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Postembryonic development of the coconut mite, *Aceria guerreronis*, on coconut in Kerala, India*

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Abstract

The coconut mite, *Aceria guerreronis* Keifer (Eriophyidae), has invaded and caused significant problems to most of the coconut plantations in southern India. Several factors appear favorable for the invasion of the mite, especially continuous availability of young fruits suitable for attack and optimum temperature most of the year. This study was conducted to evaluate details of the morphology of the immature stages and the development of *A. guerreronis* on coconut. It was conducted in a laboratory at 28 ± 2°C and 80% RH. The eggs were small (66 ± 4 and 41 ± 2µm for long and short axes), and a single female laid an average of 66 ± 4 eggs during 15 days of oviposition period. Incubation period lasted 2.5–3.5 days. Hatching was completed in about 30 minutes. The larva emerged through a longitudinal slit on the surface of the egg. Almost transparent and sluggish and measuring 87 ± 12µm long, it started feeding soon after emergence. The active period of the larva lasted 1.5–2.5 days, being followed by a quiescent period that lasted about one day. The nymph measured 176 ± 11µm in length; the active and quiescent periods of this stage lasted 2 and 0.5–1.5 days, respectively. Adult females had an average length of 224 ± 9µm. Eight to ten days were necessary for immature development.

Key words: Biology, coconut, Eriophyidae.

Introduction

The coconut mite, *Aceria guerreronis* Keifer, has now earned the status of a dreadful international pest, damaging coconut plantations of many countries. After its first appearance as a minor pest in Guerrero, Mexico, in 1965, the mite extended its distribution to South America (Keifer, 1965; Robbs & Peracchi, 1965; Aquino *et al*., 1967; Doreste, 1968). A few years later, it was found in Africa (Mariau, 1969). Within a decade, the mite spread to parts of Central America and other African countries (Hall & Espinosa, 1981; Mariau, 1977). The arrival of this mite in Asia in the last decade marked the 'black era' for the coconut plantations of Peninsular India and Sri Lanka (Sathiamma *et al*., 1998; Haq, 1999). The quick spread of the mite to new areas could be related to its dispersal ability, but other aspects are likely to also contribute to it, as for example its biotic potential (Griffith, 1984; Ramarethinam & Marimuthu, 1998; Haq, 1999; Sumangala & Haq, 2005). The objective of this work was to study details of the morphology of the immature stages and the postembryonic development of *A. guerreronis* on coconut under laboratory conditions.

Materials and Methods

Coconut rachillae bearing nuts of 4–8 weeks of age were collected from Chavakkadan green variety of coconut plant and brought to the Acarology laboratory of Calicut University. Each of these was fixed in the central part of a beaker with plaster of Paris. After hardening, the plaster of Paris base

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