

Data Sheets on Quarantine Pests

*Aculops fuchsiae***IDENTITY**

Name: *Aculops fuchsiae* Keifer

Taxonomic position: Arachnida: Acarina: Prostigmata: Eriophyidae

Common names: Fuchsia gall mite (English)

Bayer computer code: ACUPFU

EPPQ A1 list: No. 185

EU Annex designation: II/A1

HOSTS

Fuchsia, including at least three species (*F. arborescens*, *F. magellanica*, *F. procumbens*) and over 30 cultivars. There is considerable variation in susceptibility and two species (*F. microphylla* subsp. *microphylla*, *F. thymifolia*) and seven cultivars have been noted as being highly resistant to *A. fuchsiae* (Koehler *et al.*, 1985).

GEOGRAPHICAL DISTRIBUTION

A. fuchsiae originates from South America, where it has been specifically recorded in southern Brazil but probably occurs more widely. It was discovered in the San Francisco area of California (USA) in 1981, and has since spread rapidly in southern California.

EPPQ region: Absent.

North America: USA (California).

South America: Brazil (São Paulo), but probably occurs more widely.

EU: Absent.

BIOLOGY

Although the development of *A. fuchsiae* has not been described in detail, it can be safely assumed that two nymphal stages precede the adult. It is not known whether deuteroecy (the presence of two female forms in the life-cycle) occurs and only one type of female was described by Keifer (1972).

The mites live and reproduce within the folds of galled tissue and among plant hairs, but not within the galls (Keesev, 1985). As the plants grow, mites leave the galled area and move upwards to new growth. The female lays about 50 eggs at a time, which hatch after 7 days at 18°C. The life cycle is completed in 21 days and there are several generations during the growing season. Although Keesev (1985) states that the mite does not hibernate, Crawford (1983) reported that it overwinters as immature and mature forms in bud scales, and Natter (1982) that it overwinters as eggs. The mite tolerates a winter temperature of 5°C. In California, evidence suggests that *A. fuchsiae* prefers cool temperatures. Following its initial discovery, it spread along some 900 km of coastal California in 4 years, in contrast to its slower spread inland. Furthermore, it was difficult to inoculate plants with

the mite in glasshouses, but relatively easy to do so in the field, implying that the mite is not favoured by hot growing conditions.

DETECTION AND IDENTIFICATION

Symptoms

Infestation causes rusting and deformation of the leaves, growths (galls) becoming grotesquely swollen and blistered and often reddened. The leaf galls are said to resemble those of peach leaf curl (*Taphrina deformans*). Later, the flowers become deformed and eventually all new growth ceases. Examination with a hand lens should reveal the yellowish fusiform mites, with only two pairs of legs conspicuously visible, among the leaf hairs and deformed tissues.

Morphology

Only one form of the adult female has been described. It is about 200-250 µm long and 55-60 µm wide and light yellowish-white in colour. *A. fuchsiae* is the only described species of eriophyoid mite known to infest fuchsias but confirmation of identity would require examination of cleared adult female specimens under a high-power microscope. Keifer (1972) gives an illustrated description of the female and mentions the short acuminate anterior shield lobe over the rostrum which is truncate underneath, and the presence of granules on the shield surface that obscure the pattern on the rear part of the shield as diagnostic of the species.

MEANS OF MOVEMENT AND DISPERSAL

On plants in the field, dispersal can be expected to be principally by wind and, over larger distances, by insects, especially bees. Movement of infested plants and cuttings would also be important given the ease of vegetative propagation in fuchsias (Koehler *et al.*, 1985).

PEST SIGNIFICANCE

Economic impact

A. fuchsiae causes severe damage to fuchsias and must be ranked as a major pest of all but the most resistant species and cultivars. In California, it has been rated as a class B pest, enabling county authorities to take exclusion measures.

Control

Good sanitation is an essential aspect of control. Severely affected material should be removed and destroyed. Enclosing affected material in a polythene bag and exposing to the sun for a few hours will kill the mites, but selective heat treatment (e.g. 3 h at 45°C) damages the plants unacceptably. Diazinon, malathion, dicofol, propargite and fenbutatin oxide are reported to suppress mite numbers, while carbaryl and endosulfan keep plants free from mites for many weeks.

In an outdoor trial of more or less susceptible cultivars in which galled tissues were pruned, various combinations of carbaryl sprays (every 2 or 4 weeks) greatly improved the appearance of plants; there appeared to be no advantage in spraying every 2 weeks as opposed to every 4. For the less susceptible cultivars, pruning alone was moderately successful in maintaining good appearance (Koehler *et al.*, 1985). See notes under 'Hosts' for details of resistant species.

The phytoseiid mite *Neoseiulus californicus* has been found associated with *A. fuchsiae* in California and was thought to be one of the predators responsible for some reduction in fuchsia gall mite populations (Koehler *et al.*, 1985).

Phytosanitary risk

A. fuchsiae has recently been added to the A1 quarantine list of EPPO, but is not considered a quarantine pest by any other regional plant protection organization. With an apparent preference for mild oceanic conditions, it seems to have good potential for becoming established in Atlantic areas of western Europe, and probably elsewhere. It is an extremely damaging pest of a moderately important ornamental plant, propagated commercially on a substantial scale, and clearly presents a significant risk for the EPPO region.

PHYTOSANITARY MEASURES

EPPO has not yet drafted management options for this pest. Prohibition of importation from infested areas seems appropriate, or in other words, a requirement that the pest should not occur in the area of origin.

BIBLIOGRAPHY

- Crawford, T.E. (1983) The fuchsia mite. *American Fuchsia Society Bulletin* **55** (1).
Keeseey, B. (1985) Fuchsia gall mite report. *American Fuchsia Society Bulletin* **57** (5).
Keifer, H.H. (1972) *Eriophyid studies* **C-6**, 21. Agricultural Research Service, US Department of Agriculture, USA.
Koehler, C.S.; Allen, W.W.; Costello, L.R. (1985) Fuchsia gall mite management. *California Agriculture* **39**, 10-12.
Natter, J.R. (1982) A grower's guide to the fuchsia mite. *American Fuchsia Society Bulletin* **54**, 87-88.