

Data Sheets on Quarantine Pests

Strawberry latent ringspot 'nepovirus'

IDENTITY

Name: Strawberry latent ringspot 'nepovirus'

Synonyms: Rhubarb virus 5

Taxonomic position: Viruses: Comoviridae: Possible *Nepovirus*

Common names: SLRSV (acronym) Strawberry latent ringspot (English)

EPPO computer code: SYLRSX

EU Annex designation: II/A2

HOSTS

SLRSV has a wide host range. It infects strawberries and raspberries, mostly without symptoms but resulting in various degrees of mottle and decline in some cultivars. Other fruit crop hosts are blackberries, black currants, red currants, cherries, grapes, plums, peaches, *Sambucus nigra*. Furthermore it has been reported from asparagus, celery, *Gladiolus*, *Narcissus*, rhubarb and roses. The virus occurs naturally in many species of wild and cultivated plants and infects, often symptomlessly, a wide range of commonly used herbaceous test plants. Schmelzer (1969) reported a wide host range among dicotyledonous plants. In the EPPO region, strawberries and other fruit crops are the significant hosts.

GEOGRAPHICAL DISTRIBUTION

SLRSV is a European virus which has to a limited extent spread to other continents.

EPPO region: Belgium, Czech Republic, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Luxembourg, Netherlands, Poland, Portugal, Romania, Spain, Switzerland, Turkey, UK, Yugoslavia. Probably throughout western Europe.

Asia: Israel, Turkey.

North America: Canada (Ontario, unconfirmed; report from Nova Scotia), USA (single report from California).

Oceania: Australia (one report from South Australia), New Zealand.

EU: Present.

BIOLOGY

As a nepovirus, SLRSV is mechanically transmissible, particularly to herbaceous host plants, and is naturally transmitted by the nematode *Xiphinema diversicaudatum* (Lister, 1964; Lamberti *et al.*, 1986). Both adults and larvae transmit, and virus may be retained for up to 84 days in the vector kept without plants. Seed transmission is reported for several plant species and often exceeds 70% (Murant, 1976). Virus particles, characteristically for a nepovirus, can be readily purified and high-titre antisera are obtained. All isolates studied seem to be serologically identical (Murant, 1976), but not all populations of *X. diversicaudatum* are equally efficient in transmitting the virus. A peach isolate of SLRSV was only transmitted by three out of nine nematode populations (Brown, 1985). No serological relationship to other nepoviruses is known. Particles in *Chenopodium quinoa*

sap lost infectivity after 10 min at 52-58°C but were still infective after 50 days at room temperature (Schmelzer, 1969).

DETECTION AND IDENTIFICATION

Symptoms

The disease is usually latent in strawberries and other fruit crops, i.e. no symptoms are seen. Some strawberry cultivars show varying degrees of mottling and decline.

Morphology

Isometric, 30 nm in diameter, usually with obvious hexagonal outlines.

Detection and inspection methods

Specific antisera are available and provide the only reliable means of identification. *Chenopodium amaranticolor*, *C. murale* and *C. quinoa* show chlorotic or necrotic local lesions, systemic chlorosis and distortion, or sometimes necrosis or faint chlorotic mottle. Cucumbers show chlorotic local lesions or none, systemic interveinal chlorosis or necrosis. In summer, subsequent leaves are symptomless but contain virus, while in winter symptoms may persist. *Nicotiana rustica*, *Nicotiana tabacum* and *Petunia hybrida* become symptomlessly systemically infected. As local-lesion host for detection of SLRSV, *C. murale* is recommended.

The virus sometimes occurs in soils together with arabis mosaic nepovirus (EPPO/CABI, 1996). The two viruses are serologically unrelated but some strains of each give similar reactions in host plants.

MEANS OF MOVEMENT AND DISPERSAL

Under natural conditions, SLRSV is dispersed locally by the nematode *Xiphinema diversicaudatum*. Diseases caused by SLRSV typically show a patchy distribution because of the slow lateral migration in soils of its nematode vector. The virus sometimes occurs in soils together with arabis mosaic nepovirus, which is also transmitted by *X. diversicaudatum*. The virus infects seeds of several host plants but seed transmission is not known in strawberry. International spread would most probably occur with vegetatively propagated planting material.

PEST SIGNIFICANCE

Economic impact

SLRSV, being mostly latent in strawberries and other fruit crops, is of very minor importance. It can cause some mottle and decline in certain strawberry cultivars. For more information, see Rüdell (1985), Pelet (1989).

Control

Only virus-free plants should be propagated.

Phytosanitary risk

SLRSV is not considered to be a quarantine pest by any regional plant protection organization. Since it is widespread in Europe and of very minor importance, it should certainly not be considered as a quarantine pest. It is in any case one of the minor viruses to be covered by a virus-free certification scheme, such as EPPO published (OEPP/EPPO, 1994) for strawberry.

PHYTOSANITARY MEASURES

Traded strawberry planting material should meet the conditions of a virus-free certification scheme. Diseased plant material should be eradicated and where possible soil should be fumigated. SLRSV-free planting material for certification can readily be obtained by selection.

BIBLIOGRAPHY

- Brown, D.J.F. (1985) The transmission of two strains of strawberry latent ringspot virus by populations of *Xiphinema diversicaudatum*. *Nematologia Mediterranea* **13**, 217-223.
- EPPO/CABI (1996) Arabis mosaic nepovirus. In: *Quarantine pests for Europe*. 2nd edition (Ed. by Smith, I.M.; McNamara, D.G.; Scott, P.R.; Holderness, M.). CAB INTERNATIONAL, Wallingford, UK.
- Lamberti, F.; Roca, F.; Landriscina, S.; Ciancio, A. (1986) Seasonal transmissibility of strawberry latent ringspot virus by *Xiphinema diversicaudatum*. *Nematologia Mediterranea* **14**, 173-179.
- Lister, R. (1964) Strawberry latent ringspot: a new nematode-borne virus. *Annals of Applied Biology* **54**, 167-176.
- Murant, A.F. (1976) Strawberry latent ringspot virus. *CMI/AAB Descriptions of Plant Viruses* No. 126. Association of Applied Biologists, Wellesbourne, UK.
- OEPP/EPPO (1994) Certification schemes No. 11, Pathogen-tested strawberry. *Bulletin OEPP/EPPO Bulletin* **24** 875-889.
- Pelet, F. (1989) Small fruit viruses. *Revue Suisse de Viticulture, Arboriculture, Horticulture* **21**, 113-116.
- Rüdel, M. (1985) Grapevine damage induced by particular virus-vector combinations. *Phytopathologia Mediterranea* **24**, 183-185.
- Schmelzer, K. (1969) [SLRV from *Euonymus*, *Robinia* and *Aesculus*]. *Phytopathologische Zeitschrift* **66**, 1-24.