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Data Sheets on Quarantine Pests

Peach rosette phytoplasma

IDENTITY

Name: Peach rosette phytoplasma
Synonyms: Peach rosette virus (formerly)
Taxonomic position: Bacteria: Tenericutes: Mollicutes: Phytoplasmas
Common names: Peach rosette (English)
Roseta del melocotonero (Spanish)
Notes on taxonomy and nomenclature: According to Kirkpatrick (1995), DNA hybridization studies suggest that peach rosette phytoplasma is related to, but distinct from, peach X-disease phytoplasma (EPPO/CABI, 1996b). It differs from it in host range and geographical distribution.
EPPO computer code: PCRXXX
EPPO A1 list: No. 138
EU Annex designation: I/A1 - as Peach rosette mycoplasm

HOSTS

Peaches (*Prunus persica*) are the principal host of peach rosette phytoplasma, but the disease is also significant on *P. salicina* (Kirkpatrick, 1995). Other *Prunus* spp. can be infected, for example almonds (*P. dulcis*), apricots (*P. armeniaca*), cherries (*P. avium*, *P. cerasus*) and ornamental and wild *Prunus* spp. The wild species *P. angustifolia*, *P. hortulana* and *P. munsoniana* can act as natural reservoirs of the pathogen (Kenknight, 1976). The phytoplasma can also be artificially transmitted to herbaceous hosts.

GEOGRAPHICAL DISTRIBUTION

EPPO region: Italy - a disease resembling peach rosette has recently been reported (Marcone & Ragozzino, 1994), but true identity is uncertain. This report needs to be confirmed using the now available molecular identification methods (Ahrens *et al.*, 1993). It can provisionally be attributed to European stone fruit yellows phytoplasma (Lorenz *et al.*, 1994; Seemüller & Foster, 1995).
North America: USA - first found in Georgia in 1881, now in southeastern states as far west as Texas. A severe outbreak occurred in Arkansas in 1977 (Slack & Kim, 1977).
EU: Absent (see above).

BIOLOGY

No vector has been described to date, but spread from wild hosts occurs in a manner suggesting that a vector must be involved.

DETECTION AND IDENTIFICATION

Symptoms

Symptoms are very similar to those caused by the quite different peach rosette mosaic nepovirus (Dias, 1975; EPPO/CABI, 1996a). On peach, new shoots have very short internodes. The leaves of the older shoots fall in early summer, leaving only bunches of young leaves on the tips of naked shoots. Flowers rarely set fruit. The most severely affected trees die during their first year of disease. Other fruit trees (almond, plum) show similar symptoms. Infected plum trees are seriously stunted (Dunez, 1981).

Morphology

Phytoplasmas have been detected by electron microscopy in diseased peach and almond trees, and also in inoculated *Vinca* spp. The organism measures 80 x 1000 nm and is present in the phloem tissues of even the finest veins of visibly affected leaves, but not in apparently healthy ones. Symptom remission after tetracycline hydrochloride treatment further confirms that the agent is a phytoplasma (Kirkpatrick *et al*., 1975).

Detection and inspection methods

Peach rosette phytoplasma can be tested on peach seedlings (cv. Elberta or GF305) in the field, but 4 years are needed for results to be certain. It can also be tested on the same indicators in the glasshouse, symptoms appearing up to 3 months after inoculation. An EPPO phytosanitary procedure for fruit tree phytoplasmas gives details (OEPP/EPPO, 1994).

MEANS OF MOVEMENT AND DISPERSAL

No specific vector is known, and spread by presumed vectors is only local. The pathogen is most likely to be spread internationally in infected planting material.

PEST SIGNIFICANCE

Economic impact

Peach rosette disease is very sporadic in occurrence and currently of minor importance (Kirkpatrick, 1995).

Control

The disease can easily be controlled by destroying affected trees and removing wild *Prunus* spp. near orchards. However, if these measures are not taken, the disease can spread epidemically, as in Arkansas (USA) in 1977 where whole orchards were affected though previously only isolated diseased trees had been seen (Kim & Slack, 1978).

Phytosanitary risk

Peach rosette phytoplasma is an EPPO A1 quarantine pest (OEPP/EPPO, 1986). In the EPPO region, peach, the main host, has the greatest economic importance of all *Prunus* spp. There are probably susceptible European cultivars and, in any case, American cultivars are frequently introduced. The recent report of what may be this disease in Italy provides a reminder of the risk. Healthy planting material of *Prunus* should evidently be free from peach rosette phytoplasma. However, this pest is undoubtedly less important than peach X-disease phytoplasma (1996b).

PHYTOSANITARY MEASURES

EPPO recommends (OEPP/EPPO, 1990) that *Prunus* planting material should come from a field inspected during the growing season and, particularly for material from infested countries, the material should be subject to an official certification scheme, with particular emphasis on preventing reinfection of healthy material by airborne vectors. The EPPO certification scheme for fruit trees (OEPP/EPPO, 1991/1992), though intended to be used primarily within the EPPO region, provides a suitable model.

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