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Data Sheets on Quarantine Pests

Oligonychus perditus

IDENTITY

Name: *Oligonychus perditus* Pritchard & Baker
Synonyms: *Oligonychus chamaecyparisae* Ma & Yuan
Taxonomic position:Arachnida: Acarina: Prostigmata: Tetranychidae
Common names: Byakushin-hadani (Japanese)
Notes on taxonomy and nomenclature: *O. perditus* is very closely related to the cosmopolitan and morphologically variable *O. ununguis* (Jacobi), but Mitrofanov *et al.* (1975) did not regard it as part of the "ununguis complex".
Bayer computer code: OLIGPD
EPPO A1 list: No. 217
EU Annex designation: II/A1

HOSTS

All known host plants are conifers, mainly of the family Cupressaceae: *Chamaecyparis pisifera*, *Juniperus chinensis*, *J. formosana*, *Thuja orientalis*. *Taxus cuspidata* and *Cryptomeria japonica* have also been recorded as hosts. In a glasshouse environment, the mite was successfully reared on *J. communis*, *J. x media*, *J. sabina*, *J. virginiana* and *Thuja orientalis*.

GEOGRAPHICAL DISTRIBUTION

EPPO region: Netherlands (intercepted only).
Asia: China (Ma & Yuan, 1976), Hong Kong, Japan (Hokkaido, Honshu), Korea Republic (Lee *et al.*, 1989), Taiwan (Lo & Ho, 1989).
North America: USA (intercepted only). The species was described on intercepted material by Pritchard & Baker (1955).
EU: Absent.

BIOLOGY

No research has been done on biological or ecological features of *O. perditus* such as reproduction rate, predators or overwintering capacity. These are most likely to be comparable with those of *O. ununguis*. On intercepted bonsai material of *J. chinensis* in the Netherlands, *O. perditus* overwintered in the egg stage, as *O. ununguis* does also.

In Japan, diapause was induced in *O. ununguis* by the influence of two factors: day length and food supply. The critical photoperiod was about 12.5 h at 15-20°C (Shinkaji, 1975a). Diapause starts in September or October, and terminates when the majority of winter eggs hatch in April or May, at temperatures over 5.6°C (Shinkaji, 1975b). Adult females of *O. ununguis* lay about 45 eggs in their lifetime (a few months); the period from egg to egg is 11-23 days (Jeppson *et al.*, 1975).

No particular predators have been reported for *O. perditus* but, as for related spider mites, phytoseiids (Acarina) and coccinellids (Coleoptera) can be expected to be the most important agents in reducing populations.

DETECTION AND IDENTIFICATION

Symptoms

Discoloured parts of *Juniperus* plants can be seen on inspection. At low magnification, feeding scars can be seen on part or the whole surface of scale leaves. Heavily infested plants show browning and distorted growth.

Morphology

Eggs

Orange-red, without stipe, laid solitary or in groups at the base of scale leaves.

Adult

As in *Oligonychus* generally, *O. perditus* has a single pair of para-anal setae, well developed claw-like empodia about as long as the proximoventral setae, duplex setae on tarsus I distal and adjacent, dorsal body setae usually not located on tubercles. It can be distinguished from *O. ununguis* (in many countries, the common spider mite on conifers) by having the following characteristics: eggs without stipe, tarsus I and II in both sexes with two ventral tactile setae just beyond the duplexes. *O. ununguis* has one ventral tactile seta just beyond the duplexes and the other in a ventrodistal position. A detailed description is given by Pritchard & Baker (1955) and Ehara (1962, 1964).

MEANS OF MOVEMENT AND DISPERSAL

O. perditus is dispersed naturally like other spider mites, i.e. it is mobile on the plant host (the mobile stages can be seen running on the host) but has limited long-range dispersal potential. In international trade, it is liable to be carried on planting material, and on bonsai plants, of *Juniperus*. It has been intercepted on these.

PEST SIGNIFICANCE

Economic impact

O. perditus damages *Juniperus chinensis* in Japan (Anon., 1980; Ehara & Lee, 1971), but there is no indication that the damage is very significant. In the Netherlands (Vierbergen, 1988), the pest caused severe feeding damage on intercepted *Juniperus* material. In glasshouse experiments (Vierbergen, personal communication), two economically very important conifers (*J. virginiana* and *Thuja orientalis*) were very sensitive to *O. perditus*.

Control

Only chemical control is known to be effective.

Phytosanitary risk

O. perditus was recently added to the EPPO A1 list but has not been classed as a quarantine pest by any other regional plant protection organization. Its significance lies primarily in the fact that it is a specific case of a pest intercepted on bonsai plants from the Far East (in other words, the existence of a pathway for its entry into the EPPO region has been demonstrated). It does cause significant damage in Japan, and was very destructive to infected plants intercepted in Europe. Its hosts are of moderate but significant importance to the European nursery trade. It is possible that its presence would cause little more damage than that of the cosmopolitan *O. ununguis*, to which it is very similar, but it nevertheless presents a constant risk of introduction.

PHYTOSANITARY MEASURES

When imported from infested countries, planting material of woody plants, or bonsai plants, should have been grown under carefully supervised conditions in registered nurseries. Suitable precautions would, for example, be to grow the plants for at least two years before dispatch in an insect-proof enclosure, inspecting them at least 6 times a year for the presence of *O. perditus*.

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