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2005/050 Details on quarantine pests in Spain: 2004 situation

The Spanish journal 'Phytoma-España' presents the phytosanitary status of the main crops in each region for the year 2004. The EPPO Secretariat has extracted the following information on several quarantine pests or pests of the Alert List. According to the EPPO Secretariat, *Gibberella circinata* and *Oligonychus perseae* are reported for the first time from Spain.

Bemisia tabaci (Homoptera: Aleyrodidae - EPPO A2 list): Andalucía (cotton), Cataluña (tomatoes), Madrid (melon), Murcia, Navarra, País Vasco (glasshouse crops).

Bursaphelenchus xylophilus (EPPO A1 list): Absent in País Vasco, confirmed by survey.

Cacoecimorpha pronubana (Lepidoptera: Tortricidae - EPPO A2 list): Andalucía (citrus).

Ceratitis capitata (Diptera: Tephritidae - EPPO A2 list): Andalucía (normal attacks on citrus and grapevine in the provinces of Málaga, Cadiz), Cataluña (moderate populations on most fruit crops, high on citrus), Comunidad Valenciana (control was considered efficient in 2004), Islas Baleares (control was difficult on citrus and grapevine), Extremadura (low incidence), La Rioja (high populations but under satisfactory control), Murcia (citrus, grapevine), Navarra (*Prunus*).

Cryphonectria parasitica (EPPO A2 list): Cataluña (severe damage on *Castanea* grown for fruit production and wood).

Ciborinia camelliae (EPPO A2 list): now widespread in Asturias.

Citrus tristeza closterovirus (EPPO A2 list): Cataluña (medium incidence).

Clavibacter michiganensis subsp. *michiganensis* (EPPO A2 list): Cataluña (detected in 12 tomato plantations, 3 ha), Madrid (found in several glasshouses of tomatoes), País Vasco (found in 1 tomato farm in Bizkaia). In all cases, eradication measures were applied.

Clavibacter michiganensis subsp. *sepedonicus* (EPPO A2 list): it was detected with a low incidence in potato crops in Castilla y León. In Cataluña, an outbreak was detected in Peramola (Lleida). Strict vigilance and official control measures were taken.

Diabrotica virgifera (Coleoptera: Chrysomelidae - EPPO A2 list): surveys were done in Castilla y León in 2004, the pest was not found.

Erwinia amylovora (EPPO A2 list): Cataluña (extensive survey was done in 2004, not found near Lleida but few new outbreaks near Girona), País Vasco (1 new outbreak was found on pear 'Conference' near Muxika). In Navarra, no new outbreak was detected. Absent in Castilla y León, La Rioja. In all cases, under eradication.

Eutetranychus orientalis (Acari: Tetranychidae - EPPO A2 list): in Andalucía it was found in citrus orchards previously infested (Málaga, Córdoba).

Flavescence dorée phytoplasma (EPPO A2 list): absent in Andalucía and País Vasco (confirmed by surveys). In Cataluña, compulsory control against *Scaphoideus titanus* continued in the Alt Empordá area, the disease was found in 22 plants in 3 municipalities. All infected plants were destroyed.

Frankliniella occidentalis (Thysanoptera: Thripidae - EPPO A2 list): Andalucía (citrus, grapevine, strawberry), Cataluña (cucumber, peach and nectarine, strawberry), Murcia (grapevine, vegetables).

*Gibberella circinata** (anamorph: *Fusarium circinatum* - EPPO Alert List): in Asturias, an outbreak was found in a forest nursery on young plants of *Pinus radiata* and *P. pinaster*. Eradication measures were applied. This is the first confirmed report of this pathogen in Spain.

Gonipterus scutellatus (Coleoptera: Curculionidae - EPPO A2 list): present in Asturias but populations decreased in 2004.

Helicoverpa armigera (Lepidoptera: Noctuidae - EPPO A2 list): Andalucía (smaller populations than in previous years on citrus, cotton), Aragón (maize), Asturias (tomatoes), Cataluña (lettuce, tomatoes), Extremadura (*Capsicum*, tomatoes, tobacco), La Rioja (*Phaseolus*), Madrid (tomato), Navarra (vegetables).

Leptinotarsa decemlineata (Coleoptera: Chrysomelidae – EPPO A2 list): Extremadura (little damage is reported in 2004).

*Oligonychus perseae** (Acari: Tetranychidae - EPPO Alert List): it is reported for the first time as a pest of avocado in Andalucía (Málaga province). Severe attacks leading to significant tree defoliation were reported. According to the EPPO Secretariat this is the first report of *O. perseae* in Spain.

Paysandisia archon (Lepidoptera: Castniidae - EPPO Alert List): it was detected in 2003 on Islas Baleares on palms. It was found again in 2004. Affected palms were destroyed (the EPPO Secretariat had previously no confirmed data on the occurrence of *P. archon* in Baleares). *P. archon* is present in Comunidad Valenciana (*Phoenix dactylifera, Chamaerops humilis*), and under official control.

Pepino mosaic potexvirus (EPPO Alert List): Andalucía (increasing incidence in some parts, isolated outbreaks reported in Granada and Malaga provinces), Cataluña (found in some tested samples but no damage in the crops), Murcia. Absent in País Vasco.

Phytophthora ramorum (EPPO Alert List): Asturias (found in several nurseries on *Rhododendron* and *Viburnum*), Islas Baleares (found again in 2004 on imported *Rhododendron* and *Camellia*). In all cases, eradication measures were applied. Absent in País Vasco.

Plum pox potyvirus (EPPO A2 list): during 2004 surveys, it was not detected in Castilla y León.

Ralstonia solanacearum (EPPO A2 list): 1 outbreak was detected on tomatoes in the province of Granada (Andalucía). Few positive potato samples were detected in Castilla y León. The bacterium was also detected in a ware potato store in País Vasco. In all cases, eradication measures were applied.

Rhynchophorus ferrugineus (Coleoptera: Curculionidae – EPPO Alert List): found in Comunidad Valenciana, under official control.

Senecio inaequidens (candidate on the EPPO list of invasive plants): Cataluña (widespread, but it seems that its expansion has been diminishing during these last years; surveys will continue).

Sicyos angulatus (EPPO Alert List): Cataluña (weed in maize fields near Lleida, under official control).

Tomato chlorosis crinivirus (EPPO A2 List): Andalucía (it affects a high percentage of tomato crops).

Tomato spotted wilt tospovirus (EPPO A2 list): Andalucía (mainly found on *Capsicum annuum*), Asturias (a new outbreak was found on tomatoes), Cataluña (damage is decreasing), Islas Baleares (serious problem on tomatoes), Madrid (*Beta vulgaris* subsp. *vulgaris* (chard), *Capsicum* and tomatoes under glasshouse), Murcia, Navarra (1 glasshouse on tomato and *Capsicum*), País Vasco (a few outbreaks on *Capsicum*, lettuce, tomatoes, and several ornamental plants in glasshouses).

Tomato yellow leaf curl virus (EPPO A2 list): Andalucía (high incidence on tomato crops), Islas Baleares (causing serious problems), Cataluña (larger areas but lower intensity), Extremadura (1 isolated outbreak was found near Vegas Altas), Murcia.

Xanthomonas fragariae (EPPO A2 list): Andalucía.

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* New records

Source: Anonymous (2004) Incidencia de plagas y enfermedades en las Comunidades Autónomas en 2004.
Phytoma-España no. 168, 17-58 and no. 169, 16-55.

Additional key words: new records, detailed records

Computer codes: BEMITA, BURSXY, CERTCA, CORBMI, CORBSE, CTV000, DIABVI, ENDOPA, ERWIAM, EUTEOR, FRANOC, GIBBCI, GONPSC, HELIAR, LPTNDE, OLIGPA, PAYSAR, PEPMV0, PHYP64, PHYTRA, PPV000, PSDMSO, RHYCFR, SCLECA, SENIQ, SIYAN, TOCV00, TORTPR, TSWV00, TYLCV0, XANTFR, ES

2005/051 First record of *Paysandisia archon* in Sicilia (Italy)

In Italy, *Paysandisia archon* (Lepidoptera: Castniidae – EPPO Alert List) was reported for the first time in November 2002 along the seafront of Salerno (Campania). At that time, only adults were observed. The pest was found again in 2003 in the province of Ascoli Piceno (Marche), and in 2004 in the province of Pistoia (Toscana), in both cases it was found on palms growing in nurseries. In Sicilia, damage of *P. archon* was observed in 2004 on container plants of *Chamaerops humilis* in a nursery in the province of Catania. A the beginning of 2005, a larva of *P. archon* was detected in a 10-year old *C. humilis* planted in a nursery field. The plant was destroyed, and preventive chemical treatments were applied in the nursery concerned. So far, the pest has not been detected on the west part of the island (provinces of Trapani and Palermo) where some palm nurseries are also located. At present, the distribution of *P. archon* in Sicilia is considered to be limited to a few foci. However, it is felt that further surveys should be carried out. This is the first report of *P. archon* in Sicilia.

Source: Colazza S, Privitera S, Campo G, Peri E, Riolo P (2005) *Paysandisia archon* (Lepidoptera: Castniidae) a new record for Sicily.
Informatore Fitopatologico no. 5, 56-57.

Additional key words: detailed record

Computer codes: PAYSAR, IT

2005/052 Detection and eradication of *Plum pox potyvirus* M strains in Aragón (Spain)

Plum pox potyvirus (PPV – EPPO A2 list) was first found in Spain in 1984. Since then, PPV spread mainly along the Mediterranean coast infecting Japanese plums (*Prunus salicina*, with little or no fruit damage) and apricots (*P. armeniaca*, with severe damage). Few peach trees were found infected, and those mainly due to the use of infected rootstocks. Extensive surveys were routinely done in Spain on the occurrence and characterization of PPV strains. So far, only PPV-D strains had been detected in Spain. At the end of June 2002, the Plant Protection Service of Aragón detected PPV-M in 3 plots of peach trees (*P. persica* 'Royal Gem') of unknown origin. PPV-M was later detected in a few other peach cultivars ('Gladys' 'Calante') in the vicinity of the first finding, as a result of natural transmission by aphids. In July/August 2002, an eradication programme was implemented and 20 ha of infected peach trees were destroyed. Surveys performed in 2003/2004 confirmed the absence of PPV-M in Aragón.

Source: Cambra MA, Crespo J, Gorris MT, Martínez MC, Olmos A, Capote N, Cambra M (2004) Detection and eradication of *Plum pox virus* Marcus type in Aragón (Spain). **Acta Horticulturae, no. 657, 231-235.**

Additional key words: detailed record, eradication **Computer codes:** PPV000, ES

2005/053 First detection of *Plum pox potyvirus*-M strains in plum orchards in south-western Germany

Plum pox potyvirus (PPV - EPPO A2 list) has been present in Germany for many years and occurs in most of the major stonefruit-growing areas. During surveys done in 1993, it was found that all tested isolates from western Germany were PPV-D strains, and that only 2 PPV-M strains had been found in eastern Germany. From 2002 to 2003, new surveys were carried out in the major stonefruit-growing regions of south-western Germany on the distribution of PPV strains. More than 200 leaf samples were taken in summer from plum (*Prunus domestica*), peach (*P. persica*), apricot (*P. armeniaca*) growing in commercial orchards, and from wild *Prunus* (*P. cerasifera, P. insititia, P. spinosa*). Samples were tested by DASI-ELISA and RT-PCR. PPV-D strains were detected in most samples (187 samples), and PPV-M strains were found for the first time on 35 samples of plums (*P. domestica*) from 3 regions of south-western Germany (Ortenau, Kaiserstuhl and near Stuttgart - all in Baden-Württemberg).

Source: Jarausch W, Bassler A, Molla N, Krczal G (2004) First detection and molecular characterisation of PPV-M strains in plum orchards in South-Western Germany. **Acta Horticulturae no. 657, 159-164.**

Additional key words: detailed record **Computer codes:** PPV000, DE

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2005/054 Occurrence of *Plum pox potyvirus* on cherry in Czechia

In Czechia, *Plum pox potyvirus* (PPV – EPPO A2 list) is considered as one of the most damaging virus disease of plum, apricot and peach. PPV-D isolates are prevalent, although PPV-M types (and recombinants M/D) have also been detected in a few cases. A survey was initiated in 1999, on the possible presence of PPV in a collection of cherry cultivars at Holovousy. 41 cherry trees (including trees showing typical sharka symptoms) were tested by ELISA and RT-PCR for the presence of PPV and several other viruses (*Prune dwarf ilarvirus* - PDV*, Prunus necrotic ringspot ilarvirus* - PNRSV*, Apple chlorotic leaf spot trichovirus* - ACLSV). As a result, PPV was detected in 7 cherry trees. Among the other viruses tested, PDV was prevalent, sometimes in mixed infections with PNRSV and ACLSV. This is the first report of PPV on cherry in Czechia. It is recalled that after the first finding of PPV on sour and sweet cherry in Moldova and Italy (1994), PPV has also been found on cherry in Hungary and Bulgaria (1998) and in Romania (2002).

Source: Navrátil M, Šafářová D, Crescenzi A, Fanigliulo A, Comes S, Petrzik K, Karešová (2004) The occurrence of PPV in cherry trees in the Czech Republic. **Acta Horticulturae, no. 657, 237-244.**

Additional key words: detailed records **Computer codes:** PPV000, BG, CZ, IT, MD, RO

2005/055 Occurrence of *Plum pox potyvirus* on cherry in Turkey

In Turkey, surveys were carried out from 2000 to 2002 for the presence of *Prunus* viruses in the Kahramanmaraş district. This district is located at the east of the Mediterranean region, and no survey had been done previously on *Prunus* viruses. A total of 248 plant samples showing virus-like symptoms were collected in commercial *Prunus* orchards and mother blocks, and were tested by DAS-ELISA for the presence of *Prunus necrotic ringspot ilarvirus* (PNRSV), *Prune dwarf ilarvirus* (PDV) and *Plum pox potyvirus* (PPV – EPPO A2 list). Results showed that approximately 12.5% of the samples were infected by one or more viruses. Infection levels found were around 18.3% and 2.3% for sweet cherry (*Prunus avium*) and peach (*P. persica*), respectively. No virus infection was found in apricot (*P. armeniaca*), plum (*P. domestica*) and sour cherries (*P. cerasus*). The most common virus was PDV (infection rate of 6.4 %) followed by PPV and PNRSV (infection rate of 0.4 % for both). PPV was detected for the first time in Turkey on cherry.

Source: Tolay Arikan E, Çağlayan K, Gazel MH (2004) Identification of *Plum pox virus* and some ilarviruses of stone fruits in Kahramanmaraş district of Turkey. **Acta Horticulturae, no. 657, 269-273.**

Additional key words: detailed records **Computer codes:** PPV000, TR

2005/056 Studies on natural hosts of *Plum pox potyvirus* (other than cultivated *Prunus*)

Several studies have been recently carried out on host plants of *Plum pox potyvirus* (PPV - EPPO A2 list) other than cultivated *Prunus*. Several new host plants have been identified, and may play a role in disease epidemiology.

In France, experiments were done on the possible role of 3 ornamental species of *Prunus* (*P. cerasifera 'pissardii*', *P. spinosa*, *P. triloba*) as reservoirs for PPV (Labonne *et al*., 2004). Results showed that *P. triloba* and *P. cerasifera 'pissardii'* were not likely to act as efficient plant reservoirs for PPV. But *P. spinosa* appeared to be a possible reservoir. It was susceptible to all PPV isolates tested, and systemic infection could be detected after a period of 3 years (although few leaves were found infected). More studies are needed to verify that aphids could acquire PPV from infected leaves and transmit it to healthy *Prunus* plants.

In Slovenia, 548 weed species, collected near infected orchards, have been tested from 2000 to 2002, for the presence of PPV (Viršček Marn *et al*., 2004). The virus was found in the following weed species: *Ajuga genevensis*, *Cichorium* sp., *Cirsium arvense*, *Clematis* sp., *Convolvulus arvensis*, *Rorippa sylvestris*, *Solanum nigrum*, *Sonchus* sp., *Taraxacum officinale*, *Trifolium* sp.

In Czechia, naturally growing myrobalan (*Prunus cerasifera* ssp. *myrobalana*) and blackthorn (*Prunus spinosa*) were evaluated for the presence of PPV infection from 1995 to 2002 (Polák, 2004). Results showed that there was a high variability in susceptibility to PPV among naturally growing trees of both species. On average, *P. spinosa* appeared more susceptible to PPV than myrobalan.

Source: Labonne G, Boeglin M, Monsion B (2004) Evaluation of three ornamental *Prunus* as reservoirs of PPV.
Acta Horticulturae, no. 657, 255-259.

Polák J (2004) Variability in susceptibility to *Plum pox virus* in natural woody hosts, myrobalan and blackthorn.
Acta Horticulturae, no. 657, 261-264.

Viršček Marn M, Marvrič I, Urbančič-Zemljič M, Škerlavaj V (2004) Detection of *Plum pox potyvirus* in weeds.
Acta Horticulturae, no. 657, 251-254.

Additional key words: new host plants **Computer codes:** PPV000

2005/057 Studies on aphid vectors of *Plum pox potyvirus* in North America

In North America, *Plum pox potyvirus* (PPV - EPPO A2 list) was first found in peach and plum orchards in 1999 in Adams County in Pennsylvania (US) and in 2000 in Ontario (CA). So far, in North America, only PPV-D strains have been found. PPV is transmitted in a non-persistent manner by aphids. Studies were done to identify aphid species occurring commonly in Pennsylvania stone fruit orchards, and which could transmit PPV. During these experiments, 3 different PPV isolates were used. Results showed that the 4 following species consistently transmitted PPV in preliminary transmission tests: *Aphis fabae, A. spiraecola, Brachycaudus persicae* and *Myzus persicae*. In further transmission tests, *Myzus persicae* was found the most efficient vector followed by *A. spiraecola, A. fabae* and *B. persicae*. These species were able to transmit PPV from infected peach seedlings to the following percentages of healthy peach seedlings: 63, 31, 38 and 32 %. *Toxoptera citricida* (EPPO A1 list) was found to be an efficient vector, but this species only occurs in Florida and is not present in areas affected by PPV. *Metopolophium dirhodum* and *Rhopalosiphum padi* were considered as occasional and relatively inefficient vectors. During these studies no transmission was obtained with: *Acyrthosiphon pisum, Aphis glycines, Aulacorthum solani, Macrosiphum euphorbiae, Rhopalosiphum maidis* and *Sitobion avenae*. Preliminary surveys done in peach orchards in Pennsylvania indicated that *A. spiraecola* and *M. persicae* were the 2nd and 3rd most numerous species (the most abundant

species was *R. maidis*, which is not a vector). Both *A. spiraecola* and *M. persicae* have been observed colonizing peach trees in spring on expanding leaves (later they migrate to herbaceous plants). It is therefore considered that the most efficient vector of PPV is probably *M. persicae* and then *A. spiraecola*. It is recalled that in Western Europe (e.g. in France and Spain), *Myzus persicae* is also considered as the most efficient vector, and that in Eastern Europe, *Brachycaudus helichrysi*, *Hyalopterus pruni* and *Phorodon humuli* are important PPV vectors. Similar transmission studies were also done in the possible transmission of PPV by aphids from infected fruits to healthy plants. It was found that *Myzus persicae, Aphis spiraecola, A. fabae* and *B. persicae* could transmit PPV from infested fruits to 50, 35, 0, 0 % of seedlings, respectively.

Source: Gildow F, Damsteegt, V, Stone A, Schneider W, Luster D, Levy L (2004) Plum pox in North America: identification of aphid vectors and a potential role for fruit in virus spread.
Phytopathology, 94(8), 868-874.

Additional key words: epidemiology **Computer codes:** PPV000, CA, US

2005/058 *Citrus tristeza closterovirus* occurs in Alabama (US)

Within south-eastern USA, citrus is an economically important crop in Florida and Texas but is also grown in the gulf coast region. In Louisiana, approximately 500 ha of commercial citrus trees are grown (sweet orange (*Citrus sinensis*) and Satsuma orange (*C. reticulata*)), with many dooryard citrus (kumquat (*Fortunella* spp.) and Meyer lemon (*C. limon x C. reticulata*)). In Alabama, approximately 50 ha of citrus are grown (mainly Satsuma). In both areas, trifoliate orange (*Poncirus trifoliata*) is the most common rootstock. ELISA studies were done on the occurrence of *Citrus tristeza closterovirus* (CTV – EPPO A2 list) in Louisiana and Alabama. In Louisiana, 159 samples tested positive (out of 881) for CTV, and 28 of these positive samples were characterized as infected with decline inducing strains. In Alabama, 17 of 75 trees were found infected by CTV, and 2 isolates were characterized as decline-inducing strains. The EPPO Secretariat had previously no data on the occurrence of CTV in Alabama.

Source: Valverde R, Landry A, Lotrakul P, Nestbitt M, Dozier W, Ebel R (2004) Identification of *Citrus tristeza virus* strains in Louisiana and Alabama.
Acta Horticulturae, no. 657, 567-571.

Additional key words: detailed record **Computer codes:** CTV000, US

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2005/059 Studies on *Apricot latent foveavirus*: a new virus of *Prunus*

In 1998, a new virus called Apricot latent virus was identified on symptomless apricots brought to Moldova from Bulgaria. This virus was shown to produce yellow-green spots on leaves when graft-transmitted to peach seedlings (Zemtchik *et al.*, 1998). This new virus was later assigned to the genus *Foveavirus* (Nemchinov *et al.*, 2000).
In France, studies were done on the possible etiology of two graft-transmissible diseases: peach asteroid spot and peach sooty ringspot (Gentit *et al*., 2001). Peach asteroid spot disease was observed in the 1930s in USA, causing small, star-shaped spots on peach leaves. In 1982, an unknown agent was found in a commercial apricot orchard in France. When graft-transmitted to peach (cv. 'Springtime'), this agent gave symptoms resembling those of peach asteroid spot. In Italy and France, several isolates when graft-transmitted to peach seedlings GF305 induced a new disease called peach sooty ringspot. Studies done in France (including symptomatology on peach seedlings and herbaceous hosts, partial sequence analysis) showed that peach asteroid spot and peach sooty ringspot were closely related to *Apricot latent foveavirus*, and were probably variants of the virus. It is noted that further studies should be performed to determine the geographical distribution, host range, epidemiology and economic impact of these agents on *Prunus* crops.
Finally, the presence of *Apricot latent foveavirus* was recorded for the first time in 2004 in Turkey. It was found during a survey on apricot crops in 2 locations (Bademli and Bornova) in the west part of the country (Gümüs *et al.*, 2004).

Source: Gentit P, Foissac X, Svanella-Dumas L, Candresse T (2001) Variants of *Apricot latent foveavirus* (ALV) isolated from South European orchards associated with peach asteroid spot and peach sooty ringspot diseases.
Acta Horticulturae no. 550, 213-219.

Gümüs M, Al Rwahnih M, Myrta A (2004) First report of *Apricot latent virus* in Turkey.
Journal of Plant Pathology, 86(1), p 92.

Nemchinov LG, Shamloul AM, Zemtchik EZ, Verderevskaya TD, Hadidi A (2000) Apricot latent virus: a new species in the genus Foveavirus.
Archives of Virology, 145(9), 1801-1813.

Zemtchik EZ, Verderevskaya TD, Kalashian YA (1998) Apricot latent virus: transmission, purification and serology.
Acta Horticulturae, no.472, 153-158.

Additional key words: new pest **Computer codes:** APLV00, BG, FR, IT, MD, TR, US

2005/060 Phytoplasma classification

Firrao *et al*. (2004) have summarized in a useful table the new names which have been proposed for phytoplasmas in the genus '*Candidatus* Phytoplasma'. This new genus now comprises 26 species (the ones in square brackets still need to be validly described).

***'Candidatus* Phytoplasma species'**	**Phylogenetic group***	**Associated disease**
'*Ca*. Phytoplasma asteris'	Aster Yellows group (16SrI)	Aster yellows
'*Ca*. Phytoplasma japonicum'	Aster Yellows group (16SrI)	Japanese Hydrangea phyllody
'*Ca*. Phytoplasma aurantifolia'	Peanut Witches' Broom group (16SrII)	Lime witches' broom
['*Ca*. Phytoplasma pruni']	X-disease group (16SrIII)	X-disease
['*Ca*. Phytoplasma palmae']	Coconut Lethal Yellowing group (16SrIV)	Coconut lethal yellowing (Mexico)
['*Ca*. Phytoplasma cocostanzaniae']	Coconut Lethal Yellowing group (16SrIV)	Coconut lethal yellowing (Tanzania)
['*Ca*. Phytoplasma cocosnigeriae']	Coconut Lethal Yellowing group (16SrIV)	Coconut lethal yellowing (Nigeria)
'*Ca*. Phytoplasma castaneae'	Coconut Lethal Yellowing group (16SrIV)	Korea chestnut witches' broom
'*Ca*. Phytoplasma ziziphi'	Elm Yellows group (16SrV)	Ziziphus jujube witches' broom
['*Ca*. Phytoplasma vitis']	Elm Yellows group (16SrV)	Flavescence dorée
'*Ca*. Phytoplasma ulmi'	Elm Yellows group (16SrV)	Elm yellows
'*Ca*. Phytoplasma trifolii'	Clover Proliferation group (16SrVI)	Clover proliferation
'*Ca*. Phytoplasma fraxini'	Ash Yellows group (16SrVII)	Ash yellows
['*Ca*. Phytoplasma luffae']	Loofah Witches' Broom group (16SrVIII)	Loofah witches' broom
'*Ca*. Phytoplasma phoenicium'	Pigeon Pea Witches' Broom group (16SrIX)	Almond lethal disease
'*Ca*. Phytoplasma mali'	Apple Proliferation group (16SrX)	Apple proliferation
'*Ca*. Phytoplasma pyri'	Apple Proliferation group (16SrX)	Pear decline
'*Ca*. Phytoplasma prunorum'	Apple Proliferation group (16SrX)	European stone fruit yellows
'*Ca*. Phytoplasma spartii'	Apple Proliferation group (16SrX)	Spartium witches' broom
'*Ca*. Phytoplasma rhamni'	Apple Proliferation group (16SrX)	Buckthorn witches' broom
'*Ca*. Phytoplasma allocasuarinae'	Apple Proliferation group (16SrX)	Allocasuarina yellows
'*Ca*. Phytoplasma oryzae'	Rice Yellow Dwarf group (16SrXI)	Rice yellow dwarf
'*Ca*. Phytoplasma australiense'	Stolbur group (16SrXII)	Australian grapevine yellows
['*Ca*. Phytoplasma solani']	Stolbur group (16SrXII)	Stolbur and Bois Noir
'*Ca*. Phytoplasma cynodontis'	Bermuda grass white leaf group (16SrXIV)	Bermuda grass white leaf
'*Ca*. Phytoplasma brasiliense'	'*Ca*. P. brasiliense' group (16SrXV)	Brazilian hibiscus witches' broom

Phylogenetic group according to: Lee IM, Gundersen-Rindal DE, Davis RE & Bartoszyk IM (1998) Revised classification scheme of phytoplasmas based on RFLP analyses of 16S rRNA and ribosomal protein gene sequences. *International Journal of Systematic bacteriology* **48**, 1153-1169.

Source: Firrao G, Marcone C, Bertaccini A (2004) Phytoplasma classification. Abstract of a paper presented at the 11th SIPaV Annual Meeting (Milano, IT, 2004-09-29/10-01). **Journal of Plant Pathology 86(4), p 299.**

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

2005/061 Peach rosette, little peach, red suture and western X-disease phytoplasmas are closely related

In the eastern part of USA, 4 different phytoplasma diseases of peach have been reported, differing by their symptomatology:

- peach rosette (localized outbreaks have been reported – EPPO A1 list);
- peach yellows (severe outbreaks were reported in the 19th and early 20th but the disease has not been observed since the last 20 years – EPPO A1 list);
- little peach (occasionally found);
- red suture (also occasionally found).

In the western part of USA, peach is affected by 2 other phytoplasma diseases, western X-disease (EPPO A1 list) and peach yellow leaf roll, which are not reported in the eastern part. Comparison studies were done between peach rosette, little peach, and red suture phytoplasmas. The 16S ribosomal DNA fragments (of one isolate for each phytoplasma) were cloned and sequenced. Comparison between these sequences showed more than 99% similarity. In addition, when compared with the published sequence for 16S rDNA of western X-disease phytoplasma, a similarity of more than 99% was also found. The authors concluded that peach rosette, little peach, red suture were induced by a phytoplasma which is closely related to western X-disease phytoplasma. It is also recalled that earlier studies had shown close relationships between peach yellows and western-X disease.

Source: Scott SW, Zimmerman MT (2001) Peach rosette, little peach and red suture are diseases induced by a phytoplasma closely related to Western X-disease. **Acta Horticulturae no. 550, 351-354.**

Additional key words: taxonomy **Computer codes:** PHYP17, PHYP29, PHYP30, US

EPPO *Reporting Service*

2005/062 *Macropsis mendax* (Homoptera: Cicadellidae) is a vector of *Phytoplasma ulmi* in Italy

Elm yellows was first observed in the eastern part of USA where it caused a severe decline in native American elms (*Ulmus americana* and other species). The disease was first called 'phloem necrosis' and later associated with the presence of phytoplasmas (Elm phloem necrosis phytoplasma is currently on the EPPO A1 list*). Following the first descriptions of the disease, elm yellows was thought to be restricted to North America. In USA, the only confirmed vector is *Scaphoideus luteolus* (Homoptera: Cicadellidae) which does not occur in Europe. Other species like *Philaenus spumarius* (Homoptera: Cercopidae) and *Allygidius atomarius* (Homoptera: Cicadellidae) have been suggested as possible vectors. Since the 1950s, the disease has been reported from Italy, Czechia, France and Germany. In Italy, it was found in Emilia-Romagna, Toscana and the Po valley. Natural infections by elm yellows phytoplasma (now *Phytoplasma ulmi*) were recorded in *U. minor* and *U. pumila*. In Europe, little information was so far available on possible vectors of elm yellows. Recently, in the Friuli Venezia Giulia region of Italy, several elm trees showing symptoms of elm yellows were observed. On the basis of symptomatology (yellowing, witches' broom, small leaves), it was estimated that approximately a hundred trees were infected in a few limited areas but their infection patterns suggested the presence of active vectors. Investigations were done from 2000 to 2002 in the areas of Cornino, Trieste, Gorizia and Moruzzo. Using PCR assays and RFLP, *Phytoplasma ulmi* was detected in symptomatic trees (*U. minor* and *U. pumila*), as well as in a few asymptomatic trees. Several insect species were also collected from elm trees (*Aphrodes* sp., *Aphrophora alni, Hyalesthes luteipes, Iassus scutellaris, Issus* sp. *Macropsis mendax, Metcalfa pruinosa, Philaenus spumarius*). Among these species, only *Macropsis mendax* tested positive for elm yellows phytoplasma by PCR. Transmission studies demonstrated that *M. mendax* is a vector of elm yellows phytoplasma. This monophagous insect has one generation per year on elm, where it overwinters as eggs, but more studies are needed on its efficiency as a phytoplasma vector. During this study, it was also found that alder trees (*Alnus glutinosa*) growing in the vicinity of diseased elms were infected by alder yellows (a closely related phytoplasma belonging to Elm Yellows group 16SrV, transmitted by *Oncopsis alni*). It was experimentally possible to transmit by grafting the alder yellows phytoplasma to *U. minor*.

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* **EPPO Secretariat note**: although the relationships between European and American phytoplasmas found on elm trees need to be further investigated (see also EPPO RS 2003/095), it appears necessary to review the quarantine status of 'Elm phloem necrosis phytoplasma'.

Source: Carraro L, Ferrini F, Ermacora P, Loi N, Martini M, Osler R (2004) *Macropsis mendax* as a vector of elm yellows phytoplasma of *Ulmus* species.
Plant Pathology, 53(1), 90-95.

Additional key words: epidemiology **Computer codes:** PHYPUL

EPPO *Reporting Service*

2005/063 *Xanthomonas axonopodis* pv. *allii* is a new bacterium on *Allium* crops: addition to the EPPO Alert List

In the last 20 years, severe outbreaks of bacterial blight have been observed on *Allium* crops in several parts of the world. The disease was first found in Barbados in 1971, and then in 1975 on several islands of the Hawaiian archipelago. In the 1980s it was found in Brazil, Cuba and Mauritius. From 1990 to 2000, it reached USA, Venezuela, South Africa and Japan. Recent work done in France and Florida (US) showed that, in these different parts of the world, the disease was caused by a new bacterium for which the name *Xanthomonas axonopodis* pv. *allii* has been proposed. Studies on its host range showed that, so far, only *Allium* crops were susceptible. It was also demonstrated that the bacterium was transmitted by *Allium* seeds, and that the use of contaminated seeds (even with low infection level) could lead to field outbreaks.

Xanthomonas axonopodis pv. *allii* (an emerging disease of onion and garlic crops)

Why	A new bacterium, *Xanthomonas axonopodis* pv. *allii*, causing damage to *Allium* crops has been reported from several parts of the world as an emerging disease.
Where	The disease was first observed in Barbados in 1971, and then spread to other continents (America, Africa and Asia). **EPPO region**: absent. **Asia**: Japan. **Africa**: Mauritius, Réunion, South Africa. **North America**: USA (California, Colorado, Georgia, Hawaii, Texas) **Central America and Caribbean**: Barbados, Cuba. **South America**: Brazil, Venezuela.
On which plants	*Allium* species (*A. cepa* (onion), *A. sativum* (garlic), *A. porrum* (leek), *A. schoenoprasum* (chives), *A. ascallonicum* (shallot), *A. fistulosum* (Welsh onion)). The disease tends to be more severe on onions.
Damage	Leaf lesions initially appear as white flecks, pale spots, or lenticular lesions with water-soaked margins. Lesions quickly enlarged, becoming brownish, with extensive water-soaking. As the disease progresses, lesions coalesce causing tip dieback and extensive blighting of older leaves. Reduction of foliage leads to stunting of the plants and smaller bulbs. In case of severe outbreaks, premature plant death is observed. The disease is favoured by high temperatures (higher than 27 °C) and severe outbreaks usually occur shortly (7 to 10 days) after a period of humid, rainy weather. In USA, yield reductions of 20 % or greater are commonly observed in affected fields.
Dissemination	*X. axonopodis* pv. *allii* is seed-transmitted. Within crops, wind and irrigation (in particular overhead irrigation) can ensure further spread of the disease. Dissemination is favoured by storms with hail. The bacterium can also survive on crop debris and volunteer *Allium* plants. It may be also disseminated by infected debris adhering to workers and equipment.
Pathway	*Allium* seeds, bulbs for planting from countries where *X. axonopodis* pv. *allii* occurs.
Possible risks	*Allium* crops are widely grown in the EPPO region. Severe outbreaks have been reported with crop losses from countries where the bacterium occurs. Control measures are available (use of healthy seeds and bulbs, destruction of volunteer onions, destruction of plant debris, rotations, chemical control) but should be applied in combination. For the moment, no routine diagnostic test is available for testing *Allium* seeds. Although more data is needed on the amount of imports of *Allium* seeds (or bulbs) from infected countries and on the potential of establishment of this disease in Europe, the introduction of infected seeds (or bulbs) presents a risk to *Allium* crops, particularly in the south of Europe.

EPPO *Reporting Service*

Source(s) Humeau L, Roumagnac P, Soustrade I, Gagnevin L, Degas J, Jeuffrault E, Pruvost O (2004) Une maladie émergente de l'oignon à la Réunion. Le dépérissement bactérien causé par *Xanthomonas axonopodis* pv. *allii*. Phytoma – La Défense des Végétaux, no. 573, 28-30.

Roumagnac P, Pruvost O, Chiroleu F, Hugues G (2004) Spatial and temporal analyses of bacterial blight of onion caused by *Xanthomonas axonopodis* pv. *allii*. Phytopathology, 94(2), 138-146.

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Colorado State University. Cooperative Extension. *Xanthomonas* leaf blight of onion by H. Schwartz and D. H. Gent. http://www.ext.colostate.edu/pubs/garden/02951.html

EPPO RS 2005/063

Panel review date - Entry date 2005-04

2005/064 *Phytomyza (Napomyza) gymnostoma* is a new pest of *Allium* in Europe: addition to the EPPO Alert List

In Europe, observations made during the last 20 years suggest that *Phytomyza* (*Napomyza*) *gymnostoma* (Diptera: Agromyzidae –leaf miner) should be considered as a new important pest on onion and leek, and that increasing significance may be expected. The EPPO Secretariat decided that it could be useful to draw EPPO member countries' attention to this new problem of *Allium* crops.

Phytomyza (Napomyza) gymnostoma (Diptera: Agromyzidae – *Allium* leaf miner)

Why In the last 20 years, damage to *Allium* crops caused by *Phytomyza (Napomyza) gymnostoma* has been reported by an increasing number of European countries. *P. gymnostoma* was first described in 1858 in the region of Poznan (Poland). In 1976, it was transferred to the genus *Napomyza* by Spencer and back to *Phytomyza* in 1994 by Zlobin.

Where In 1976, this species was reported in Denmark, Sweden, Poland, and in the Mediterranean Basin but no damage was observed. Since the 1980s, *P. gymnostoma* has become a pest of *Allium* plants in several countries for reasons which remain unknown, first in eastern Europe and more recently in western Europe. Today, the pest is widespread in Europe.

EPPO region: Austria (damage reported in 1994), Croatia (1990s, now reported as the most important and most frequent pest of onions), Czechia, Denmark, France (2003 in Alsace), Germany (1994), Hungary (1986), Italy (Friuli-Venetia Giulia in 1999 and Veneto in 2001), Poland (1997), Serbia and Montenegro (1992), Slovakia (1990), Slovenia (1994), Spain, Sweden, Switzerland (near Basel 2003), Turkey, United Kingdom (2003 in a private garden in Wolverhampton, near Birmingham).

On which plants *Allium* species, more particularly leek (*A. porrum*) but also chives (*A. schoenoprasum*) and to a lesser extent onion (*A. cepa*), garlic (*A. sativum*), shallot (*A. ascallonicum*).

Damage Larvae of *N. gymnostoma* mine the stalk and bulbs of *Allium* plants which become soft and susceptible to fungal or bacterial infections. Frequently, severe plant deformations (split leaves and stalks, distortions) are observed. Females make large numbers of feeding punctures using their ovipositors, and then use their mouth parts to feed on leaf exudates. These punctures are the first sign that the flies are active. *P. gymnostoma* overwinter as pupae attached to plant tissues. At the beginning of spring, adults emerge. Adults are small greyish flies of 3 mm long, with a largely yellow head. Wing length varied from 2.9 in males to 4.0 mm in females. Legs are dark with yellowish knees. Eggs are laid within plant tissues, usually at the leaf base. Larvae mine the leaves (moving downward into the stalk, and eventually to the bulb), and pupate at the end of their galleries. During summer, the pest aestivates as pupae within the plants. Another generation of adults emerge at the end of summer – beginning of autumn. In spring, damage is observed after the first adult flight. On leeks for example, which are usually

small plants at this time of the year, few larvae can kill a plant, so an uinfested field can rapidly show a large number of missing plants. In autumn, plants are larger and tolerate higher levels of populations. Although, no figures are given, damage caused by *P. gymnostoma* is considered as economic. It is reported in Serbia that the presence of about 20 puparia per plant can lead to complete plant destruction. In addition, the presence of larvae in young onion and leek plants may render them unmarketable.

Dissemination — Adults can fly, but more studies are needed on flight periods and distances. There is no data on the possible role of infested bulbs in spreading the insects.

Pathway — *Allium* plants for planting or bulbs infested by *P. gymnostoma*.

Possible risks — *Allium* crops are widely grown in European countries. In many European countries, *P. gymnostoma* is mentioned as an emerging and economically damaging pest. More studies are needed on control measures (rotations, destruction of plant debris, chemical control, possible use of parasitoids). It can be concluded that more attention should be paid to this potentially damaging pest of leek and other *Allium* crops.

Source(s)

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World Biodiversity Database. Arthropods of economic importance. Agromyzidae. *Phytomyza gymnostoma*. Description. http://ip30.eti.uva.nl/bis/

EPPO RS 2005/064

Panel review date - Entry date 2005-04

2005/065 *Sagittaria montevidensis* subsp. *calycina* : a new weed species found in Spain

In September 2003, a new invasive plant species was found in rice fields at Lanaja near Huesca (Aragón), Spain. The plant was identified as *Sagittaria montevidensis* subsp. *calycina* (Alismataceae). The plants were abundant in the rice fields and their surroundings. It is considered that these plants had been present for some time. *Sagittaria montevidensis* subsp. *calycina* is a North American species which occurs in USA and Mexico. A conspecific taxon, *Sagittaria montevidensis* is considered as an invasive species in Australia, New Zealand and southern USA.

Source: Child L, Brock JH, Brundu G, Prach K, Pyšek P, Wade PM, Williamson M editors (2003) Plant Invasions. Ecological threats and management solutions. Backhuys Publishers, Leiden, Netherlands, 457 pp.

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Additional key words: invasive plants **Computer codes:** SAGCA