Outbreak of a nut infesting eriophyid mite *Eriophyes guerreronis* (K.) in coconut plantations in India

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Recently the coconut cultivators in many locations in Ernakulam District, Kerala experienced the production of extremely small sized coconuts. The cultivators faced severe loss as these small nuts were discarded by the buyers in copra industry and almost 50 per cent of their produce failed to fetch the actual market price. Severe immature nut fall was also reported from these areas (*Fig. 1*). A team of scientists from Central Plantation Crops Research Institute, Regional Station, Kayangulam studied this problems with a multi-disciplinary approach. They collected samples of nuts, leaves, roots and soil. Examination of the nut samples revealed the presence of colonies of eriophyid mites in the perianth region of the immature nuts. The mite is identified as *Eriophyes guerreronis*. This is the first report of a nut-infesting eriophyid mite from India and other Asiatic countries.

Description

These mites are elongated and worm-like in appearance. Body is finely ringed and beset with bristles. They bear two pairs of legs towards the anterior end of the body.

Fig. 1. Coconut palm showing the affected nuts and barren bunches.

Habitat

These mites inhabit the floral bracts and the tender portion of the nut covered by the perianth. They live by sucking the sap from the tender meristematic tissues. They harbour on the immature nuts, usually one to three months old, after pollination. Unfertilised female flowers did not harbour these mites. Nuts up to nine months of age harboured the mite, but the fully mature nuts never contained any stage of the mite.

Damage symptoms

The damage initially appears as a triangular patch at the level of the perianth (*Fig.2*). Colonies of the mite live in the white tender portion covered by the inner bracts of the perianth and suck sap from the tender tissues. Feeding injury by large number of mites result in the brownish patches (*Fig. 3*). As the nut grows this injury on the nuts leads to warting and longitudinal fissures on the nut surface(*Fig.4*). Draining of the sap from young buttons results in poor development of the nut, reduction in nut size and kernel content and poor quality husk (*Fig.5*).

On coconut, the first report on the nut infesting eriophyid mite *Eriophyes guerreronis (Aceria guerreronis)* (K.) was made in 1960 in the state of Guerrero in Mexico (Ortega *et al.*

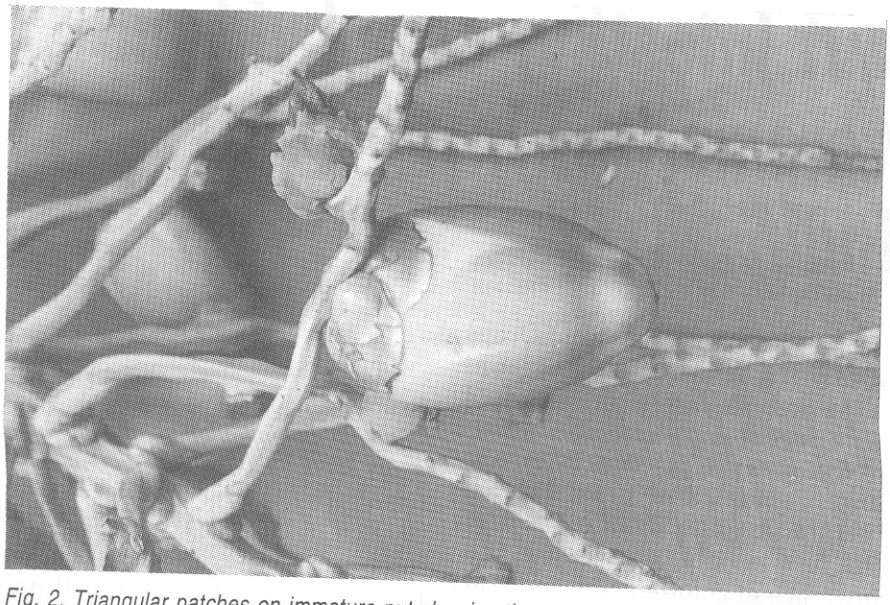

Fig. 2. Triangular patches on immature nut showing the symptom of infestation

1965). Later its occurrence was reported from several states in Africa and Central and South America. It is a notorious pest in the coconut groves in the Caribbean islands, Africa and America where it causes an estimated loss up to 25 per cent in yield of copra (Mariau, 1977). Damage similar to this, was reported in the Pacific and Indian Ocean areas. However, this was not considered to be of any economic importance., In the Pacific islands, another eriophyid mite *Colomerus novahebridensis* K. inhabiting the tender portion of the nut was reported (Hall *et al.* 1980). The wide spread occurrence of *E. guerreronis* in India is of much concern. Initially it was reported from coconut plantations in Ernakulam District, Kerala. Recent survey revealed its occurrence in adjoining districts viz. Alleppey, Kottayam and Trichur. Reports are also being received on the damage by this mite in and around Bangalore (Karnataka) and Udumalpet (Tamil Nadu).

Notostrix attenuata K. is another eriophyid mite recorded from coconut foliage in India and it was observed as a vagrant on the leaf with no apparent damage (Sathiamma, 1995; 1996). *N. Jamaica* K. is another species occurring on nut in the West Indies (Keifer, 1972) and on leaf in Coasta Rica (Schliesske, 1990). The economic importance of this species is not known.

Control

As these mites remain well protected inside the perianth, control measures are very difficult. Spraying of systemic insecticides may help in the control of these mites. Mariau (1977) recommended spraying of monocrotophos 0.04% at an interval of two months for the control of *E. guerreronis* and he reported that this treatment reduced the nut loss by about 90 per cent. Spraying of dimethoate 0.03%, at two months interval, may also be tried for the control of the mite incidence.

Certain natural enemies were found to check the build up of *E. guerreronis*. They are the predacious mites *Lupotarsonemus* (Hall *et al.* 1980); *Bdella indicata* (Mariau, 1977) feeding on all stages of the mite and a pathogenic fungus *Hirsutella thompsonii* (Hall *et al.*1980; Lampedro and Rosas, 1989).

This is the first record of a nut infesting eriophyid mite in coconut plantations in India and its occurrence is quite widespread. These mites have high reproductive potential and are

Fig. 3. Feeding injury to the tender tissues covered by the perianth

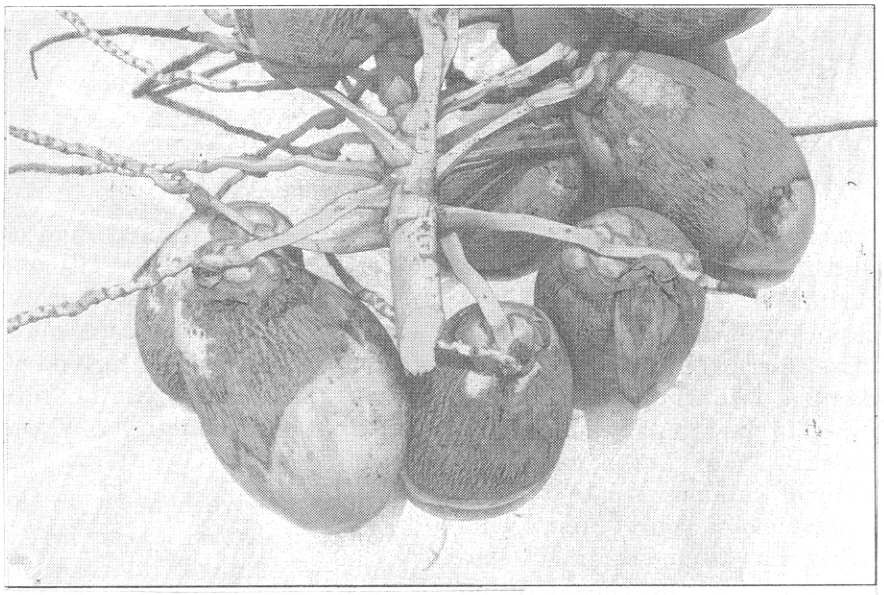

Fig. 4. Mature nuts showing warts and fissures

able to multiply in large numbers with in short span of time. Also, its widespread occurrence reveals its dispersal through wind. So there is every possibility that in a state like Kerala where the coconut plantations are very contiguous it can spread alarmingly far and wide. Urgent steps have to be therefore taken up for the control of these mites in the infested area and also to prevent the spread of the pest to newer areas. Prompt quarantine measures are to be adopted to prevent the transport of nuts, leaves etc. from the infested locations to the other foci from where they have not so far been reported. Also, strict vigilance is to be maintained in all districts in Kerala and adjoining states for the occurrence of the mite or damage symptoms, if any, so as to resort to prompt management measures.

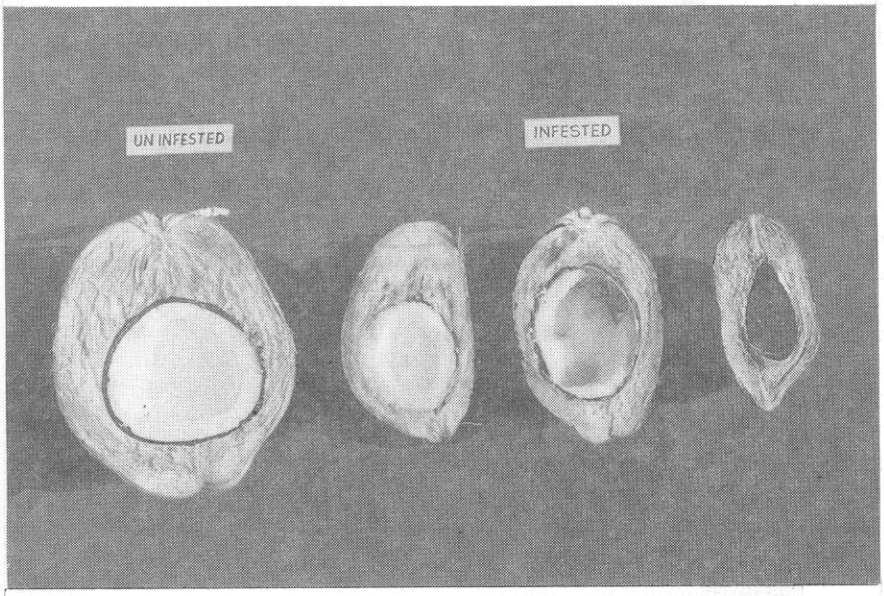

Fig. 5. Nuts cut open to show the size of the husk, shell and kernel

Acknoledgement

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