



E-ISSN: 2320-7078
P-ISSN: 2349-6800
JEZS 2018; 6(1): 1117-1118
© 2018 JEZS
Received: 16-11-2017
Accepted: 19-12-2017

Rajesh Kumar Patel
JRF, AICRP on Palms,
S. G. College of Agriculture and
Research Station, Jagdalpur,
IGKV, Chhattisgarh, India

PK Salam
Scientist (Agronomy) AICRP on
Palms, S. G. College of
Agriculture and Research
Station, Jagdalpur, IGKV,
Chhattisgarh, India

Beena Singh
Scientist (Horticulture) AICRP
on Palms, S. G. College of
Agriculture and Research
Station, Jagdalpur, IGKV,
Chhattisgarh, India

Correspondence
Rajesh Kumar Patel
JRF, AICRP on Palms,
S. G. College of Agriculture and
Research Station, Jagdalpur,
IGKV, Chhattisgarh, India

New record of coconut spike moth (*Tirathaba rufivena* Walker) from Bastar tribal belt of Chhattisgarh

Rajesh Kumar Patel, PK Salam and Beena Singh

Abstract

A field survey on coconut spike moth was conducted at S. G. College of Agriculture and Research Station, Jagdalpur and some nearby areas of Bastar, Chhattisgarh during 2016-17. During the study it was observed that this moth infested the coconut palms as a minor pest. It caused nearly 6-9 per cent nut loss to the coconut palms. The infestation of this pest can be reduced by collection and destruction of the affected nuts because they may carry the larvae of this pest.

Keywords: Coconut spike moth, loss, coconut, Bastar

1. Introduction

Tirathaba rufivena^[1] is a moth of the family Pyralidae. The coconut spike moth is often referred to as bunch moth in Oil palm. It is a major pest of palm plants such as *Cocos nucifera* L., *Areca catechu* L. and *Elaeis guineensis*^[2]. It is found from Southeast Asia to the Pacific Islands including China, Malaysia, the Cook Islands, the Philippines and the tropical region of Queensland. In Hainan, China, damage to palm plants by *T. rufivena* has been severe and widespread. This pest has significantly affected the production of palm plants; the damage rate was found to be 10–67% in betel plants (*A. catechu* L.) and 10–40% in betel blooms, fruit and fringe^[3-5]. The oil palm bunch moth, *T. rufivena* was previously known as *Tirathaba mundella* that is a serious occasional pest of oil palm especially in peat soil and can significantly reduce the production yield from 30 to 50%^[6-7]. Only two species of the *Tirathaba* have been recorded as being responsible for infestation in Malaysia and Indonesia namely, *T. rufivena* and the *T. mundella*. These species are easy to differentiate on the basis of the coloration on the front wing which is greenish for *T. mundella* and grayish for *T. rufivena*^[8]. Infestation ensues at the larval stage of *Tirathaba*, starting with the male and female flower, the surface of the bunch and finally the shoot of the frond. Due to the infestation, the fruit becomes rotten and consequently rots the whole bunch^[9]. Bunch moth (*T. rufivena*) causes average loss of 30% to the palms with 50 % attack in young plantings and 60% in older plantings, respectively^[10]. The bunch moth or fruit moth or inflorescence moth, *T. Mundella* infest the new plantation and bunches which are not harvest properly^[11]. Male flowers are especially attacked by the larvae of *Tirathaba*. The larvae are very active and move quickly when disturbed. Infestation causes abortion of young, underdeveloped fruits. The growing point may be damaged in very young plantations; severe attacks cause wilting of the growing point and delayed development of the plant^[12]. The study was conducted to generate the scientific documentation on coconut moth, *T. rufivena* from Bastar region of Chhattisgarh.

2. Materials and Methods

The field survey was conducted by visual observation and collection of damaged fallen nuts randomly from research field of AICRP on Palms centre, Jagdalpur, Bastar, Chhattisgarh during 2016-17. The damaged nuts are subjected for diagnosis and larvae are reared by proving small pieces of tender nuts for the purpose of adult emergence. The infestation percentage is calculated by:

$$\% \text{ Infestation} = (\text{Infested nuts} / \text{Total nut}) \times 100$$

3. Results and Discussion

T. rufivena was found as minor pest of coconut in Bastar region of Chhattisgarh. It causes

minor loss from September to February month. The caterpillar was the damaging stage of this moth having biting and chewing type of mouth part. They bore into the nuts from attachment area leaving the excreta behind tunnel. The affected nuts can be recognized by the presence of excreta and oozing gummy substances. These infested nuts usually fall down from the trees. Generally a single larva is found in an infested nut but in case of severe infestation more than one larva can be seen. This moth causes 6 to 7 percent nut loss in coconut at Bastar plateau of Chhattisgarh but several workers reported to cause 10-67% in betel plant, 10-40% in betel blooms, fruits and fringes^[3-5] while, 30-50% in oil palm^[6, 7, 10]. The variation in level of infestation may be due to difference in climatic factors.



Fig 1: Coconut moth



Fig 2: Infested nut with larva



Fig 3: Nut with bore hole

4. Conclusion

T. rufivena is categorized as minor pest of coconut but it has potential to cause severe losses in betel palm and oil palm. This investigation will help the future researchers in making effective management model.

5. Acknowledgement

The identification of this pest is based on photograph uploaded at official website of National Bureau of Agricultural Important Insect Resources, Bangalore, Karnataka. All India Coordinated Research Project on Palms, CPCRI, Kasaragod, Kerala is also gratefully acknowledged for providing the basic amenities and guidance during the course of survey.

6. References

1. Walker K. Greater coconut spike moth (*T. rufivena*). <http://www.padil.gov.au.>, 2006.
2. Yew NK. Talk on the studies on insect parasitism of *Tirathaba rufivena* on oil palm. General Meeting of the Malaysian Plant Protection Society. 1980, 414.
3. Fan Y, Gan BC, Chen SL, Du CG, Yang CQ, Cui WT. The investigation and research on *Tirathaba rufivena* Walk of betel nut. Tradit Chin Med Bull. 1986; 11:8-9.
4. Fan Y, Gan BC, Chen SL, Du CG, Yang CQ. The biological characteristics and control of *Tirathaba rufivena*. Entomol Knowl. 1991; 28(3):146-148.
5. Susanto AS, Perdana RTA. Organisme Pganggu Tanaman Penggerek tandan kelapa sawit *Tirathaba mundella* Walker," Pusat Penelitian Kelapa Sawit. 2011; H(0004):1-4.
6. Lim KH. Integrated pest management of *Tirathaba* bunch moth on oil palm planted on peat. The Planter. 2012; 88(1031):97-104.
7. Zulkefli M, Norman K, Ramle M, Basri MW. Integrated pest management of termite and bunch moth in oil palm planted on peat in Malaysia. In Proceeding of the Fourth MPOB-IOPRI International Seminar: Existing and Emerging Pests and Diseases of Oil Palm Advances in Research and Management. Bandung, Indonesia, 2011.
8. Agus F, Gunarso P, Sahardjo BH, Joseph KT, Rashid A, Hamzah K *et al.* Reducing greenhouse gas emissions from land use changes for oil palm development". In Presentation to plenary session, RSPO RT9, 2011.
9. Alouw JC, Morallo-Rejesus B, Ocampo VR. Biology of the coconut spike moth, *Thirathaba frubctivora* (Meyr.) (Lepidoptera: Pyralidae)," *Philipp. Entomol.* 2005; 19(1):84-93.
10. IRHO. Rapport d'Activité. Institut de Recherches pour les Huiles et Oléagineux, Numéro special. 1991; 47(6):220.
11. Wood BJ. Insect pests in Southeast Asia. Oilpalm Research (Corley, R. H. V; Hardon, J. J. and Wood, B. J. eds.) Elsevier, Amsterdam, 1976, 347-367.
12. <http://www.plantwise.org/knowledgebank/datasheet.aspx?dsid=55113>