

SCIENTIFIC NOTE
Occurrence of the Twospotted Spider Mite,
***Tetranychus urticae* Koch (Acari:**
Tetranychidae), in the Hawaiian Islands¹

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ABSTRACT. The twospotted spider mite, *Tetranychus urticae* Koch (Acari: Tetranychidae), has been identified from several locations on the islands of Oahu, Maui and Hawaii. The importance of this fact with regard to importation of ornamentals and phytoseiid predators of spider mites reared on twospotted spider mite is discussed.

The twospotted spider mite, *Tetranychus urticae* Koch, has a host range of over 150 known economically important plants (Jeppson et al. 1975). Its distribution is considered to be fairly cosmopolitan, but the species was not listed as occurring in the Hawaiian islands according to recent reviews (Goff 1986, 1987). This was surprising considering the amount and frequency of host plant importation into the islands from areas where *T. urticae* is found. A plausible explanation for this anomaly has been that the closely related *T. cinnabarinus* (Boisduval), has filled the niche normally utilized by *T. urticae*.

Separation of *T. urticae* from *T. cinnabarinus* is presently not possible in mounted specimens. The aedeagus, which is normally considered a diagnostic character for spider mites, is identical in the two species and other methods of species determination (the shape of the dorsal lobes) have been shown to be ineffective (Mollet & Sevacherian 1984). However, live specimens of the two species can be separated by the carmine color of *T. cinnabarinus* and the pale greenish color with two prominent green spots on the side of the body characteristic of *T. urticae*. If the color is noted prior to mounting or collection into alcohol, and the shape of the aedeagus is consistent with *T. urticae* - *T. cinnabarinus* complex, then distinguishing between the two species is possible.

Specimens were collected into 70% ETOH with a fine camel's hair brush and labeled according to location, host plant, date, and color. Adult males and females were mounted in Hoyer's medium, cleared, and identified using phase contrast microscopy and standard keys (Pritchard & Baker 1955). Identifications were performed independently in Hawaii (VPJ) and in California (JAM).

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RESULTS AND DISCUSSION

Collections of spider mites from the islands of Oahu, Maui, and Hawaii suggest that *T. urticae* has been present in the state for many years. On Oahu, *T. urticae* was collected in early 1989 from commercially grown yard-long beans, *Vigna unguiculata sesquipedalis* (L.) Verdc., in Hawaii Kai, and potted roses (*Rosa spp.*) in a grocery store in Moiliili. Collections from peppermint (*Mentha piperita*) in a Waipahu nursery in January 1991, and from *Dianthus* at an Iwilei nursery also contained *T. urticae*. On Maui, we collected specimens from commercially grown roses, carnations (*Dianthus caryophyllus* L.), and tuberose (*Polianthes tuberosa* L.) in the Kula region during May 1989. On the island of Hawaii, we collected specimens from celery (*Apium graveolens* L.) in Kamuela during May 1989 and commercial roses from the same area during 1991.

The surveys of Oahu, Maui and Hawaii we performed were not comprehensive. We expect that *T. urticae* could be found on many more host plants and probably on the islands of Kauai and Molokai as well. This finding is of major importance to ornamental growers who need to import fresh cuttings from the U.S. mainland or those growers of other crops interested in importing phytoseiid mite predators which are reared on *T. urticae*. In both cases, the quarantine against *T. urticae* is no longer of practical consequence, because *T. urticae* is already widely found on commercial plantings in the state.

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