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Reporting

Service

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EPPO *Reporting Service*

2002/071 New data on quarantine pests and pests of the EPPO Alert List

By browsing through the literature, the EPPO Secretariat has extracted the following new data concerning quarantine pests and pests included on the EPPO Alert List. The situation of the pest concerned is indicated in bold, using the terms of ISPM no. 8.

- **New geographical records**

Chrysanthemum stunt pospiviroid (EPPO A2 quarantine pest) is reported for the first time on *Dendranthema grandiflorum* in the Republic of Korea. Diseased plants were collected from the main cultivation area of Masan, Kyongsang Namdo province (south of the country). **Present, found in Kyongsang Namdo**. Review of Plant Pathology, 81(4), p 496 (3570).

In 1996, *Tomato yellow leaf curl begomovirus* (EPPO A2 quarantine pest), was reported for the first time in Georgia on tomatoes. **Present, no details**. Review of Plant Pathology, 81(5), p 606 (4391).

- **Detailed records**

In Papua New Guinea, *Bactrocera papayae*, was first observed in 1992 near the Indonesian border, and has then spread eastwards. It is now established on the mainland, in the highlands and the Central Province. Among other fruit flies of economic importance, *B. neohumeralis* and *B. trivialis* also occur in Papua New Guinea (the EPPO Secretariat had previously no data on these two species). Review of Agricultural Entomology, p 328 (2327).

From October 2000 to February 2001, a study on the distribution of *Corythuca arcuata* (EPPO Alert List), showed that it is present in an area of about 7000 km² in Lombardia and Piemonte. An isolated infested oak tree was also found on the northern coast of Lake Como, near the Swiss border. Review of Agricultural Entomology, p 564 (4189).

Eutetranychus orientalis (EU Annexes) occurs on citrus in Maharashtra, India. Review of Agricultural Entomology, p 540 (4010).

Mycosphaerella pini (EU Annexes) occurs in Heilongjiang, China. Review of Plant Pathology, p 4542 (4542).

Xanthomonas arboricola pv. *pruni* (EPPO A2 quarantine pest) occurs on plums in Basilicata, Italy, particularly on Japanese plums (*Prunus salicina*). Review of Plant Pathology, 81(4), p 456-457 (3524).

In 1999, the incidence of *Xanthomonas axonopodis* pv. *citri* (EPPO A1 quarantine pest) was studied in commercial groves in São Paulo and Minas Gerais, Brazil. Samples were collected and the highest disease incidence was found in the northwest zone of the studied region (4.3%), followed by the centre (0.5%) and north zone (0.2%), the disease was not observed in the south zone. Review of Plant Pathology, 81(5), p 593 (4298).

- **New host plants**

Impatiens necrotic spot tospovirus (EPPO A2 quarantine pest) has been found on *Oncidium varicosum* (Orchidaceae). Leaves of infected orchids showed yellow mottling or streaks, irregularly shaped necrotic spots, and yellow to necrotic concentric ringspots. Review of Plant Pathology, p 617 (4470).

- **Taxonomy**

Tomato yellow mosaic was first described in 1963 in Venezuela, as a geminivirus transmitted by *Bemisia tabaci*. In 1981 and 1985, it was reported to infect occasionally potato plants growing in the vicinity of tomato crops affected by this virus. Despite these previous reports, a virus isolated from potato plants showing a yellow mosaic in Venezuela was described in 1986 as a new geminivirus called *Potato yellow mosaic begomovirus* (EPPO Alert List). Comparative sequence analyses have recently shown that *Potato yellow mosaic begomovirus* is a synonym of *Tomato yellow mosaic begomovirus*.

Source: Review of Agricultural Entomology, 90(4 & 5), April & May 2002.

Review of Plant Pathology, 81(4 & 5), April & May 2002.

Additional key words: new records, detailed records, new host plants, taxonomy

Computer codes: BCTRNE, BCTRPW, BCTRTV, CRTHAR, CSVD00, EUTEOR, INSV00, PYMV00, SCIRPI, TOYMV0, TYLCV0, XANTCI, XANTPR, BR, CN, GE, IN, IT, KR, PG

EPPO *Reporting Service*

2002/072 Surveys on *Ralstonia solanacearum* and *Clavibacter michiganensis* subsp. *sepedonicus* in Estonia

In Estonia, systematic surveys on *Ralstonia solanacearum* and *Clavibacter michiganensis* subsp. *sepedonicus* (both EPPO A2 quarantine pests) were initiated by the Estonian Plant Protection Inspectorate in 2000, and continued in 2001 and 2002 (on potato harvest 2001). All samples were tested at the Plant Health Laboratory of the Estonian Control Centre of Plant Production by immunofluorescence (IF). The results of the survey for the potato harvest 2001 are the following:

- Seed potato production: all seed potato lots (110 ha – 127 samples) were tested and no *R. solanacearum* and *C. michiganensis* subsp. *sepedonicus* was found.
- Ware potato production: 720 ha and 8749 tons of ware potatoes were inspected and sampled. 485 samples from 336 lots at 150 production sites were tested. *C. michiganensis* subsp. *sepedonicus* was found in 54 samples from 23 lots at 18 production sites. No *R. solanacearum* was found.
- Imported potatoes: all consignments of seed potatoes and ware potatoes were tested and no *R. solanacearum* was found. 4 consignments originating from Ukraine were found infested by *C. michiganensis* subsp. *sepedonicus*.

Phytosanitary measures in accordance with EU Directive 93/85/EEC are being applied in order to prevent any further spread of *C. michiganensis* subsp. *sepedonicus* and to eradicate it.

The situation of ***C. michiganensis* subsp. *sepedonicus*** in Estonia can be described as follows: **Present, found only in ware potatoes at a few production sites, under eradication**.

The situation of ***R. solanacearum*** in Estonia can be described as follows: **Absent, confirmed by survey.**

Source: **NPPO of Estonia, 2002-05.**

Additional key words: detailed record, absence **Computer codes:** CORBSE, PSDMSO, EE

2002/073 Surveys on potato bacteria in Slovakia: harvest 2001

For the last 5 years, systematic surveys on *Clavibacter michiganensis* subsp. *sepedonicus* and *Ralstonia solanacearum* (both EPPO A2 quarantine pests) have been carried out in Slovakia. Field/store inspections and laboratory testing were performed on the 2001potato harvest. Detection methods were used in accordance with EU Directives 93/85/EEC and 98/57/EC. During this survey, the following numbers of samples were tested:

- 454 samples of domestic seed potatoes (corresponding to the whole Slovak production, i.e. 2.565,5 ha)
- 61 samples of domestic ware potatoes (corresponding to 8.5 % of total production, i.e. 722 ha)
- 184 samples of imported seed potatoes
- 51 samples of imported ware potatoes (out of these, 37 were only tested for ringrot)
- 122 samples taken from national cultivar testing trials

No positive result was obtained for domestic potato production nor for imported potatoes in 2001. The situation of both *C. michiganensis* subsp. *sepedonicus* and *R. solanacearum* in Slovakia can be described as follows: **Absent: confirmed by survey.**

Source: **NPPO of Slovakia, 2002-06**

Additional key words: absence **Computer codes:** CORBSE, PSDMSO, SK

2002/074 Update on the situation of *Clavibacter michiganensis* subsp. *sepedonicus* in Sweden

In EPPO RS 2002/036, the NPPO of Sweden had reported a few cases of *Clavibacter michiganensis* subsp. *sepedonicus* (EPPO A2 quarantine pest). As investigations continued, a further update is now provided.

1. In addition to the 2 previously notified cases, 2 other findings of ringrot were made in 2 lots of ware potatoes cv. Folva, produced at 2 different places of production. In all 4 cases (4 places of production), the origin of seed potatoes was a Swedish certified lot class A sold in spring 2000. This lot had been produced in Sweden in 1999 but originated the year before from a Danish certified seed potato lot (class E). Before certification of the 1999 harvest, the lot had been tested and found free from ringrot.
2. In addition to the 3 previously notified cases, ringrot was found in 3 other lots cv. Folva, produced (in total) on 6 different places of production. In all 6 cases, seed potatoes originated from the same Danish producer of seed potatoes. These had been bought as certified seed potatoes class E or A from Denmark in spring 2001.
3. Two cases of ringrot were found in 2 lots of cv. Satina. These lots were produced in 2 different places of production. The origin of seed potatoes came from 1 lot of certified seed potatoes bought from Germany in spring 2001.

In all cases, phytosanitary measures were taken according to EU Directive 93/85/EEC.
The situation of *C. michiganensis* subsp. *sepedonicus* in Sweden can be described as follows: **Present, found on the 2001 potato harvest in 12 lots, at 12 production sites, under official control.**

Source: **NPPO of Sweden, 2002-04.**

Additional key words: detailed record **Computer codes:** CORBSE, SE

2002/075 Situation of quarantine pests in Latvia in 2001

The NPPO of Latvia recently informed the EPPO Secretariat of the situation of several quarantine pests in 2001. The situation of the pest concerned is indicated in bold, using the terms of ISPM no. 8.

Beet necrotic yellow vein furovirus (EPPO A2 quarantine pest)
During a survey on this virus, causing rhizomania, 46 samples were collected from farms producing beet. The virus was not found. **Absent, confirmed by survey**.

Bursaphelenchus xylophilus (EPPO A1 quarantine pest)
During a survey on *B. xylophilus*, 68 samples of *Pinus* were collected from forest plants and sawn timber. *B. xylophilus* was not found. **Absent, confirmed by survey**.

Clavibacter michiganensis* subsp. *sepedonicus (EPPO A2 quarantine pest)
57 seed potato production farms were inspected and 190 samples were taken. Infection was found in 5 farms. Strict control measures are being taken, in accordance with EU Directive 93/85/EEC. **Present, found at 5 production sites, under official control**.

Erwinia amylovora (EPPO A2 quarantine pest)
65 sites of fireblight host plants (*Chaenomeles*, *Cotoneaster*, *Crataegus*, *Malus*, *Pyrus*, *Sorbus*) covering a total area of 385.91 ha were inspected and 67 samples were tested for the presence of *Erwinia amylovora*. *E. amylovora* was not found. **Absent, confirmed by survey**.

Glasshouse pests
During systematic surveys on glasshouse pests, 132 samples were collected from 147 production sites.

- *Liriomyza bryoniae* (EU Annexes) was observed on 26 samples. Its presence was confirmed in 20 glasshouses on the following crops: tomato, cucumber and capsicum. **Present, only in glasshouses**.
- *Bemisia tabaci* (EPPO A2 quarantine pest) was not found. **Absent, confirmed by survey**.
- *Thrips palmi* (EPPO A1 quarantine pest) was not found. **Absent, confirmed by survey**.

Globodera rostochiensis* and *Globodera pallida (both EPPO A2 quarantine pests)
4474 soil samples were collected from 59 seed potato production farms and 56 nurseries and tested. The presence of *Globodera rostochiensis* was confirmed in 97 samples. 16 seed potato production farms and 6 nurseries were infested. Eradication measures are being taken in the infested area. *Globodera pallida* was not found. ***G. rostochiensis*: Present, found in several production sites, under eradication**. ***G. pallida*: Absent, confirmed by survey**.

Puccinia horiana (EPPO A2 quarantine pest)
During systematic surveys, 56 samples of *Dendranthema* were collected from 67 sites for the production of chrysanthemum cut flowers and 19 sites for the production of planting material. *Puccinia horiana* was found in 11 *Dendranthema* (cut flower) production sites. Eradication measures were taken. **Present, found in 11 production sites of chrysanthemum cut flowers, under eradication.**

Source: **NPPO of Latvia, 2002-05.**

Additional key words: detailed records, absence

Computer codes: BEMITA, BNYV00, BURSXY, CORBSE, ERWIAM, HETDGL, LIRIBO, PUCCHN, THRIPL, LV

2002/076 Survey on *Erwinia amylovora* in Slovakia: 2001 results

In 2001, a survey on *Erwinia amylovora* (EPPO A2 quarantine pest) was carried out in Slovakia. Visual inspections and laboratory tests were done on host plants of fireblight (*Malus, Pyrus, Cydonia, Mespilus, Sorbus, Crataegus, Pyracantha, Chaenomeles, Cotoneaster, Amelanchier*) grown in the following places:

- fruit / ornamental nurseries, mother stock orchards
- commercial orchards (classic and high density)
- small fruit gardens, public parks, natural habitat of wild host plants

In 2001, 2,207,604 plants (corresponding to 7,311 ha) were inspected. Apple trees (1,821,000 trees – 6,676 ha), pear trees (159,000 trees - 428 ha) and quince trees (153,000 - 29 ha) were the main species tested. 69 samples were tested in the laboratory according to the EPPO Phytosanitary Procedure no. 40, and all gave negative results.

The situation of *E. amylovora* in Slovakia can be described as follows: **Absent: confirmed by survey.**

Source: **NPPO of Slovakia, 2002-06**

Additional key words: absence **Computer codes:** CORBSE, PSDMSO, SK

2002/077 First report of *Phytophthora ramorum* in United Kingdom

In April 2002, during a routine monitoring visit to a nursery in West Sussex, England (GB), a group of 10 *Viburnum* plants showed dieback. A sample was taken and the presence of *Phytophthora ramorum* (EPPO Alert List) was detected. Since then, a total of 11 findings were made at premises in England (West Sussex, Lincolnshire, Dorset, Lancashire, Hampshire, Shropshire and Worcestershire). 10 findings were made on *Viburnum* and 1 on *Rhododendron*. All affected plants have been destroyed, and there is no evidence that *P. ramorum* has spread from the infected plants. Investigations currently made did not reveal any consistent pattern in the origin of the affected material. In addition, there has been one finding in Scotland and one in Guernsey. Measures are taken to restrict imports of plants which can carry the fungus from areas in USA where it occurs, and within UK movement of plants of *Viburnum* and *Rhododendron* must be notified to the NPPO. The situation of *P. ramorum* in United Kingdom can be described as follows: **Present, found on *Viburnum* and *Rhododendron* in a few nurseries, under official control.**

Source: **Web site of Department for Environment, Food & Rural Affairs, UK.**
…Plant Health News… 21 May 2002-05-24
http://www.defra.gov.uk/planth/what.htm
News Release of 2002-05-03
http://www.defra.gov.uk/news/2002/020503b.htm

Additional key words: new record **Computer codes:** PHYTRA, GB, GS

2002/078 Finding of *Phytophthora ramorum* in *Rhododendron* and *Viburnum* in Germany

In Germany, during a survey carried out in nurseries, private gardens, and public parks between August and December 2001, *Phytophthora ramorum* (EPPO Alert List) was detected in *Rhododendron* and *Viburnum*. Infected plants were detected in 15 places (13 nurseries and 2 private gardens) in several Federal States. Measures were taken at all infected places. The origin of these infections could not be identified. In 2002, survey will continue. The NPPO of Germany declares the pest status of *P. ramorum* as: **Transient: actionable, under eradication**.

Source: **NPPO of Germany, 2002-05.**

Additional key words: detailed record **Computer codes:** PHYTRA, DE

2002/079 Details on the situation of two criniviruses of tomato in Italy and Portugal

At the request of the EPPO Secretariat, Italy and Portugal have kindly provided the following data on the present situation of two tomato criniviruses in their countries.

In Italy, both *Tomato chlorosis crinivirus* (ToCV- EPPO Alert List) and *Tomato infectious chlorosis crinivirus* (TICV - EPPO Alert List) occur. No specific evaluation of yield reduction has been made for the moment. It is felt that in Italy, *Tomato yellow leaf curl begomovirus* and *Tomato spotted wilt tospovirus* are causing more serious diseases. TICV was detected in Sardegna, Liguria, Lazio and Campania on a few samples. ToCV was detected in Sardegna, Sicilia and Puglia, again on a limited number of samples.

In Portugal, *Tomato chlorosis crinivirus* (ToCV) has been detected since 1999, in protected tomato crops in the Algarve region (south), where its two vectors *Bemisia tabaci* and *Trialeurodes vaporariorum* occur. ToCV has not been found in other regions. It was found in single or mixed infection with *Tomato yellow leaf curl begomovirus*. Symptoms are very similar to those described for *Tomato infectious chlorosis crinivirus* (EPPO Alert List) which does not occur in Portugal. Affected tomato plants show leaf yellowing, delayed ripening and produce less fruits, leading to a loss of fruit quality and commercial value. All tomato cultivars which are commonly cultivated in Algarve are susceptible to ToCV, and some new cultivars which were tolerant/resistant to *Tomato yellow leaf curl begomovirus* are highly susceptible to ToCV (disease incidence up to 100%). However, the economic impact of single infections of ToCV on crop losses has yet to be determined. Symptoms are often confused by the growers with physiological disorders or phytotoxicity damage. Surveys done only on the basis of visual symptoms are not reliable, and diagnostic methods (molecular assays) should be used. Two common weed species, *Datura stramonium* and *Solanum nigrum*, were identified as natural hosts of ToCV and, in addition, they are preferential hosts for the whitefly vectors. It is suspected that these weeds, and probably other wild species, might play an important role in the epidemiology of the disease, as plant reservoirs for the virus and its vectors between tomato-growing seasons. It is considered that the eradication of ToCV in Algarve is not feasible, as the vectors and natural plant reservoirs are present all year round.

Source: **NPPO of Italy, 2002-05.**
NPPO of Portugal, 2002-04.

Additional key words: detailed records **Computer codes:** TICV00, ToCV00, IT, PT

2002/080 First report of *Tomato chlorosis crinivirus* in Morocco

In Morocco, tomatoes grown under protected conditions already face numerous pests and diseases, and during the last decade further introductions have been recorded. *Tomato yellow leaf curl begomovirus* (EPPO A2 quarantine pest) and *Cucumber yellow stunting disorder crinivirus* (EPPO Alert List) were reported for the first time, respectively in 1998 and in 1999. In 2000, *Tomato chlorosis crinivirus* (EPPO Alert List) was found for the first time. It is stressed that these invasive species are now complicating the IPM programmes currently used in tomato production. *Tomato chlorosis crinivirus* is now widespread in protected tomatoes grown in the Souss Valley, where it caused serious damage in 2002. However, the severity of symptoms and damage varied according to tomato cultivars (ranging from mild to very severe symptoms). The situation of *Tomato chorosis crinivirus* in Morocco can be described as follows: **Present, found for the first time in 2000, widespread on protected tomatoes in the Souss Valley.**

Source: Hanafi, A. (2002) Invasive species: a real challenge to IPM in the Mediterranean region ?
EWSN Newsletter, no. 13, May 2002, p 4.

Additional key words: new record **Computer codes:** ToCV, MA

2002/081 First report of *Iris yellow spot tospovirus* in Slovenia

The NPPO of Slovenia recently informed the EPPO Secretariat that during a survey on glasshouse crops, *Iris yellow spot tospovirus* (EPPO Alert List) was detected for the first time in Slovenia. The virus was detected outdoor on leeks (*Allium porrum*) growing in the vicinity of a glasshouse. Symptoms had been observed on leek, onion and weeds since 1999. The situation of *Iris yellow spot tospovirus* can be described as follows: **Present, reported for the first time in 2002, on leek at one production site**.

Source: **NPPO of Slovenia, 2002-05.**

Additional key words: new record **Computer codes:** IYSV00, SI

2002/082 ‘Non-pathogenic strains of *Guignardia citricarpa*’ belong to another species: *Guignardia mangiferae*

For several years a distinction between non-pathogenic and pathogenic strains of *Guignardia citricarpa sensu lato* (EU Annexes) has been made. In particular, specific requirements are stated in the EU Directive to avoid the introduction of pathogenic strains of *G. citricarpa* which cause citrus black spot. Pathogenic and non-pathogenic strains cannot be differentiated morphologically, but it had been observed that in culture non-pathogenic strains grew faster, and easily produced perithecia, whereas pathogenic strains remained sterile and produced many pycnidia. Non-pathogenic strains could be isolated from citrus, but also from many other hosts. The absence of morphological differences renders the identification of pathogenic strains on citrus consignments moving in trade quite difficult. Citrus black spot is traditionally diagnosed on the basis of fruit symptoms: black spot lesions containing pycnidia of *G. citricarpa*. But problems arise when no pycnidia are present, as black spot lesions can be caused by several other fungi (e.g. *Diaporthe citri, Mycosphaerella citri, Colletotrichum* spp.). Fungal culture is then required determine whether *G. citricarpa* is associated with lesions and whether it is a pathogenic strain. In practice, several factors make this rather difficult: competition in culture with other fungi, 14 days are needed to get mature pycnidia, isolates referred to in authors’ collections represent a continuum between the two groups. For these reasons, morphological and molecular studies have now been undertaken on a large number of strains of *G. citricarpa sensu lato* to investigate whether the distinction can be justified and whether reliable methods can be developed to differentiate between pathogenic and non-pathogenic strains.

Analysis of internal transcribed spacer (ITS) sequences showed that *G. citricarpa sensu lato* corresponds in fact to two distinct species. This was further confirmed by other molecular assays, and morphological and cultural studies were consistent with this proposal. All isolates from citrus fruits affected by black spot correspond to *G. citricarpa sensu stricto.* All other isolates from citrus (without black spot symptoms) and many other host plants belonged to another distinct species: *Guignardia mangiferae*. *G. mangiferae* (anamorph *Phyllosticta capitalensis*) is a cosmopolitan endophyte of many woody plants (including citrus). The following species previously described are probably synonyms of *G. mangiferae*: *G. endophyllicola, G. psidii, P. anacardiacearum* and *P. theacearum.* As *G. mangiferae* occurs in Europe on many host plants and does not cause citrus black spot, it would not be justified to include it in the EU Directive, in contrast to *G. citricarpa* which does not occur in Europe and represents a threat to citrus production. *G. citricarpa* and *G. mangiferae* cannot be

reliably differentiated on the basis of morphological characters, but the ITS sequence studies led to the development of a PCR method which will later be described in another scientific paper.

Source: Baayen, R.P.; Bonants, P.J.M.; Verkley, G.; Carroll, G.C.; van der Aa, H.A.; de Weerdt, M.; van Brouwershaven, I.R.; Schutte, G.C.; Maccheroni Jr., W.; Glienke de Blanco, C.; Azevedo, J.L. (2002) Non-pathogenic isolates of the citrus black spot fungus, *Guignardia citricarpa*, identified as a cosmopolitan endophyte of woody plants, *G. mangiferae* (*Phyllosticta capitalensis*). **Phytopathology, 92(5), 464-477.**

Additional key words: taxonomy **Computer codes:** GUIGCI

2002/083 Further studies on the almond witches' broom in Lebanon

As reported in EPPO RS 2001/094, a new phytoplasma disease (EPPO Alert List) is causing severe losses in almond production in Lebanon. Further studies were done on the identification and phylogenetic relationships of the phytoplasma associated with this new disease. During the last decade, the disease has lead to the rapid decline of almond trees in 3 major almond-producing regions: in the north (cazas of Koura, Zgharta, Tripoli, Akkar), south (Saida, Nabatiye, Jezzine) and the Bekaa region (Zahle). Symptoms include early flowering, stunted growth, leaf rosetting, dieback, off-season growth, proliferation of slender shoots, and witches' brooms arising mainly from the trunk and roots. Fruit yield is greatly reduced. Fruits are small, dark with shrivelled seeds. Affected trees decline rapidly and die within 3-4 years, So far, thousands of almond trees have been killed by the disease in the three affected regions in Lebanon (ranging from coastal parts to altitudes of 1000 m). As during surveys, the most characteristic symptom found was the proliferation of shoots at several points on the main trunk, the name 'almond witches' broom' was given to this disease. PCR tests showed that phytoplasmas occurred in all almond trees showing disease symptoms. RFLP and phylogenetic analyses of PCR-amplified 16S rDNA showed that almond witches' broom occurring in Lebanon is associated with a new phytoplasma (belonging to a new subgroup (16Sr IX-B) within the pigeon pea witches' broom phytoplasma group). This new phytoplasma is distantly related to other stone fruit phytoplasmas. The rapid spread of the disease which affects young and old trees, both in well-managed and completely neglected orchards, suggest the involvement of an aerial vector. Studies are being done to identify possible vectors by trapping leafhopper species living in weeds or crops growing in the vicinity of diseased almond trees. It is also noted that a preliminary survey has indicated that the same phytoplasma could cause diseases in some nectarine and peach seedlings showing shoot proliferations in a field adjacent to an infected

almond orchard. It is concluded that almond witches' broom represents a very serious threat to almond production in Lebanon, and elsewhere. The need for international action to eradicate or prevent any further spread is underlined, as well as the need for improved almond certification and stricter quarantine measures.

Source: Abou-Jawdah, Y.; Karakashian, A.; Sobh, H.; Martini, M.; Lee, I.M. (2002) An epidemic of almond witches'-broom in Lebanon: classification and phylogenetic relationships of the associated phytoplasma.
Plant Disease, 86(5), 477-484.

Additional key words: detailed record **Computer codes:** PHYTSP, LB

2002/084 Progress on the etiology of the new disease of sugar beet 'Syndrome des Basses Richesses'

As reported in EPPO RS 2002/017, a new disease of sugar beet called 'syndrome des basses richesses' appeared in France, in Bourgogne in 1991. Roots of affected plants present a loss of sugar content which may have serious economic consequences for the growers. The aetiology of the disease remained rather unclear although a phytoplasma of the stolbur group was found associated with the disease. A newly described planthopper species, *Pentastiridius beieri* (Homoptera: Ciixidae), was shown to carry the phytoplasma and transmit it to sugar beet. However, several observations and studies indicated that the phytoplasma did not play a major etiological role in the disease (the rate of stolbur-infected plants among all diseased sugar beet never exceeded 12%). Preliminary microscopic observations of affected roots suggested that another phloem-limited organism (a bacterium-like organism: 'BLO') was involved. Further experiments confirmed that a BLO, related to *Candidatus* Phlomobacter fragariae (causal agent of marginal chlorosis in strawberry), was naturally infecting sugar beet and could experimentally be associated with disease symptoms at both macroscopic and microscopic level. In addition, it was observed that *P. beieri* was an effective vector of the BLO. In the present state of research, it appears that 'syndrome des basses richesses' is associated with two phloem-limited pathogens (BLO and/or stolbur phytoplasma) which are both efficiently transmitted by *P. beieri* in the field.

Source: Gatineau, F.; Jacob, N.; Vautrin, S.; Larrue, J.; Lherminier, J.; Richard-Molard, M.; Boudon-Padieu, E. (2002) Association with the syndrome 'Basses Richesses' of sugar beet of a phytoplasma and a bacterium-like organism transmitted by a *Pentastiridius* sp.
Phytopathology, 92(4), 384-392.

Additional key words: aetiology **Computer codes:** PHYTSP, FR

2002/085 Diagnostic procedure for *Clavibacter michiganensis* subsp. *sepedonicus*

A new PCR assay has been developed in Spain to detect *Clavibacter michiganensis* subsp. *sepedonicus* (EPPO A2 quarantine pest). This new procedure (called TP-RADP) uses two primers to amply the 16S rDNA gene. The PCR product obtained then produces a band pattern in electrophoresis which is specific of *C. m.* subsp. *sepedonicus* and identical for all strains.

Source: Rivas, R.; Velázquez, E.; Palomo, J.L.; Mateos, P.F.; García-Benavides, P.; Martínez-Molina, E. (2002) Rapid identification of *Clavibacter michiganensis* subspecies *sepedonicus* using two primers random amplified polymorphic DNA (TP-RAPD) finger prints.
European Journal of Plant Pathology, 108(2), 179-184.

Additional key words: diagnostics **Computer codes:** CORBSE

2002/086 Molecular techniques to identify *Pantoea stewartii* subsp. *stewartii* and differentiate strains

A one-step PCR assay has been developed to detect specifically *Pantoea stewartii* subsp. *stewartii* (EPPO A2 quarantine pest). Four sets of primers were tested and all gave satisfactory results. Under optimal reaction conditions, about 20 and 200 cells of *P. stewartii* subsp. *stewartii* could be detected in pure cultures and leaf lesions, respectively. Other tested bacteria (*P. agglomerans* pv. *herbicola, P. ananas, Erwinia amylovora* and *E. carotovora*) gave negative results (no amplicon or amplicons of a different size). However, three *P. ananas* strains isolated from lesions on old maize leaves gave a weak reaction. Another test was also developed (pulsed field gel electrophoresis). It can be used as an additional test to confirm the identity of *P. stewartii* subsp. *stewartii,* and to differentiate between strains of the bacterium which could be particularly useful in epidemiological studies.

Source: Coplin, D.L.; Majerczak, D.R.; Zhang, Y.; Kim, W.S.; Jock, S.; Geider, K. (2002) Identification of *Pantoea stewartii* subsp. *stewartii* by PCR and strain differentiation by PFGE.
Plant Disease, 86(3), 304-311.

Additional key words: diagnostics **Computer codes:** ERWIST

2002/087 Cold treatment against eggs of forest pests

Tests were conducted in Japan to assess the susceptibility of eggs of several forest pests to a cold storage treatment at 5°C: *Semanotus japonicus*, *Callidiellum rufipenne* (EPPO Alert List), *Monochamus alternatus* (EPPO A1 quarantine pest) , *Cryphalus fulvus*, *Xyleborus pfeili* and *Pissodes nitidus*. Eggs were exposed at 5°C for 7, 14, 21, 28, 35, 42, 60 and 90 days. Probit analysis gave the following LT_{95} values: 18.6 days for *X. pfeili* eggs, 28.1 for *C. fulvus*, 42.3 for *M. alternatus*, 57.5 for *C. rufipenne*, 68 for *P. nitidus* and 68.8 for S. *japonicus*. It is considered that 90 days would be needed to achieve complete mortality for the eggs of *S. japonicus* and *P. nitidus* at 5°C.

Source: Naito, H.; Soma, Y.; Kawakami, F.; Machii, K.; Miyamoto, I.; Takeo, W. (2002) Susceptibility of eggs of forest insect pests to low temperature. **Research Bulletin of the Plant Protection Service Japan, no. 38, 1-4.**

Additional key words: quarantine treatments **Computer codes:** JP

2002/088 Model to quantify the probability of entry and establishment of *Tilletia indica* in Western Australia, and its consequences

A mathematical model has been developed to quantify the probability of entry and establishment of *Tilletia indica* (EPPO A2 quarantine pest) in Western Australia, and to simulate spread, containment and economic impact of the pathogen. Using this model, it was found that the most likely means of entry is through imports of bulk grain or fertilizer. Entry may also occur through straw goods, new or second-hand agricultural machinery, and on personal effects of travellers who have visited regions with infected plants. The combined probability of entry and establishment of *T. indica*, for all pathways of entry, is about one entry every 25 years and one establishment every 67 years. This could be diminished to one entry every 50 years and less than one establishment every 100 years by increasing funds dedicated to plant quarantine. Depending on the rate of pathogen spread used in the model, and the amount of resources allocated for detection, the time of first detection (after introduction) could range from 4 to 11 years, and the economic impact could range from 8 to 24 % of the total value of wheat production in Western Australia.

Source: Stansbury, C.D.; McKirdy, S.J.; Diggle, A.J.; Riley, I.T. (2002) Modelling the risk of entry, establishment, spread, containment and economic impact of *Tilletia indica*, the cause of Karnal bunt of wheat, using an Australian context. **Phytopathology, 92(3), 321-333.**

Additional key words: risk analysis **Computer codes:** NEOVIN

2002/089 Examples of alien invasive plant species in Finland

The Finnish Ministry of the Environment wrote a report on 'Alien species in Finland' for the Conference of the Parties of the CBD which includes many examples of introduced species in Finland. The EPPO Secretariat has extracted the examples of introduced plants.

Ancient alien species

It is estimated that about 200 alien plants have spread to Finland with traditional agriculture practices during the last 3000 or 4000 years. The examples of *Scleranthus annuus* (Caryophyllaceae) and *Agrostis capillaris* (Poaceae) are given.

Historical alien species

The following examples of plants introduced for gardening purposes and which have spread to other habitats are given: *Heracleum mantegazzianum, H. persicum (*Apiaceae*), Impatiens glandulifera* (Balsaminaceae), *Lupinus polyphyllus* (Fabaceae), *Rosa rugosa* (Rosaceae). More recently, *Reynoutria japonica* (Polygonaceae), *Cornus alba* (Cornaceae), *Petasites hybridus* and *P. japonicus* (Asteraceae) have also shown a growing tendency to invade natural habitats. *Glyceria maxima* (Poaceae) and *Aster* x *salignus* (Asteraceae) are invading wetlands and shores. *Rosa glauca, Fragaria moschata, Amelanchier spicata* and *Cotoneaster lucidus* (Rosaceae) are considered as less invasive (at least for the time being). The cases of *Elodea canadensis* (Hydrocharitaceae) and *Sambucus racemosa* (Caprifoliaceae) are also mentioned.

Source: Kurtto, A.; Tomminen, J.; Leppäkoski, E.; Nummi, P. (2000) Alien species in Finland. Finnish Ministry of the Environment, 24 pp.
http://www.vyh.fi/luosuo/lumo/lumonet/aliens.htm

Additional key words: invasive species **Computer codes:** FI