

Morphological and molecular characteristics, host plants and natural enemies of the recently recognized *Tetranychus okinawanus* (Acari: Tetranychidae) in Taiwan

CHYI-CHEN HO¹, SHU-CHEN CHANG², LI-JUNG CHENG³ & SHUN-CHENG WANG^{3*}

¹ Retired scholar, mtho2005@yahoo.com.tw

² Division of Applied Zoology, Taiwan Agricultural Research Institute, Wufeng, Taichung County, Taiwan

³ Department of Environmental Engineering and Management, Chaoyang University of Technology, Wufeng, Taichung County, Taiwan

* Corresponding author: scwang1@cyut.edu.tw

Abstract

Tetranychus okinawanus Ehara have recently been found in Taiwan. To date they have only been collected by the authors from several locations in the counties of Pingtung, Taitung, and Hualien and from one spot in Nantou County by Takafuji, all from non-crop plants. The authors examined the specific characteristics and made sketches of the leg chaetotaxy, the palpal terminal of both sexes and the male aedeagus. Collection records and observations of body color variations as well as a list of natural enemies are also provided. The ribosomal internal transcribed spacer 2 (ITS2) region of this mite was amplified by polymerase chain reaction and sequenced. The sequences are extremely rich in AT content (67.7%), and are identical among the tested individuals and identical to the neucleotide sequence of the ITS2 region of *Tetranychus okinawanus* reported from Japan.

Key words: *Tetranychus okinawanus*, color variation, internal transcribed spacer 2, natural enemy, host plant, leg chaetotaxy

Introduction

At the end of 2007, the second author of this article collected spider mites from *Asclepias curassavica* in Jhihben National Forest Recreation Area of Taitung County, Taiwan. The sample was sent to the first author for his collection of Taiwanese tetranychid mites. As the sample was not in good condition, the first author then went to Jhihben National Forest Recreation Area in April, 2008 to collect more specimens. But, the spider mite population on *A. curassavica* had been reduced due to the depletion of its leaves and as a result of being eaten by predators. However, some mites were collected in another place in Jhihben. These mites are similar to *Tetranychus kanzawai* Kishida but there are some notable differences. Specimens were sent to Professor Tetsuo Gotoh for identification, and they turned out to be the species, *Tetranychus okinawanus* Ehara, 1995, not known to be in Taiwan. Later we learned that this species had been collected from a plant of Asclepiadaceae in Lugu, Nantou County by Japanese acarologists in 2000 and that that discovery was reported in a Japanese Journal (Takafuji & Ohashi 2004). Thus we can not say that this is a new record. However, it remains the first report from Taiwan on this spider mite species.

Tetranychus okinawanus was subsequently collected by us from several other locations and from different host plants while we examined its body color and surveyed its natural enemies. Its DNA sequence was also studied. We hereby report the results of our findings.