
Marshall [3] divided the Family Curculionidae (snout beetles) into 2 subgroups mainly on the basis of length and strength of snout. The short snouted weevils are put in the 3 subfamilies i.e., Brachyderinae, Otiorrhynchinae and Eremninae. The genus *Tanymecus* belongs to the first mentioned subfamily Brachyderinae. Genus *Tanymecus* is an important genus under this subfamily and includes species which are pests of a number of crops. Like other short snouted weevils, *Tanymecus* lay eggs in the soil. The young larvae feed on the roots of different plants. The larval and pupal development is also completed within loose soil.
Tanymecus indicus, as the name indicates, is actually an Indian species widely distributed throughout India and is associated with variety of host plants. Although it is a major pest of wheat yet other cereal crops as well as many non-cereal crops are also attacked by this species. Out of forty five *Tanymecus* species recorded by Marshall [3] from India, Burma and Ceylon, only five of them were recorded from India by Pajni [4].
A perusal of literature reveals that *T. indicus* is primarily a pest of *Triticum* (wheat) and other cereals like *Zea mays* (maize), *Sorghum* (jowar), *Hordeum vulgare* (barley) and *Oryza sativa* (rice). In fact, the beetle also attacks a number of winter crops notably legumes like *Cicer arietinum* (gram), *Pisum sativum* (pea), *Cortalaria juncea* (sannhemp) and *Lens esculenta* (Lenti)l. Its attack has also been recorded on *Corchorus corchori* (jute), *Beta vulgaris* (beetroot), *Brassica* (mustard), *Eruca sativa* (argula), *Carthamus tinctorius* (safflower), *Papaver* (poppy) and *Gossypium* (cotton) [5, 6, 7, 8, 9, 10, 11]. Recently Venkateshalu and Murthy [12] while reporting pigeon pea as its major host plant has also mentioned it attacking wheat in Northern India.
Nanda and Pajni [13] recorded the attack of this weevil on *Trifolium alexandrinum*, commonly known as barseem and also conducted experiments for the study of its development in laboratory on the same host. Out of forty five species recorded from Indian subcontinent, host plants of only a few species have been documented by various workers. It includes *T. hispidus* on Gossypium, *Saccharum* (sugarcan), *Oryza sativa*, *Zea mays*, *Dalbergia sissoo* (shisham) and *Zizyphus jujube* (ber) [14, 3, 5, 15], *T. princeps* on *Gossypium*, *T. sciurus* on Gossypium and Saccharum,[5, 16]

T. simplex on *Oryza sativa* and *Calotropis* (Ak) [3] and *T. circumdatus* on *Malus domestica* (apple) [17].

As far as the development of *T. Indicus* and other Indian species of genus *Tanymecus* is concerned, the beetles show a common behavior of laying eggs in the soil or on leaves, larvae feeding on roots and debris in the soil and larval and pupal developments also completing in the soil.

T. indicus causes much damage to the host plants because the beetles generally attack the freshly germinated young crops. It has been reported that *T. indicus* along with other species sometimes appear in large number consuming most of the crop and necessitating the resowing of the crop [6, 12].

Outside India, species like *T. dilaticollis, T. pallidus*, *T. confusus*, *T. lacaena* and *T. palliatus* have been found attacking a number of other host plant. *T. palliatus* attacks species from several plant families like Asteraceae, Fabaceae, Chenopodiaceae, Amaranthaceae, Polygonaceae, Convolvulaceae, Brassicaceae and Urticaceae from Europe and Asia [18, 19]. Likewise, Hill [17] also mentioned several cereal crops including sugar beet as forming a range of host plant for this species. According to Bell [20], *T. destructor* damages maize in South Africa. In the same manner, *T. lacaena* has been found attacking more than 20 host plants belonging to wide range of plant families in U. S. [21]. *T. dilaticollis* essentially a European species also attacks wide range of host plants include cereals, fruit trees, sunflower and sugar beet as reported by Camprag. [22]. *T. pallidus* is associated with common ragweed [23] while *T. confusus* consumes the sugar beet besides several hosts like *Xanthium* (cocklebur) *Amaranthus* (pigweed) and *Ambrosia*(ragweed) from Family Asteraceae [24].

Some species of *Tanymecus* e.g. *T.dilaticollis*, *T. destructor*, *T. palliatus*, are important pests of a number of crops including the edible cereals and legumes although a few others are only minor pests . Complete life cycle studies on additional species from India should reveal pattern of development and pest status similar to or different from that of *T. indicus*.

3. Acknowledgement

The author is grateful to Prof. H. R. Pajni (Retd.), Department of Zoology, Panjab University, Chandigarh for useful suggestions in the preparation of this manuscript. The access provided by Google to various research articles is greatly acknowledged.

4. References

1. Marvaldi MAE, Sequeira AS, O'Brien CW, Farrell BD. Molecular and morphological phylogenetics of weevils (Coleoptera, Curculionoidea): Do niche shifts accompany diversification? Systematic Biology 2002; 51:761–785.
2. Oberprieler RG. Phylogeny and evolution of the Brachycerinaesensulato (Coleoptera: Curculionidae). Abstracts CD-ROM, XXII International Congress of Entomology, Brisbane, 15-21 August 2004, Australian Entomological Society, Brisbane.
3. Marshall GAK. The Fauna of British India including Ceylon and Burma, 1916, 361.
4. Pajni HR. Studies on morphotaxonomy and cytotaxonomy of the Indian Curculionidae along with the ecology of the pest species. U.S.PL-480 Research Project IN-ARS-185, 1989, 97.
5. Nagpal HD. Insect pests of Cotton in India, 1948, 49.
6. Singh S, Gurnam MS. Occurrence of *Tanymecus* weevil in pest form in the Punjab and its control. Current Science 1960; 29:286.
7. Nair MRGK. Insect and mite Pests of South India, Indian council of Agricultural Science, New Delhi, 1975, 404.
8. Srivastava AS, Lal SS. Survey of insect pests attacking wheat crop in Uttar Pradesh. Indian Journal of Plant Protection, 1973; 1:27-31.
9. Butani DK, Jotwani MG. Insects in Vegetable. Delhi. Periodical Expert Book agency, 1984, 356.
10. Singh OP, Srivastava SK. Dictionary of Entomology, Plant Pathology and Nematology, Concept Publishing Company, New Delhi, India, 1998, 456.
11. Mane PN, Rathod PK, Wakode MM, Satpute NS, Deshmukh SN. Gujhia Weevil, *Tanymecus Indicus* Fst. on Safflower in Vidarbha Region. Karnatka J Agric Sci 2010; 23:110-111.
12. Venkateshalu, Murthy MS. Outbreak of Gujhia weevil, *Tanymecus Indicus* (Fst.) on pigeonpea in Yadgir district. Insect Environment 2013; 19:114.
13. Nanda N, Pajni HR. Notes on the life history and habits of *Tanymecus Indicus* Fst. (Coleptera: curulionidac). Res Bull Panj Univ 1990; 41:61-55.
14. Beeson CFC. The ecology & Control of forest insects of India & neighbouring countries. Vasant Press, Dehra Dun 1941, 1007.
15. Abdullah MD, Abdul MMd. Influence of climate changes on the abudance of major insect pests of sugarcane. 499-513.In : Climate change and food security in Asia (Lal R, Mannava VK, Kumar S, Faiz SMA, Mustafizur RAHM, Khandakar RI, Eds) Springer Science Business Media B.V. 2011.
16. Sabesh M. List of Insect & Mite pests of Cotton in India. At www.cicr.org.in, 2006-2007.
17. Hill DS. Agricultural Insect Pests of Temperate Regions and their Control. Published by the Press syndicate of University of Cambridge, 1987, 336.
18. Kryzhanovskii OL. The pest insects and ticks of agricultural plants. Leningrad: Nauka, 1974, 2, 335.
19. Fedorenko VP. The most important sugar beet pests in Ukraine and integral measures for their control. Proc Nat Sci MaticaSrpska Novi Sad, 2006; 110:21-38.
20. Bell RA. Insect Pests of Maize in Kwazulu-Natal. www.kzndae.gov.za/en-a/.../ insect pests of maize inkwazulanatal.aspx.2005
21. Woodruff RE. *Tanymecus lacaena* (Herbst), an occasional weevil pest of citrus in Florida (Col.: Curc.), Entomology Circular Number 1981, 225, 2.
22. Camprag D. The maize weevil (*T. dilaticollis*), its life history & control. In: Kukuruzhapipa (*Tanymecus dilaticollis* Gyll.), nacin Zivotaisuzbijanje, 1969, 89.
23. Maceljski M, Igrac J. The phytophagous insect Fauna of *Ambrosia artemisiifolia* in Yugoslavia. In: Proceedings of the VII International Symposium on Biological Control of Weeds, Rome, Itally (E. Delfosse Ed). Ministero dell, Agricoltura e Delle Foreste, Rome, Italy, 1989, 639- 643.
24. Armstrong JS, Cattanach A, Bus L. Defoliating weevil identified and damage described from southern end of the Red River Valley. Sugar beet Research and Extension Reports, 1997; 28:256-257.