

Data Sheets on Quarantine Pests

Strawberry latent C 'rhabdovirus'**IDENTITY**

Name: Strawberry latent C 'rhabdovirus'

Taxonomic position: Viruses: Rhabdoviridae: Unassigned species

Notes on taxonomy and nomenclature: The pathogen, probably a rhabdovirus, has apparently no close relationship with the similarly named strawberry latent virus strains A and B, which are strains of strawberry crinkle cytorhabdovirus (EPPO/CABI, 1996) and occur in Europe.

EPPO computer code: SYLCXX

EPPO A1 list: No. 129

EU Annex designation: I/A1 - as Strawberry latent C virus

HOSTS

The disease is limited to cultivated strawberries and related species (*Fragaria vesca*, *F. virginiana*, *F. nilgerrensis* and *F. chiloensis*). Related weed species have been infected experimentally (*Potentilla canadensis*, *P. anserina*).

GEOGRAPHICAL DISTRIBUTION

EPPO region: Absent.

Asia: Japan (Yoshikawa *et al.*, 1986).

North America: Throughout the eastern states of the USA (Massachusetts, Maryland, North Carolina, New Jersey, New York) and Canada (including Nova Scotia).

EU: Absent.

BIOLOGY

The pathogen responsible for strawberry latent C disease has not been isolated, or described morphologically, and its affinities are not known. Its normal vector is the aphid *Chaetosiphon fragaefolii*, which is widespread in Europe; other *Chaetosiphon* spp., not present in Europe, have also been implicated (Demaree & Marcus, 1951). The disease is otherwise only graft-transmissible.

The organism behaves as a latent virus, normally giving no obvious symptoms on cultivated strawberries except in combination with other virus diseases, such as crinkle, mottle, veinbanding or yellows. It then causes moderate to severe degeneration.

DETECTION AND IDENTIFICATION**Symptoms**

The pathogen alone causes no obvious symptoms in commercial strawberry cultivars. In the presence of other viruses, it causes moderate to severe degeneration in the form of extreme stunting, curling and twisting of the leaves or an intensification of symptoms attributable to the other viruses. On some indicator clones of *Fragaria vesca*, primary

symptoms appear as severe epinasty of newly formed leaves and petioles, followed by marked reduction in size. Other clones show only mild or transient symptoms.

Morphology

The causal agent of the disease has not been morphologically described, but cross inoculations or natural complexes indicate that it is distinct from known strawberry viruses. In addition, electron microscopy of *F. vesca* showing symptoms of strawberry latent C disease indicated the presence of virus particles belonging to the rhabdovirus group, which were accumulated in the perinuclear space and in the nuclei, whereas strawberry crinkle rhabdovirus particles were located in the cytoplasm (Yoshikawa *et al.*, 1986).

Detection and inspection methods

Infection can be confirmed by graft-transmission to indicator clones of *F. vesca* or *F. virginiana*. For more information, see McGrew (1971), Frazier (1974), Converse (1987).

MEANS OF MOVEMENT AND DISPERSAL

In the field, the disease is probably transmitted by the aphid vectors. In international trade, infected propagating material, including tissue cultures, is liable to carry the disease; infected strawberry material from the USA has been intercepted in the UK.

PEST SIGNIFICANCE

Economic impact

In the USA, it is reported that no other virus component, when present as a complex, causes such severe stunting of cultivated strawberries in such a relatively short time (Miller, 1960; Bolton, 1974).

Control

As a control method, heat treatment and meristem tip culture, applied separately, are only partly successful in eliminating the pathogen. The main control procedure is based on the use of certified virus-free planting material; several national certification schemes are in operation in the EPPO region and an internationally agreed certification scheme has been developed by EPPO (OEPP/EPPO, 1994).

Phytosanitary risk

Strawberry latent C disease is at present listed as an A1 quarantine pest by EPPO (OEPP/EPPO, 1984). In the EPPO region, the disease is liable to cause serious losses and early degeneration in currently available strawberry stocks, since most European cultivars depend on some degree of tolerance to the common strawberry viruses. The normal vector *Chaetosiphon fragaefolii* is widespread in the EPPO region. The pathogen would be of much reduced quarantine significance if the use of otherwise virus-free planting material of strawberry becomes widespread.

PHYTOSANITARY MEASURES

Field and in-transit inspections will detect only the presence of virus complexes, and laboratory tests would be essential to detect infection in imported material. Normally, such material should originate from a formal crop certification scheme involving isolation from sources of infection and routine virus indexing of nuclear stocks. EPPO recommends (OEPP/EPPO, 1990) that consignments of plants for planting of strawberries must have been derived from mother plants found free from the disease during the last three growing

seasons, and that they must come from a field found free (with its immediate vicinity) during the last growing season.

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