

## Taro bulb mite (391)

### Common Name

Taro bulb mite

### Scientific Name

*Rhizoglyphus minutus*

### Distribution

First discovered in Niue; it is also recorded from Fiji, New Zealand, Samoa, and Tonga.

### Hosts

Coconuts, ginger, taro, yam. The main concern has been its presence on taro exported from Fiji.

### Symptoms & Life Cycle

The mite, *Rhizoglyphus minutus*, is no longer considered a pest of quarantine concern on taro, or other crops. It was initially of interest because there was little known of its distribution and biology, and related species were pests of economic importance. *Rhizoglyphus robini* and *Rhizoglyphus echinopus*, for instance, injure bulbs, tubers and corms of onion, garlic, gladiolus, hyacinth, freesia, lilies, potato and carrot in storage as well as attacking the roots of onion, garlic and several cereals. They also allow the entry of e.g., *Fusarium* fungi that increase the damage started by the mites.

The adult is about 0.4 mm long, white with brown legs (Photos 1&2). If the biology of this species is similar to other bulb mites, then females will lay several hundred eggs (0.12 mm long) over a period of about 6 weeks, and these will hatch into larvae with three pairs of legs. The larvae moult and four nymph stages follow, increasing the number of legs to eight and the development of genitalia. The life cycle is short: at 25°C it takes just 10-15 days, depending on host, temperature and relative humidity.

One of the nymph stages does not feed (it has no mouth) and is specialised to resist starvation and desiccation. The nymphs can attach themselves to insects visiting the decaying bulbs, corms and tubers. Long-distance spread occurs in the domestic and international trade in horticultural crops.

### Impact

Taro and other crops were once thought to be at risk from *Rhizoglyphus minutus*, but this is no longer the case. It was frequently intercepted on taro from Fiji, and there was lack of information in Australia and New Zealand on the presence and distribution of the mite in those countries. It had not been recorded in Australia and only twice before in New Zealand. Furthermore, recent surveys in Auckland failed to find it. Thus, it was considered a quarantine risk species, and taro from Fiji to New Zealand needed to be fumigated if the mite was detected in consignments, substantially adding to the cost of trade as well as reducing shelf life.

### Detection & inspection

Detection and inspection for this mite are not required from Pacific island countries exporting taro to Australia and New Zealand. This does not preclude the need to consider import conditions in regard to other pests and pathogens.

### Management

#### BIOSECURITY

Neither Australia nor New Zealand consider *Rhizoglyphus minutus* a quarantine pest. The *Review of Import Conditions for Fresh Taro Corms into Australia* (2011) states under Potential for establishment and spread (Appendix A): "Taro has been imported for many years and there have been many mite interceptions. However, there are no records of establishment in Australia". Similarly, taro have been imported into New Zealand from Fiji for many years with the likelihood of *Rhizoglyphus minutus* introduction, but surveys in recent years have failed to find it in Auckland, the main port of entry. Therefore, it appears there are no potentially adverse economic consequences from the importation of taro where this mite is present. In support of this, a paper on the biology, ecology and management of *Rhizoglyphus* bulb mites does not list *Rhizoglyphus minutus* as a known agricultural pest (Diaz *et al.*, 2000).

There is also the anecdotal evidence that the mite is not known to cause economic injury to taro in Fiji, Niue, Tonga and Samoa, although there is the possibility that *Rhizoglyphus minutus* causes only a post-harvest problem in warehouses and containers.

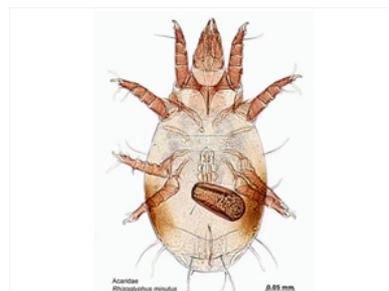


Photo 1. Taro bulb mite, *Rhizoglyphus minutus* (top view).



Photo 2. Taro bulb mite, *Rhizoglyphus minutus* (underside).

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Information from Zhang Z-Q *et al.* (2004) Current status of research on *Rhizoglyphus* mites associated with taro. SPC Third Taro Symposium: 21-23 May 2003; Nadi, Fiji Islands; and Biosecurity Australia (2011) Review of import conditions for fresh taro corms. Biosecurity Australia, Canberra; Diaz A *et al.* (2000) Biology, ecology, and management of the bulb mites of the genus *Rhizoglyphus* (Acari: Acaridae). *Experimental and Applied Acarology* 24: 85-113; and Bulbmite. University of Florida/IFAS Pest Control Guides. (<https://mrec.ifas.ufl.edu/foliage/entomol/mcstate/mite2.htm>); and from Zhang Z.-Q (2004) Of mites and quarantine: a story of two crops. *Te Taiao* 3: 12-13. (<http://www.landcareresearch.co.nz/publications/newsletters/taiao/TeTaiaoissue3.pdf>); Photo 1&2 MAF Plant Health & Environment Laboratory (2014) Bulb Mite (*Rhizoglyphus minutus*): PaDIL - (<http://www.padil.gov.au>).

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