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Incidence and seasonal occurrence of mites (Acari) on coconut in West Bengal, India*

DEBJANI BANERJEE & SALIL K. GUPTA
Medicinal Plant Research Unit, Ramakrishna Mission, Narendrapur, Kolkata - 700103; India;
E-mails: debjaniganguly71@yahoo.com; salil_zsidumdum@yahoo.com, respectively

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Abstract

Coconut (*Cocos nucifera* L.) is an important crop in West Bengal, India. The coconut mite, *Aceria guerreronis* Keifer (Eriophyidae), is becoming a serious threat to its cultivation in that state. This mite lives underneath the perianth, attacking the epidermis and causing damage that leads to considerable yield reduction**.** The same habitat was found to be shared by several other mites during a one year study in a coconut orchard in South 24 Parganas District of West Bengal, in 2007–2008. In total, 11 species of nine families were found in this study, including mites of different feeding habits, but mainly predatory and phytophagous mites. *Neoseiulus paspalivorus* (De Leon) was the predominant predator, while *A. guerreronis* was the predominant phytophagous species**.** Both were found throughout the year. The highest abundance of those species occurred in April and June, respectively. The association of *N. paspalivorus* and *A. guerreronis* has been observed in different countries and in other parts of India.

Key words: *Aceria guerreronis*, *Neoseiulus paspalivorus*, biological control.

Introduction

Coconut (*Cocos nucifera* L.) is one of the most important commercial crops in Indian coastal states, covering an area of 1.79 million hectares and producing nearly 14 trillion nuts per year (Nair, 2000). India produces about 23% of world coconut production of 54 billion nuts. The state of West Bengal produces 324 million nuts annually, over an area of 24,200 hectares. Coconut is used mainly for the production of a soft drink, oil, vinegar, copra, chips and coir. India earns a substantial amount of foreign exchange from the coconut based industries.

Unfortunately, coconut is severely affected in this country by the coconut mite, *Aceria guerreronis* Keifer (Eriophyidae), which causes necrosis and malformation of nuts, as well as premature nut fall. These damage reduce yield and quality of copra, leading to substantial economic losses (Haq & Sobha, 2010). This mite was first described in 1965 from the state of Guerrero, Mexico. It was later found on the Caribbean islands and other parts of the American continent and Africa. In Asia, the mite was first found in India (Sathiamma *et al*., 1998; Haq, 1999a) and Sri Lanka (Fernando *et al*., 2002), at the end of the 1990´s.

Few studies have been conducted on the coconut mite in West Bengal (Karmakar, 2003). Thus, the objective of the present study was to evaluate the mite species from coconut plants, with special attention to those underneath the perianth, in that state in the course of one year.

Materials and Methods

This study was conducted in a coconut plantation located near Ramakrishna Mission, Ashram Narendrapur, about 25 km south of Kolkata (21.95ºN; 88.89ºE). Plants were about 7 m tall and about 15 years old. Samples were collected monthly, between February 2007 and January 2008. Altogether, 20 plants were selected in the plantation, from each of which three nuts (3-4 months old) were taken at each sampling date.

The nuts were taken to a laboratory for examination under a stereomicroscope. The perianth was removed and the mites were collected with a moistened brush from three (2.5 x 2.5 cm) areas

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