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

EPPO

Reporting Service

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EPPO *Reporting Service*

93/041 **CORBMI...**Transmission of *Clavibacter michiganensis* subsp. *michiganensis* in hydroponic cultures

Laboratory studies at the Biologische Zentralanstalt in Germany showed that *Clavibacter michiganensis* subsp. *michiganensis* (EPPO A2 pest) is able to survive for several weeks in liquid substrates. An inoculum of 10^2 cfu/ml of substrate was sufficient to infect tomato plants via the root in all developmental stages. Yield losses increased with increasing inoculum concentration. In greenhouse experiments on tomato, control of the pathogen was achieved when the nutrient solution was acidified for 12 h to pH 3 once per week.

Source: Griesbach, E.; Lattauschke, E. (1991) Übertragung von *Clavibacter michiganensis* subsp. *michiganensis* in Tomaten-Hydroponikkulturen und Möglichkeiten zur Bekämpfung des Erregers.
Nachrichtenblatt des Deutschen Pflanzenschutzdienstes 43, 69-73.

93/042 **XANTCI/IR...*Xanthomonas campestris* pv. *citri* present in Iran**

Xanthomonas campestris pv. *citri* (EPPO A1 pest) has been found in Iran. The pathogen was found on Mexican lime (*Citrus aurantiifolia*) in Kahnouj, province of Kerman in 1989.

Source: Alizadeh, A.; Rahimian, H. (1990) Citrus canker in Kerman Province. **Iranian Journal of Plant Pathology 26, 42.**

93/043 **XANTDF...Detection of *Xanthomonas campestris* pv. *dieffenbachiae***

A "miniplate system" has been developed in Hawaii which allows detection of *Xanthomonas campestris* pv. *dieffenbachiae* (potential EPPO A2 pest) in large numbers of samples. Tissue exudates are applied to individual wells of 96-well tissue-culture plates filled with 150 µl of esculin-trehalose medium, which promotes the growth of *X.c.* pv. *dieffenbachiae* and turns brown, indicative of esculin hydrolysis. The identity is then confirmed by an ELISA test using *X.c.* pv. *dieffenbachiae*-specific monoclonal antibodies. The predictive value of a positive result for the "miniplate system" was 97.9%.

Author's address: University of Hawaii
Honolulu, HI, 96822
USA

Source: Normann, D.; Lipp, R.; Benedict, A.; Alvarez, A. (1992) Enhanced detection of *Xanthomonas campestris* pv. *dieffenbachiae* using a "miniplate system".
Presentation at the 1992 APS/MPS Annual Meeting, Portland, OR, USA.
Phytopathology 82, 1177.

93/044 **XANTOR/CM...**Rice diseases in Cameroon

A survey has been carried out in Cameroon in order to determine the scope and distribution of rice diseases in the country. The survey, which was carried out in all the major rice growing areas of the country revealed that *Magnaporthe grisea* (leaf blast of rice), *Cochliobolus miyabeanus* (brown spot of rice), *Monographella albescens* (leaf scald of rice), *Sarocladium oryzae* (sheath rot of rice) and bacterial leaf blight caused by *Xanthomonas oryzae* pv. *oryzae* (EPPO A1 pest) are present in Cameroon. The distribution of *X. o.* pv. *oryzae* was, however, limited to the extreme north of the country.

Source: Jones, M.P.; Jeutong, F.; Tchatchoua J. (1992) A survey of rice diseases in Cameroon.
Plant Disease 77, 133-136.

93/045 **XANTOR...**New serogroups of *Xanthomonas oryzae* pv. *oryzae*

Studies were carried out in Hawaii, US, to detect and differentiate the serological diversity of *Xanthomonas oryzae* pv. *oryzae* (EPPO A1 pest) by the use of monoclonal antibodies. A total of 259 *X.o.* pv. *oryzae* strains representing various rice-growing regions of the world were investigated with several monoclonal antibodies. Two new serogroups of the pathogen from Nepal and India were distinguished by the monoclonal antibodies.

Source: Rehmann, F.U.; Benedict, A.A.; Alvarez, A.M. (1992) New serogroups of *Xanthomonas oryzae* pv. *oryzae* detected with monoclonal antibodies. Presentation at the 1992 APS/MPS Annual Meeting, Portland, OR, USA.
Phytopathology 82, 1144

93/046 **BTNYVX/RO...**Beet necrotic yellow vein furovirus in Romania

In a report from the Laboratory of Phytopathology of the Research Institute of Plant Protection in Romania the occurrence of beet necrotic yellow vein furovirus (EPPO A2 pest) was reported to be most common in the Transylvania and Banat regions. This is explained by the favourable climatic conditions in those parts of Romania.

Source: Macovei, A.; Puscasu, A. (1987) The spread of beet rhizomania in Romania.
Buletinul de Protectia Plantelor 1987 No. 4, 4-7.

93/047 CSTXXX/MA...Citrus tristeza closterovirus in Morocco

Two major citrus germplasm blocks, Souihal and El-Menzeh, containing 372 and 560 species and cultivars, respectively, were investigated for Citrus tristeza closterovirus (EPPO A2 pest) by ELISA using CTV-specific polyclonal and monoclonal antibodies. A total of 1749 trees at Souihla and 2130 trees at El-Menzeh were tested. Nineteen cultivars represented by 67 in the first block and 6 cultivars represented by 23 trees in the second block were positive to CTV. The infection did not seem to have a random distribution in the two blocks. It was rather associated with some cultivars and limited to individual trees suggesting lack of natural spread of the virus.

Source: Nadori, E.B.; Zebzami, M. (1992) Citrus germplasm blocks control for citrus tristeza virus by enzyme-linked immunosorbent assay in Morocco. **Arab and Near East Plant Protection Newsletter 14, 20.**

93/048 CSTXXX...Severe losses of citrus in Japan due to multiple virus infections

Throughout the years 1981 to 1982, severe dwarfing of spring shoots of *Citrus unshiu* var. *praecox* cv. Kusomoto Wase combined with heavy losses were observed throughout Japan. To investigate the cause of the disorder, field surveys were conducted and virological examinations carried out. It was found that cv. Kusomoto Wase tends to dwarfing when severely infected by citrus tristeza closterovirus (EPPO A2 pest). Double infections of satsuma dwarf virus and citrus tristeza closterovirus led to the severe dwarfing and, subsequently, high yield losses.

Source: Koizumi, M.; Ieki, H.; Kano, T.; Kashiwazaki, S.; Tsuchizaki, T.; Kuhara, S.; Tanaka, A.; Yamaguchi, A. (1989) Etiological factors in dwarfing of Kusomoto Wase, an early satsuma mandarin. **Bulletin of the Fruit Tree Research Station, Series B, Okitsu, No. 16, 67-91.**

93/049 **SPIRCI...**Biology of *Circulifer opacipennis* vector of *Spiroplasma citri*

Laboratory studies on the development and fecundity of *Circulifer opacipennis*, vector of *Spiroplasma citri* (potential EPPO A2 pest) were carried out at the University of Bonn, Germany. It was found that the development of the vector is strongly affected by temperature. Each egg and instar stage was shortest at 35° C. Oviposition period and longevity were significantly shorter at 35° C than at 30° or 25° C. Fecundity was highest at 30° C. It was concluded that the optimum temperature for the development of *C. opacipennis* is 30° C and that the vector and *S. citri*, whose optimum temperature for multiplication and transmission is also 30° C, are a well adapted vector-pathogen system.

Source: Segonca, C.; Kersting, U.; Cinar, A. (1991) Laboratory studies on the development and fecundity of *Circulifer opacipennis* (Lethierry) (*Homoptera*: *Cicadellidae*) an important vector of *Spiroplasma citri* Saglio et al. in the Mediterranean area.
Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz 98, 650-654.

93/050 **CRONFU...Hostrange of *Cronartium fusiforme***

Studies were carried out in the USA to determine the host-range of *Cronartium fusiforme* (EPPO A1 pest). 45 pine species and cultivars (*Pinus* spp.) from all over the world were tested for their susceptibility to fusiform rust by inoculation with basidiospores. 26 species and cultivars were found to be susceptible and reported for the first time as hosts of the rust. 18 species and cultivars were confirmed to be hosts.

Pine species tested for susceptibility to *Cronartium fusiforme*

Pinus species	Subsection[u]	Geographic occurrence[v]	Percent infection[w,x]
P. attenuata (knobcone pine)	O	WUS	96 a
P. cubensis (Cuba pine)	A	CB	94 ab
P. contorta var. *latifolia* (lodgepole pine)[y]	CO	WUS	90 a-c
P. canariensis (Canary pine)[y]	CA	Cl	90 a d
P. contorta var. *murrayana* (lodgepole pine)[y]	CO	WUS	88 a-d
P. caribaea var. *hondurensis* (Caribbean pine)[y]	A	CB	88 a-d
P. caribaea var. *caribaea* (Caribbean pine)[y]	A	CB	87 a-d
P. muricata (bishop pine)[y]	O	WUS	86 a-e
P. ponderosa var. *scopularum* (ponderosa pine)y	PO	WUS	85 a-e
P. eldarica[z]	Sy	A	84 a-e
P. radiata (Monterey pine)[y]	O	WUS	79 a-f
P. roxburghii (Chir pine)	CA	A	77 a-f
P. elliottii (Georgia slash-susceptible standard)			75 b-g
P. engelmanii (Apache pine)	PO	CB	73 c-g
P. pityusa (Pitzunda pine)	Sy	M	70 d h
P. brutia (Calabrian pine)	Sy	M	67 e-i
P. halepensis (Aleppo pine)[y]	Sy	M	65 fj
P. lambertiana (sugar pine)	ST	WUS	62 fj
P. greggii (Gregg pine)	O	CA	58 gj
P. ponderosa var. *colorado* (ponderosa pine)	PO	WUS	56 gj
P. elliottii (FA-2-resistant standard)			53 h-k
P. nigra austriaca (Austrian pine)	S	M	51 i-l
P. pinea (Italian stone pine)[y]	Pl	M	50 i-l
P. rudis[z]	PO	CA	50 i-l
P. michoacana forma *tumida*[z]	PO	CA	48 i-m
P. oocarpa sebieda[z]	O	CA	48 i-m
P. nigra var. *pallasiana* (Austrian pine)	Sy	M	46j-m
P. thunbergii (Japanese black pine)[y]	Sy	A	35 j n
P. pseudostrobus (false Weimouth pine)[y]	PO	CA	33 k-o
P. nigra (black pine)[y]	Sy	M	32 I-p
P. patula[z]	*O*	CA	30 m-q
P. mugo pumilo[y]	Sy	M	30 m-q
P. montana (Swiss mountain pine)	Sy	M	25 m-r
P. aristata (bristlecone pine)	B	WUS	22 n-s
P. tenuifolia[z]	PO	CA	17 n-t
P. montana var. *mughus* (mountain pine)	Sy	M	15 o-t
P. mugo mughus (Swiss mountain pine)[y]	Sy	M	14 p t
P. glabra (spruce pine)	A	EUS	13 q-t
P. pinaster (French maritime pine)	Sy	M	12 q-t
P. densiflora (Japanese red pine)	Sy	A	8 r-t
P. montezumae (Montezumapine)	PO	CA	8 r-t
P. massonniana (Masson pine)	ST	A	7 r t
P. banksiana (jack pine)[y]	CO	EUS	S st

93/051 **ENDOPA...**Testing virulence of *Cryphonectria parasitica* strains

A rapid and reproducible method for the differentiation of virulent and hypovirulent *Cryphonectria parasitica* (EPPO A2 pest) strains has been developed in Massachusetts, USA. The method is simply based on the different growth rate of the fungal strains. Bark and wood-tissue samples of chestnut were inoculated with virulent and hypovirulent strains of the pest and then incubated for 4 days at 25° C. The pest was then assessed by measuring the area of the tissues which had brown, necrotic cells. Hypovirulent strains damaged an area of 2,16 cm^2 or even less while virulent strains damaged an area of over 3,6 cm^2. To confirm the tests, chestnut trees were inoculated with the strains of *C. parasitica* and the results were compared with the results of the laboratory test. It showed that the laboratory test was a very reliable method to assess the virulence of *C. parasitica* strains. The authors believe that the new method should be very useful as an initial screening method for rapid selection of *C. parasitica* strains with a good hypovirulent potential.

Source: Lee, J.K.; Tattar, T.A.; Berman, B.M.; Mount, M.S. (1992) A rapid method for testing the virulence of *Cryphonectria parasitica* using excised bark and wood of American chestnut.
Phytopathology 82, 1454-1456.

93/052 MELMME...*Melampsora medusae* epidemic in Washington, US

A leaf-rust epidemic of poplar hybrids (*Populus trichocarpa x deltoides*) caused by *Melampsora medusae* (EPPO A2 pest) has been reported from the lower Columbia river in Washington State, US, in autumn 1991. According to the authors it was the first time that poplar hybrids have been attacked by the pathogen in the Northwest of the USA.

Source: Newcombe, G.; Chastagner, G.A. (1992) A leaf-rust epidemic of hybrid poplar along the lower Columbia river caused by *Melampsora medusae*. **Presentation at the 1992 APS/MPS Annual Meeting, Portland, OR, USA. Phytopathology 82, 1144**

93/053 MONIFC...Persistance of benomyl-resistant strains of *Monilinia fructicola*

In Australia, the persistence of benomyl-restant strains of *Monilinia fructicola* (EPPO A1 pest) was investigated. Benomyl-resistant isolates of the fungus were obtained from an orchard where the resistant strains were detected in 1976 and only three benomyl applications took place until 1988. A programme of 6 benomyl sprays over one season (1988-1989) on peach and nectarine trees resulted in the build up of a fungicide-tolerant population of the pathogen.

The author concludes that, where benomyl-resistant strains of *M. fructicola* have been detected, it may never be possible to resume the effective use of benzimidazole fungicides.

Source: Penrose, L.J. (1990) Prolonged field persistence of resistance to benomyl in *Monilinia fructicola*.
Crop Protection 9, 190-192.

93/054 **PHIAGR...**Reduction of *Phialophora gregata* inoculum through tillage

The reduction of the saprophytic activity of *Phialophora gregata* (EPPO A1 pest) by means of culture techniques in soybean production has been the objective of a research project in Wisconsin, US. Investigated were the influence of non-tillage and conventional tillage systems on the inoculum density of *P. gregata* in the field. It was found that a conventional tillage system significantly decreased the inoculum density of the pathogen. The authors believe that a reduction of the saprophytic population of the pathogen decreases its capability to overwinter and, therefore, results in a lower infection pressure during the next year.

Source: Adee, E.A.; Grau, C.R. (1992) Influence of tillage method on inoculum density of *Phialophora gregata* in overwintering soybean residue. Presentation at the 1992 APS/MPS Annual Meeting, Portland, OR, USA. **Phytopathology 82, 1158.**

93/055 **PHIAGR...**Taxonomy of *Phialophora gregata*

In Japan, inoculation tests with *Phialophora gregata* (EPPO A1 pest) isolates from different hosts showed that the fungus can be distinguished into two formae speciales. Isolates from *Vigna angularis* were pathogenic to *V. angularis* and *V. radiata*. Isolates from soybean showed pathogenity to soybean and *V. radiata*, but not to *V. angularis*. Isoenzyme polymorphisms and DNA sequence homology showed a complete correspondence with the pathogenity.

The authors proposed the names *P. gregata* f.sp. *adzukicola* for the *V.angularis* pathogen and *P.gregata* f.sp. *sojae* for the soybean pathogen.

Source: Kobayashi, K.; Yamamoto, H.; Negishi,H.; Ogoshi, A. (1991) Formae speciales differentiation of *Phialophora gregata* isolates from adzuki bean and soybean in Japan. **Annals of the Phytopathological Society of Japan 57, 225-231.**

93/056 SYNCEN...Control of *Synchytrium endobioticum* with crabshell meal

In Canada, experiments were carried out to investigate the potential of crabshell meal to control *Synchytrium endobioticum* (EPPO A2 pest) on potato. Eight experiments were conducted over a time period of four years. Crabshell meal was obtained by drying and crushing crab legs (meat-free) or by utilizing a commercial product out of lobster and crab that included meat remains. In four of the experiments the disease was reduced up to 100% using the meat-free crabshell meal. Successful trials were those in which the meat-free meal was placed above the tubers at rates of 20-80 g meal per kg soil.

Source: Hampson, M.C.; Coombes, J.W. (1991) Use of crabshell meal to control potato wart in Newfoundland.
Canadian Journal of Plant Pathology 13, 97-105.

93/057 SYNCEN...Pathotypes of *Synchytrium endobioticum* in Germany

Studies in Germany showed that ten pathotypes of *Synchytrium endobioticum* (EPPO A2 pest) can be distinguished in Germany . Three pathotypes were only present in the former West German Länder and five pathotypes only occurred in the former GDR. Two additional pathotypes can be found in both. The differentiation and identification of the pathotypes was carried out through inoculation of potato cultivars resistant to certain pathotypes of the pathogen. The authors suggest that the wart-resistance testing in the certification process for new potato cultivars can be limited to seven pathotypes since for the remaining pathotypes no certified test cultivars are now available.

Source: Langerfeld, E.; Stachewicz, H. (1993) Pathotypen des Kartoffelkrebses (*Synchytrium endobioticum*) in den alten und neuen Bundesländern.
Gesunde Pflanzen 45, 9-12.

93/058 SYNCEN...Chemical control of *Synchytrium endobioticum*

In the USSR (1990), 307 fungicidal compounds were tested in respect of their capability to control *Synchytrium endobioticum* (EPPO A2 pest). Of the 112 active compounds, chlorothalonil and epidor gave a complete disease control under field conditions. Also mancozeb showed promising results.

Source: Dolyagin, A.B. (1990) To control the causal agent of potato wart.
Zashchita Rastenii 1990, No. 8, 32-34.

93/059 **TILLCO...**Controversy (Contraversy?) on the nomenclature of Tilletia controversa

Tilletia controversa (EPPO A2 pest) has been the preferred name of dwarf bunt of wheat for EPPO, CABI and many scientists. According to a Swedish expert, however, the epithet controversa is not correct, because last but not least the original description of Kühn stated contraversa. EPPO maintains its position on the grounds that the rules allow spelling mistakes in names to be corrected. Further contributions to this very important debate are invited.

Source Johnsson, L. (1991) The nomenclature concerning *Tilletia contraversa* Kühn.
Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz 98, 627-629.

93/060 **AREAM...**Economic impact of *Arceuthobium americanum*

A survey was carried out in Manitoba, Canada, to assess the economic impact of *Arceuthobium americanum* (EPPO A1 pest) infestations in mature jack pine forests (*Pinus banksiana*). The area surveyed totalled 140 000 ha of which 12 000 ha or approximately 9% were infested by the dwarf mistletoes. The volume reduction caused by dwarf mistletoe represented 4-8% of the merchantable volume of the surveyed area.

Source: Baker, F.A.; Slivitzky, M.; Knowles, K. (1992) Impact of dwarf mistletoe on jack pine forests in Manitoba.