



ORGANISATION EUROPÉENNE ET MÉDITERRANÉENNE POUR LA PROTECTION DES PLANTES
EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION

EPPO

Reporting Service

Paris, 1992-10-01

Report No. 528

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528/01 EPPO.....Changes in the quarantine lists of EPPO

On its annual meeting in September 1992 the EPPO Council decided several changes of the EPPO A1 and A2 quarantine lists:

- *Liriomyza huidobrensis* will be transferred from the A1 to the A2 quarantine list.
- *Phytophthora megasperma* f.sp. *glycinea* will be transferred from the A1 to the A2 quarantine list.
- *Diaporthe phaseolorum* will be deleted from the A2 list.

Source: EPPO Secretariat, Paris (1992-09)



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528/02

BTNYVX...Beet necrotic yellow vein furovirus present in
Czechoslovakia

Beet necrotic yellow vein furovirus (EPPO A2 organism) is present in the Czech and Slovak Federal Republic.

A survey was carried out in the southwestern part of Slovakia in which suspicious plants were collected from 23 localities around Bratislava. In several samples the virus was detected by host range studies, electron microscopy and serological methods. Later field observations showed that the virus is present in an area of 50 x 150 km and that at some locations the yields declined down to 30 t/ha with a sugar content as low as 9 - 12%.

Source: Subikova, V.; Baumgartnerova, H.; Bojnansky, V. (1992) Occurrence of sugar beet rhizomania disease in Slovakia.
FAO Plant Protection Bulletin 40, 46-48.



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528/03

POSTXX...Transmission of potato spindle tuber viroid by pollen

Experiments in Canada resulted in the detection of potato spindle tuber viroid (EPPO A2 organism) in pollen grains of potato spindle tuber viroid infected potatoes. The viroid was detected by R-PAGE (return polyacrylamide gel electrophoresis).

The pollination of healthy potato flowers with infected pollen grains led to an infection of leaves at the base of the flower, apical leaves and tubers. True potato seed was infected by the viroid up to 66%.

Source:

Singh, R.P.; Boucher, A.; Somerville, T.H. (1992) Detection of potato spindle tuber viroid in the pollen and various parts of potato plants pollinated with viroid-infected pollen.

Plant Disease 76, 951-953.



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528/04 ERWIAM...Biological control of *Erwinia amylovora*

Experiments were carried out in the United Kingdom to test fluorescent *Pseudomonas* spp. in their activity against *Erwinia amylovora* (EPPO A2 organism) on hawthorn (*Crataegus monogyna*) under protected conditions.

A preselection of antagonist isolates was carried out on immature pear fruits. The selected isolates were applied to hawthorn in polythene tunnels and glasshouses. Two isolates gave significant control of shoot blight and blossom blight, equalling in some cases the control potential of chemical treatments as well as that of experimental bactericides. The timing of the pseudomonad application in relation to the pathogen inoculation had a significant influence on the control of blossom blight.

Source: Wilson, M.; Epton, H.A.S.; Sigeo, D.C. (1992) Biological control of fire blight of hawthorn (*Crataegus monogyna*) with fluorescent *Pseudomonas* spp. under protected conditions.
Journal of Phytopathology 136, 16-26.

528/05 ERWIAM...Interactions between *Erwinia amylovora* and *E. herbicola*

The interactions of *Erwinia herbicola*, an effective biocontrol agent of fire blight on hawthorn, and *E. amylovora* (EPPO A2 organism) on the stigma of hawthorn blossoms was investigated in the United Kingdom.

It was found that *E. herbicola* occupied a similar ecological niche on the hawthorn stigma, colonized the same physical sites and competed for the same growth-limiting resource. The competitive advantage of *E. herbicola* was partly attributed by the authors to a possible production of antibiotic substances by the biocontrol agent.

Source: Wilson, M.; Epton, H.A.S.; Sigeo, D.C. (1992)
Interactions between *Erwinia herbicola* and *E. amylovora* on the stigma of hawthorn blossoms.
Phytopathology 82, 914-918.



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528/06 XYLLFP...Detection of *Xylella fastidiosa* in peach

The distribution of *Xylella fastidiosa* (EPPO A1 organism) causal agent of the phony peach disease within roots of peach was studied in Florida, US.

The bacterium could be detected in all trees, whether symptomatic or asymptomatic for phony peach disease. The distribution of *X. fastidiosa* in the roots of symptomatic trees was uniform along the length of the roots and within the root ball. The distribution of the bacterium was not influenced by the distance the root sample was taken from the trunk or the the diameter of the root piece sampled.

The authors found that the minimum sample to detect, at a risk of 5%, the disease in asymptomatic trees should consist of 5 - 10 roots.

Source: Aldrich, J.H.; Gould, A.B.; Martin, F.G. (1992) Distribution of *Xylella fastidiosa* within roots of peach.
Plant Disease 76, 885-888.



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528/07 NEOVIN...Germination of deep-frozen *Tilletia indica*
teliospores

Teliospores of *Tilletia indica* (EPPO A1 organism) have been previously reported to lose viability when stored at -18° C for 12 weeks. A joint Indian and Danish research project was designed to confirm this previous report.

Teliospores of *T. indica* were subjected to deep-freezing at -18° C for variable durations of 4 to 20 weeks. It was found that deep-freezing does not prevent the germination of teliospores of *T. indica* and that, therefore, this method cannot be applied to control seedborne inoculum of *T. indica*.

Source: Chahal, S.S.; Mathur, S.B. (1992) Germination of deep-frozen *Tilletia indica* and *Tilletia barclayana* teliospores.
FAO, Plant Protection Bulletin 40, 31-35.



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528/08

PHYTSP...Detection of *Phytophthora* sp.

In Oregon, US, studies were carried out to evaluate the sensitivity and clinical use of *Phytophthora*-specific Immunoassay kits.

Seventeen, species of *Phytophthora* collected throughout the world were the basis on which the immunoassay kits (type E) were tested as well as plants which showed specific *Phytophthora* symptoms. The studies showed that several *Phytophthora* species could be easily detected by the kit. Positive reactions with the immunoassay kit were produced by all *Phytophthora* sp., especially *P. fragariae* (EPPO A2 organism) and *P. megasperma* f.sp. *glycinea* (EPPO A1 organism) had high absorbancies. *P. cinnamoni* had the lowest absorbance value.

Cross reactions with *Pythium* spp. sometimes made the interpretation difficult, but the authors believed that if the test kit results are compared with the field histories and symptomatology, reliable results can be obtained.

Source: Pscheidt, J.W.; Burket, J.Z.; Fischer, S.L.; Hamm, P.B. (1992)
Sensitivity and clinical use of *Phytophthora*-specific immunoassay kits.
Plant Disease 76, 928-932.



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528/09

PHYTMS....Sensitivity of *Phytophthora megasperma* f.sp. *glycinea* to metalaxyl

In Illinois, US, investigations were carried out to test the effects of low-level metalaxyl exposure on the virulence and metalaxyl sensitivity of *Phytophthora megasperma* f.sp. *glycinea* (EPPO A2 organism).

Cornmeal agar was amended with low concentrations of metalaxyl and subsequently inoculated with isolates of *P.m. glycinea*. After six successive transfers an isolate of the fungus showed a reduced sensitivity to metalaxyl and an increased virulence of metalaxyl-treated seedlings of soybean. Two isolates were more virulent on seedlings treated with metalaxyl than their parental isolates.

The authors conclude that the exposure of *P.m. glycinea* to metalaxyl in saprophytic growth can select for both altered virulence and decreased sensitivity to the fungicide in metalaxyl treated plants.

Source: Lamboy, J.S.; Paxton, J.D. (1992) Metalaxyl sensitivity selection within *Phytophthora megasperma* f.sp. *glycinea*.
Plant Disease 76, 932-936.

528/10

PHYTMS...Taxonomy of *Phytophthora megasperma* f.sp. *glycinea*

In Australia studies were carried out to investigate the genetic relationships among Australian and North American isolates of *Phytophthora megasperma* f.sp. *glycinea* (EPPO A2 organism). Five Australian isolates and five North American isolates of the fungus were assessed by multicopy DNA probes.

It was found that the geographically separated isolates have close relationships.

The authors suggest that the Australian isolates are derived from recent ancestors common to the North American isolates.

Source: Whisson, S.C.; Maclean, D.J.; Manners, J.M.; Irwin, J.A.G. (1992) Genetic relationships among Australian and North American isolates of *Phytophthora megasperma* f.sp. *glycinea* assessed by multicopy DNA probes.
Phytopathology 82, 863-868.



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528/11 ANSTSU...Quarantine treatment for guavas infested by
Anastrepha suspensa

In Florida, US, experiments were carried out to test the hot-water-immersion technique for its potential to serve as a quarantine treatment for guavas (*Psidium guajava*) infested by *Anastrepha suspensa* (EPPO A1 pest).

In a large scale test 2,450 guavas infested by approximately 180,000 fruit flies were subjected to the hot-water-immersion treatment at a temperature of $46^{\circ} \pm 0,5^{\circ}\text{C}$ for a duration of 35 min.. No survivors of the fruit flies could be found after this treatment which exceeded the security level of probit 9.

Source: Gould, W.P.; Sharp, J.L. (1992) Hot-water immersion quarantine treatment for guavas infested with Caribbean fruit fly (Diptera: Tephritidae)
Journal of Economic Entomology 86, 1235-1239.

528/12 ANSTSU...Quarantine treatment for carambolas against
Anastrepha suspensa

A quarantine treatment for carambolas (*Averrhoa carambola*) infested with *Anastrepha suspensa* (EPPO A1 pest) has been developed in the US. The treatment is based on a methyl bromide fumigation at a dosage of 40 gm^{-3} for 2 h at a temperature of 23°C .

To test the treatment approximately 6800 carambolas infested with the fruit fly were fumigated. An estimated 104000 eggs and larvae were subjected to the fumigation of which one larvae survived fumigation but died later as a pupa.

No qualitative differences in color, taste and appearance were observed between treated and untreated carambolas 1-2 days after the fumigation.

Source: Hallman, G.J.; King, J.R. (1992) Methyl bromide fumigation quarantine treatment for carambolas infested with Caribbean fruit fly (Diptera: Tephritidae).
Journal of Economic Entomology 85, 1231-1234.



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528/13

BEMITA...Monitoring insecticide resistance of *Bemisia tabaci*

In the US a technique has been developed which allows to monitor the insecticide resistance of *Bemisia tabaci* (EPPO A2 pest) in local field populations. The technique is based on the use of yellow sticky cards, coated with an extremely thin layer of adhesive, on which several series of insecticide concentrations which represent a range of mortality are sprayed. After the exposure of the field populations of the pest to the cards the traps are stored at room temperature (26° C) and high humidity in wooden boxes for a period of 24 h, after which the mortality of the whiteflies is assessed and the resistance ratio calculated.

Experiments with this techniques to determine the level of resistance of *B. tabaci* to sulprofos and cypermethrin showed effective and sensitive results in field populations in California.

Source: Prabhaker, N.; Toscano, N.C.; Perring, T.M.; Nuessley, G.; Kido, K.; Youngman, R.R. (1992) Resistance monitoring of the sweet potato whitefly (Homoptera: Aleyrodidae) in the Imperial Valley of California. *Journal of Economic Entomology* **85**, 1063-1068.



EPPO *Reporting Service*

528/14

LEPTDE...Carbofuran resistance of *Leptinotarsa decemlineata*

Assessment of the progression of carbofuran resistance in *Leptinotarsa decemlineata* (EPPO A2 pest) as well as its characterization and mechanisms were the objects of investigations carried out in Michigan, US.

Colorado beetles were subjected to a sublethal dosage (80% mortality rate) of carbofuran and subsequently selected. Already after the fourth generation the resistance to carbofuran was > 100 fold.

The authors estimated that the resistance is inherited via a single, autosomal, incompletely dominant gene, resulting in a decreased acetylcholinesterase sensitivity.

Source: Ioannidis, M.; Grafius, E.J.; Wierenga, J.M.; Whalon, M.E.; Hollingworth, R.M. (1992) Selection, inheritance and characterization of carbofuran resistance in the Colorado potato beetle (Coleoptera: Chrysomelidae).
Pesticide Science 35, 215-222.



EPPO *Reporting Service*

528/15

VITEVI...Serious outbreak of *Viteus vitifoliae* in California

A serious outbreak of *Viteus vitifoliae* (EPPO A2 pest) has been reported from the vine growing regions of California, Napa and Sonoma. The outbreak is due to the occurrence of a new biotype of the pest which has the capability to overcome the resistance of the dominantly used grapevine rootstocks in California.

Estimations predict that 70% of the 28.000 ha of vinyards in Napa and Sonoma will have to be replaced during the next years at an estimated cost of \$ 1 billion. It is also predicted that the grape supply will decrease by 30-40% during the next years.

Source: Los Angeles Times, 1992-07-30



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528/16

BURSXY...Taxonomy of *Bursaphelenchus xylophilus*

The taxonomic relationships of *Bursaphelenchus xylophilus* (EPPO A1 organism) and *B. mucronatus* were studied in Canada. The studies were based on interspecific and intraspecific cross-hybridization and DNA analysis. Five geographic isolates of *B. xylophilus* from North America and Japan and two isolates of *B. mucronatus* from France and Japan were cross-hybridized.

Intraspecific hybridization between the *B. xylophilus* isolates produced fertile offspring while intraspecific hybridization between the *B. mucronatus* isolates from France (female) and Japan (male) produced fertile F_n generations, but the reciprocal cross died out. Interspecific hybridization between the *B. xylophilus* isolates and *B. mucronatus* produced a F₁ that died out in most of the crosses in which the female was *B. mucronatus* and the male *B. xylophilus*.

The authors assumed that their studies support the distinct species status of *B. mucronatus* and *B. xylophilus* and suggest that *B. xylophilus* and *B. mucronatus* from France and Japan come from a common ancestor. They also concluded that the *B. mucronatus* isolates from France and Japan have a separate species status.

Source: Riga, E.; Beckenbach, K.; Webster, J.M. (1992) Taxonomic relationships of *Bursaphelenchus xylophilus* and *B. mucronatus* based on interspecific and intraspecific cross-hybridization and DNA analysis. *Fundamental and Applied Nematology* 15, 391-395.



EPPO *Reporting Service*

528/17

HETDGL...Threshold of *Heterodera glycines* in soybeans

Investigations were conducted in Iowa, US, to establish a damage threshold for *Heterodera glycines* (EPPO A1 organism) in soybeans. In course of the investigations it was found that damage due to *H. glycines* in naturally infested fields accounted for 6 - 39% yield losses. Experiments in artificially infested microplots gave a damage threshold between 10 and 50 eggs and a yield reduction of 52 and 19% at the highest egg density in 1986 and 1987, respectively.

Source: Niblack, T.L.; Baker, N.K.; Norton, D.C. (1992) Soybean yield losses due to *Heterodera glycines* in Iowa. *Plant Disease* 76, 943-948.