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2009/001 First record of *Rhynchophorus ferrugineus* in Morocco

In December 2008, the presence of *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae – EPPO A2 List) was detected for the first time in Morocco. Cocoons, larvae and adult weevils were observed on 2 *Phoenix canariensis* growing in a hotel garden, located approximately 500 m away from the port of Tangier. The following phytosanitary measures were immediately taken: 1) treatment and wrapping of the palm trees with plastic sheets, 2) complete destruction of the trees by burning, 3) treatment of the aerial parts of the surrounding palm trees, 4) intensive surveys within a radius of 1 000 m around the infected trees, 5) the city of Tangier was placed under quarantine.
In addition, information campaigns for the local authorities, managers and technicians of the Ministry of Agriculture, landscape managers and nurserymen have been organized to attract their attention to this serious pest. Other regions in Morocco, particularly those located in the north, have also been warned of this new record.
The situation of *Rhynchophorus ferrugineus* in Morocco can be described as follows: **Present, first found in December 2008 on two *Phoenix canariensis* in Tangier, under eradication.**

Source: NPPO of Morocco, 2009-01.

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

2009/002 First record of *Rhynchophorus ferrugineus* in Curaçao, Netherlands Antilles

The presence of *Rhynchophorus ferrugineus* (Coleoptera: Curculionidae – EPPO A2 List) was recently noted for the first time on the Island of Curaçao, Netherlands Antilles. Several specimens were discovered in December 2008/January 2009. It is suspected that the pest was introduced with date palms imported from Egypt for ornamental purposes. This is also the first record of *R. ferrugineus* in the Caribbean.
The situation of *Rhynchophorus ferrugineus* in the Netherlands Antilles can be described as follows: **Present, first found in December 2008 on the island of Curaçao.**

Source: Amigoe.com (2009) Beetle very harmful to date palms (2009-01-26) http://www.amigoe.com/artman/publish/artikel_51993.php

Personal communication with Prof. Aziz Ajlan, King Faisal University, Al-Hasa, Saudi Arabia (2009-01). http://www.redpalmweevil.com

Additional key words: new record **Computer codes:** RHYCFE, AN

2009/003 First report of *Tuta absoluta* in France

The NPPO of France recently informed the EPPO Secretariat of the first record of *Tuta absoluta* (Lepidoptera: Gelechiidae – EPPO A1 List) on tomato crops (*Lycopersicon esculentum*) in two regions: Corse (near Ajaccio and Propriano) and Provence-Alpes-Côte d'Azur (Var and Bouches-du-Rhône). *T. absoluta* was identified in October 2008 in Corse and in November/December 2008 in Provence-Alpes-Côte d'Azur. Surveys were initiated immediately to determine the extent of the infestation and eventually trace back its

origin. Heavily infested tomato crops in both regions were destroyed. The preliminary results of the survey suggested that the pest had been present in Corse for some time.
The situation of *Tuta absoluta* in France can be described as follows: **Present, first detected in 2008 in tomato crops in Corse (Corse-du-Sud) and Provence-Alpes-Côte d'Azur (Var and Bouches-du-Rhône), under eradication.**

Source: NPPO of France, 2009-01.

FREDON Corse. La mineuse de la tomate. *Tuta absoluta*.
http://www.fredon-corse.com/ravageurs/Tuta_absoluta.htm

Additional key words: new record **Computer codes:** GNORAB, FR

2009/004 Situation of *Rhagoletis completa* in Austria in 2008

In Austria, *Rhagoletis completa* (Diptera: Tephritidae – EU Annexes) was first reported in Tyrol (EPPO RS 2008/155) in 2008. Because publicity was made following this first record, numerous samples of walnut (*Juglans* sp.) with suspicious symptoms were sent by private owners (gardeners) to the NPPO laboratory. *R. completa* was detected in 8 samples of walnut coming from other Austrian regions: Vienna, Steiermark (Styria) and Kärnten (Carinthia). The owners of the infested trees were ordered to destroy all fruits/nuts still remaining in their gardens. Monitoring of *R. completa* will be intensified in all regions concerned.
The pest status of *Rhagoletis completa* in Austria is officially declared as: **Local outbreaks, under observation.**

Source: NPPO of Austria, 2009-01.

Additional key words: detailed record **Computer codes:** RHAGCO, AT

2009/005 *Bemisia tabaci* biotypes in Cyprus

In 2006 and 2007, a survey was carried out in Cyprus to determine the biotypes of *Bemisia tabaci* (Homoptera: Aleyrodidae – EPPO A2 List) which were present. In the past, both B and Q biotypes had been reported from Cyprus; biotype Q was found in 2004 with a limited distribution in the district of Paphos. Whiteflies were collected from both protected and glasshouse crops, including vegetables (*Brassica* spp., *Capsicum*, *Cucumis sativus*, *Cucurbita maxima*, *Lycopersicon esculentum*, *Phaseolus vulgaris*, *Solanum melongena, S. tuberosum*) and ornamentals (*Euphorbia pulcherrima*). As a result, only *B. tabaci* biotype B was identified on collected samples, biotype Q was no longer detected even in the district of Paphos.

Source: Vassiliou VA, Jagge C, Grispou M, Pietrantonio PV, Tsagkarakou A (2008) Biotype status of *Bemisia tabaci* from various crops in Cyprus. *Phytoparasitica* **36**(4), 400-404.

Additional key words: detailed record **Computer codes:** BEMITA, CY

2009/006 *Phytophthora pinifolia* is a new pathogen of *Pinus radiata* in Chile: addition to the EPPO Alert List

Pinus radiata (Monterey pine) originates from the Californian coastal region (US) and grows well in areas which have a Mediterranean type of climate (e.g. Australia, Chile, New Zealand, South Africa, Spain). In Chile, it was first introduced for ornamental purposes in 1885 and it is now widely planted for forestry purposes over approximately 1.5 million ha (representing more than a third of the total area planted with *P. radiata* in the world). In February 2004, unusual tree mortality was observed in a 6-year old *P. radiata* stand (of 70 ha) located on the Arauco coast of Chile. In October 2004, a serious needle blight disease was observed in the same area, and was also associated with tree mortality. In the following years, damage increased dramatically and reached 60 000 ha by the end of 2006. The disease was called 'daño foliar del pino' and its overall pattern of development suggested that it was caused by a pathogen. In July 2007, isolations made from diseased needles and stems consistently yielded a *Phytophthora* species. Investigations (morphology, DNA sequence comparison, pathogenicity tests) concluded that the disease was caused by a new *Phytophthora* species. The latter was described and called *Phytophthora pinifolia* sp. nov. Considering the rapid spread of *P. pinifolia* in Chile and the significant mortality it can cause to *P. radiata* plantations, the EPPO Secretariat decided to add *P. pinifolia* to the EPPO Alert List.

Phytophthora pinifolia (a new pathogen of *Pinus radiata*)

Why	Dr Webber (Forest Research, GB) attracted the attention of the EPPO Secretariat to a newly described species of *Phytophthora* which is severely damaging plantations of *Pinus radiata* in Chile.
Where	**EPPO region:** Absent. **South America:** Chile (Arauco province, Región del Biobío (VIII)).
On which plants	So far, the disease has only been observed on *Pinus radiata.* In Chile, other coniferous trees (*P. pinaster* and *Pseudotsuga menziesii*) growing in the vicinity of affected *P. radiata* did not show any symptoms. However, further studies are needed to determine the host range of *P. pinifolia*.
Damage	The disease is characterized by needle infection, defoliation and tree mortality. Initially, small dark resinous bands appear on green needles. A reddish discoloration of the needles is subsequently observed, appearing first on the lower side of the branches. Dead and dying needles remaining on the trees give them a scorched appearance. Needles then fall from the trees which can be almost totally defoliated. Exudation of resin at the basis of the needles and necrotic lesions under the bark are also observed. The disease causes the rapid death of young seedlings, and mature trees can be killed after 2 or 3 years of repeated infections. In Chile, it is considered that *P. pinifolia* is the most important problem affecting *P. radiata* plantations, and that it is a serious threat to the local forestry industry.
Dissemination	The life cycle of *P. pinifolia* remains to be studied, and for the moment data is lacking on its means of dissemination. However, as for other *Phytophthora*, it is likely that the disease can be transmitted by infected plants, water, and soil.
Pathway	Plants for planting of *Pinus radiata* from Chile, cut branches? wood? cones? soil?
Possible risks	In Europe, the main forest plantations of *Pinus radiata* are located in Spain (Northwest), but the tree is also grown at a smaller scale in France (south of the Atlantic coast) and the United Kingdom (West Wales, Southwest England, Channel Islands). *P. radiata* is also planted in parks and gardens for ornamental purposes. So far, *P. pinifolia* has only been reported from Chile, but it is suspected that it is an introduced species (severity of damage, rapidity of spread). Although much data is still missing on the biology, host range, control methods, potential of establishment, it is quite clear that *P. pinifolia* can cause extensive tree mortality and hence economic damage. It seems desirable to avoid the

introduction of *P. pinifolia* into the EPPO region, where it could be a threat to *P. radiata* trees growing in forest plantations, nurseries, and amenity areas.

Source(s) Durán A, Gryzenshout M, Slippers B, Ahumada R, Rotella A, Flores F, Wingfield BD, Wingfield MJ (2008) *Phytophthora pinifolia* sp. nov. associated with a serious needle disease of *Pinus radiata* in Chile. *Plant Pathology* **57**(4), 715-727.
Wingfield MJ (2007) A new species of *Phytophthora* associated with dying pine needles in Chile. http://src.fabinet.up.ac.za/tpcp/news/pinifolia.pdf

EPPO RS 2009/006
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2009/007 New species of *Phytophthora*

In recent studies, the following new species of *Phytophthora* have been described.

- *Phytophthora austrocedrae* **isolated from** *Austrocedrus chilensis* **in Argentina**

In Argentina, widespread mortality has been observed for many years in Patagonia on trees of *Austrocedrus chilensis* (Cupressaceae – Cordilleran cypress) but its etiology remained unclear. The disease (called 'mal del cipres' or 'secamiento del cipres') was first noticed in 1984 on Victoria Island (Nahuel Haupi National Park). It was then observed throughout the natural range of *A. chilensis* in forests (Andean foothills) and also in cities where it was planted for ornamental purposes. The disease was more particularly present in poorly drained areas (Filip and Rossa, 1999). In recent studies, a new *Phytophthora* species, called *Phytophthora austrocedrae* sp. nov. could be isolated from necrotic lesions on stems and roots of *A. chilensis* affected by the disease. Although pathogenicity tests to fulfil Koch's postulates are still under way, evidence gathered suggested that *P. austrocedrae* is the primary cause of the disease. Further studies will be made to better understand the geographical distribution of *P. austrocedrae* in Argentina and better characterize the associated symptomatology (Greslebin *et al*., 2007).

- *Phytophthora frigida* **and** *P. alticola* **isolated from eucalyptus in South Africa**

Studies were carried out in South Africa to determine the cause of collar and root rots which are currently being observed in plantations of cold-tolerant eucalyptus species. Several *Phytophthora* species (i.e. *P. boehmeriae, P. cinnamomi* and *P. nicotianae*) are known to be associated with collar and root rot of eucalyptus in South Africa, but it was still unclear if other species (possibly invasive) were also involved. As a result of these studies, two new *Phytophthora* species could be isolated from diseased eucalyptus and were called *Phytophthora frigida* sp. nov. and *Phytophthora alticola* sp. nov. Pathogenicity tests carried out in the field on *Eucalyptus dunnii*, showed that they were less pathogenic than *P. cinnamomi* (Maseko *et al*., 2007).

- *Phytophthora quercetorum* **isolated from oak forest soils in the USA**

In the USA, a survey was conducted in 2004 and 2005 in oak forests to determine *Phytophthora* species present. Seven species were detected, of which three appeared to be undescribed taxa. The second most common species isolated during the survey was described and called *Phytophthora quercetorum* sp. nov. This new species was isolated from rhizosphere soils collected around the base of mature oak trees in 6 US states (Maryland, Minnesota, Ohio, Pennsylvania, Wisconsin, West Virginia). It is not known whether this new *Phytophthora* species can cause diseases on oak trees. However preliminary pathogenicity tests suggest that it has the potential to affect the root system and thus may play a role in oak decline (Balci *et al*., 2008).

Source: Balci Y, Balci S, Blair J, Park SY, Kang S, Macdonald WL (2008) *Phytophthora quercetorum* sp. nov., a novel species isolated from eastern and north-central USA

oak forest soils. *Mycological Research* **112**(8) 906-916.
Filip GM, Rosso PH (1999) Cypress mortality (mal del cipres) in the Patagonian Andes: comparisons with similar forest diseases and declines in North America. *European Journal of Forest Pathology* **29**(2), 89-96.
Greslebin AG, Hansen EM, Sutton W (2007) *Phytophthora austrocedrae* sp. nov., a new species associated with *Austrocedrus chilensis* mortality in Patagonia (Argentina). *Mycological Research* **111**(3), 308-316.
Maseko B, Burgess TI, Continho TA, Wingfield MJ (2007) Two new *Phytophthora* species from South African Eucalyptus plantations. *Mycological Research* **111**(11), 1321-1338.

Additional key words: new pests **Computer codes:** PHYTSP, AR, US, ZA

2009/008 'Molecular tool box' for the identification of fifteen *Phytophthora* species

A PCR-based 'molecular tool box' has been developed to identify the following 15 *Phytophthora* species which occur in forest and other natural ecosystems: *P. cactorum*, *P. cambivora*, *P. cinnamomi*, *P. citricola*, *P. europaea*, *P. ilicis*, *P. inundata*, *P. kernoviae* (EPPO Alert List), *P. lateralis* (EPPO A1 List), *P. megasperma*, *P. nemorosa*, *P. pseudosyringae*, *P. psychrophila*, *P. quercina* (formerly EPPO Alert List), *P. ramorum* (EPPO Alert List). It was not possible to include *P. alni* (formerly EPPO Alert List) in this study because of its complex genetics. All primers were developed around a fragment of the *Ypt*1 gene. This new molecular method enabled the detection of all 15 *Phytophthora* species in leaf, soil and water samples. However, for soil and water samples nested PCR tests were necessary due to the low concentrations of *Phytophthora* in these types of samples. It is concluded that this new 'molecular tool box' is a useful method for detailed surveys of *Phytophthora* species in a variety of habitats and that more species could be included in the future. Finally, it is noted that *P. ramorum* and *P. kernoviae* were detected in a number of naturally infected leaves collected in England and Wales.

Source: Schena L, Duncan JM, Cooke DEL (2008) Development and application of a PCR-based 'molecular tool box' for the identification of *Phytophthora* species damaging forests and natural ecosystems. *Plant Pathology* **57**(1), 64-75.

Additional key words: diagnostics **Computer codes:** PHYTKE, PHYTLA, PHYTQU, PHYTRA, PHYTSP

2009/009 *Cylindrocladium buxicola* found again in Austria in 2008

In 2008, the presence of *Cylindrocladium buxicola* (formerly EPPO Alert List) was reported for the first time in Austria on *Buxus* plants, in a private garden in Vienna (EPPO RS 2008/203). Another finding was made later in 2008, in a nursery in Steiermark (Styria). All infected *Buxus* plants were immediately destroyed. It was not possible to identify the origin of this outbreak.
The pest status of *Cylindrocladium buxicola* in Austria is officially declared as follows: **Local outbreak, eradicated.**

Source: NPPO of Austria, 2008-12.

Additional key words: detailed record **Computer codes:** CYLDBU, AT

2009/010 Citrus leprosis virus no longer occurs in the USA

Citrus leprosis is an important disease in South and Central America where it causes economic losses in citrus orchards (e.g. in Brazil and Argentina). The main symptoms include lesions on leaves, fruit, and twigs, causing premature fruit drop, defoliation and death of twigs or small branches leading to serious tree decline. In addition, the disease is always associated with the presence of mites. Until the 1990s, the absence of systemic infection and the failure to transmit leprosis by either grafting or mechanical means led to suppose that it was caused by mite salivary toxins. It was then demonstrated that the disease was caused by Citrus leprosis virus (unassigned *Rhabdovirus*, CiLV – EPPO A1 List) and that it was transmitted by mites in the genus *Brevipalpus* (Acari: Tenuipalpidae), in particular by *Brevipalpus californicus, B. phoenicis,* and *B. obovatus*.

In the USA, citrus leprosis was only recorded in Florida[1)] where it nearly destroyed the Florida citrus industry prior to 1925, according to reports published from 1906 to 1968. This was supported with pictures showing the typical symptoms of the disease. However, since the 1960s the disease has not been observed in Florida. More recently, a study showed that CiLV no longer occurred in Florida and could not be detected in the citrus-growing areas of Texas (Childers *et al*., 2003). Samples showing suspect symptoms were collected in 1997 from Florida (orange and grapefruit leaves) and from Texas in 1999 and 2000 (grapefruit and orange fruits). These tissue samples were observed in transmission electron microscopy and no virus particles were observed. In 2001 and 2002, 24 555 orange trees (*Citrus sinensis*) were inspected across Florida and no symptoms were observed. The authors concluded that citrus leprosis no longer exists in Florida and remains absent from Texas based on: 1) lack of leprosis symptoms on leaves, fruit, and twigs in citrus crops surveyed, 2) failure to find virus particles or inclusion bodies in suspect samples, 3) absence of any other documented reports on the presence of characteristic leprosis symptoms. Although it is not known exactly why CiLV is no longer found in Florida, it is supposed that the following factors contributed to its disappearance by breaking the virus-mite vector cycle of the disease: 1) several frost periods between 1934 and 1962, 2) successful control of mite vectors (extensive use of wettable sulfur until the early 1960s combined with pruning of leprosis-infected branches and use of more resistant cultivars). Finally, USDA-APHIS confirmed to the EPPO Secretariat that active surveillance was continuing in the US citrus-growing areas (using survey methodologies developed by USDA-ARS), and that all survey results to date were negative for CiLV.

The situation of Citrus leprosis virus in the USA can be described as follows: **Absent, the disease was observed in the past in Florida (until the 1960s) but is no longer found.**

1) According to Rodrigues *et al*. (2003) there is an old record of leprosis in Mississippi in 1923 but the disease has not been reported since.

Source: Childers CC, Rodrigues JC, Derrick KS, Achor DS, French JV, Welbourn WC, Ochoa R, Kitajima EW (2003) Citrus leprosis: its status in Florida and Texas: past and present. *Experimental and Applied Acarology* **30**, 181–202.
Chung KR, Brlansky RH (2006) Citrus diseases exotic to Florida: Citrus leprosis. Fact Sheet PP-226. University of Florida, IFAS Extension, 3 pp. http://edis.ifas.ufl.edu/pdffiles/PP/PP14800.pdf
Rodrigues JCV, Kitajima EW, Childers CC, Chagas CM (2003) Citrus leprosis virus vectored by *Brevipalpus phoenicis* (Acari: Tenuipalpidae) on citrus in Brazil. *Experimental and Applied Acarology* **30**, 161-179.
NAPPO Phytosanitary Alert System. Pest Alert of 2001-03-21. Citrus leprosis virus (CiLV) Bitancourt. http://www.pestalert.org/viewArchPestAlert.cfm?rid=46&keyword=leprosis
Personal communication with H. Hartzog, APHIS-USDA (2009-01).

Additional key words: absence **Computer codes:** CILV00, US

2009/011 First report of *Tomato spotted wilt virus* and *Pepino mosaic virus* in Ecuador

In 9 departments of Ecuador, a survey for the presence of viruses was carried out in several asymptomatic *Lycopersicon* species: several wild populations of *L. hirsutum, L. parviflorum, L. pimpinellifolium* and cultivated *L. esculentum* (tomato). Collected samples were serologically tested for the presence of *Tomato spotted wilt virus* (*Tospovirus,* TSWV – EPPO A2 list), *Tomato mosaic virus* (*Tobamovirus,* ToMV), *Tobacco mosaic virus* (*Tobamovirus,* TMV), *Cucumber mosaic virus* (*Cucumovirus,* CMV), *Potato Y virus* (*Potyvirus,* PVY), *Potato X virus* (*Potexvirus,* PVX), *Groundnut ringspot virus* (*Tospovirus,* GRSV), *Tomato chlorosis spot virus* (*Tospovirus,* TCSV) and *Pepino mosaic virus* (*Potexvirus,* PepMV). In positive samples, the presence of viruses was confirmed by RT-PCR with virus-specific primers. In this survey, TMV, PVY, PVX, GRSV and TCSV were not detected. *L. pimpinellifolium* was the only species found to be infected with viruses (ToMV, CMV, TSWV and PepMV). TSWV was found in Manabí department in one plant. The EPPO Secretariat had previously no data on the presence of TSWV in Ecuador. PepMV was found in samples from the departments of Manabí, Esmeraldas, Guayas (along the Pacific coast). No infected plants were found in samples collected in eastern Ecuador (departments of Azuay, Carchí, El Oro, Imbabura, Loja, Pichincha). According to the authors, this is the first report of PepMV in Ecuador, and the first report of *L. pimpinellifolium* as a natural host for this virus.
The situation of both *Tomato spotted wilt virus* and *Pepino mosaic virus* in Ecuador can be described as follows: **Present, found in wild** *Lycopersicon pimpinellifolium* **along the Pacific coast.**

Source: Soler S, López C, Nuez F (2005) Natural occurrence of viruses in *Lycopersicon* spp. in Ecuador. *Plant Disease* **89**(11), p 1244.

Additional key words: new records **Computer codes:** TSWV, PEPMV0, EC

2009/012 First record of *Tomato chlorosis* virus in Cuba

In Cuba, whitefly-transmitted viruses have caused severe losses in tomato crops (*Lycopersicon esculentum*) during the last decades. In 2006 and 2007, high population levels of *Bemisia tabaci* biotype B were observed across the eastern part of Cuba, as well as some tomato plants showing virus symptoms (interveinal chlorosis, severe yellow mosaic and leaf brittleness). 31 symptomatic samples were collected and tested (PCR assays, sequencing, dot-blot hybridization). Results showed that 16 samples were infected by *Tomato chlorosis virus* (*Crinivirus*, ToCV – EPPO A2 List), 4 by *Tomato yellow leaf curl virus* (*Begomovirus*, TYLCV – EPPO A2 List) and 8 by both viruses (3 samples were negative). This is the first report of ToCV in Cuba.
The situation of *Tomato chlorosis virus* in Cuba can be described as follows: **Present, detected in 2006/2007 on a small number of symptomatic tomato samples.**

Source: Martínez-Zubiaur Y, Fiallo-Ollivé E, Carrillo-Tripp J, Rivera-Bustamante R (2008) First report of *Tomato chlorosis virus* infecting tomato in single and mixed infections with *Tomato yellow leaf curl virus* in Cuba. *Plant Disease* **92**(5), p 836.

Additional key words: new record **Computer codes:** TOCV00, CU

2009/013 *Tomato infectious chlorosis virus* detected in lettuce and escarole in Italy

In 2005 and 2006, a severe disease of lettuce (*Lactuca sativa* var*. longifolia*) and escarole (*Cichorium endivia* var*. latifolium*) was observed in some protected and outdoor crops in the region of Calabria, Southern Italy. Affected plants showed interveinal yellowing, mainly of the oldest leaves. In all instances, diseased lettuce and escarole were close to other protected crops (mainly tomato crops) affected by a yellowing disease and heavily infested by *Trialeurodes vaporariorum*. PCR tests revealed the presence of *Tomato infectious chlorosis virus* (*Crinivirus*, TICV – EPPO A2 List). In an extensive survey carried out in 2006, TICV was detected in 92% of the tested samples of lettuce and in 89% of the escarole samples. *Tomato chlorosis virus* (*Crinivirus*, ToCV, EPPO A2 List) was not detected. The author noted that this is the first time that TICV is reported on lettuce in Italy, and the first time that it is found on escarole.

Source: Parrella G (2008) Interveinal yellowing caused by *Tomato infectious chlorosis virus* in lettuce and escarole in Southern Italy. *Journal of Phytopathology* **156**(3)190-192.

Additional key words: detailed record, host plants **Computer codes:** TICV00, IT

2009/014 *Tomato infectious chlorosis virus* occurs in Sicilia, Italy

In Sicilia (Italy), prior to 2007 *Tomato chlorosis virus* (*Crinivirus*, ToCV – EPPO A2 List) was reported to occur in association with symptoms of interveinal leaf mottling and yellowing. Although *Trialeurodes vaporariorum* is widespread in Sicilia, *Tomato infectious chlorosis virus* (*Crinivirus*, TICV - EPPO A2 List) had not been detected at this time. In spring 2007, tomato samples, showing interveinal yellowing of older leaves, combined with thickening and brittleness, were collected in several glasshouses in the province of Ragusa and tested for the presence of criniviruses. Molecular tests (PCR, sequencing) confirmed the presence of both ToCV and TICV (in single or mixed infections). This is the first report of TICV in Sicilia.

Source: Davino S, Meneghini M, Boccongeli C, Di Modica G, Tomassoli L (2007) Yellowing viral disorder in tomato: occurrence of *Tomato infectious chlorosis virus* in Sicily. *Journal of Plant Pathology* **89**(3, supplement), S37.

Additional key words: detailed record **Computer codes:** TICV00, IT

2009/015 Real-time PCR to detect *Xanthomonas fragariae* in plant tissues

A new real-time PCR assay has been developed in the USA for the detection of *Xanthomonas fragariae* (EPPO A2 List). Three sets of primers and probes were developed and optimal reaction conditions were determined for the detection of *X. fragariae* in plant tissues. Real-time PCR was found more sensitive and more specific than standard PCR and the bacterium could be detected in crown tissue extracts which was not possible with standard PCR. The authors considered that this new real-time PCR assay was particularly useful to detect latent infections of *X. fragariae* in strawberry planting material for certification or quarantine purposes.

Source: Turechek WW, Hartung JS, McCallister J (2008) Development and optimization of a real-time detection assay for *Xanthomonas fragariae* in strawberry crown tissue with receiver operating characteristic curve analysis. *Phytopathology* **98**(3), 359-368.

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

2009/016 The situation of *Alternanthera pungens* in the EPPO region

Alternanthera pungens (Amaranthaceae) is a prostrate herb considered as a weed.

Geographical distribution
EPPO region: Spain.
Africa: South Africa.
Asia: India.
North America: USA (Alabama, Florida, Georgia, Hawaii, New York, South Carolina, Texas, Virginia).
Central America and Caribbean: Puerto Rico.
South America (native): Brazil, Ecuador, Peru, Venezuela.
Oceania: Australia (and listed as a regulated weed in New South Wales, Northern Territory, South Australia, Victoria and Western Australia), New Caledonia, New Zealand, Papua New Guinea.

Note: Within the EPPO region, the species is naturalized in Spain, it colonizes citrus orchards and summer crops in the East of Spain, but is not regarded as an important weed (J Recasens, pers. comm. 2009). In Israel, the species was recorded in the Northern Negev in wet places and was mentioned as "very rare (casual)"by Zohary in 1966. It has not been found in Israel since this record (A. Danin, pers. comm., 2008). In Belgium, the species was introduced as a wool contaminant in 1949 but did not naturalize (Verloove, 2006).

Morphology
A. pungens has a perennial root system and its taproot is often large and woody. Leaves are opposite, ovate to circular, 2-4 cm long and 0.5-1.5 cm wide with a short petiole. Stems have silky hairs and are up to 60 cm long. Flowers are very small, white, and surrounded by spiny bracts. Fruits are prickly burrs of 1-1.5 mm long and seeds are yellowish, glabrous and about 1-2 mm wide. Local spread occurs through the rooting of stems at the nodes, and seeds are spread within spiny bracts that adhere to tyres, clothing and animals.

Habitats
The species grows in grasslands and disturbed places, orchards, summer crops, and prefers sandy soils.

Impacts
A. pungens is considered to be a weed of warm temperate and tropical areas around the world. The plant quickly colonizes bare or disturbed ground and once established, it forms dense and persisting infestations that exclude almost all other vegetation and prevent the regeneration of native species. Aboveground, stems die back during autumn and new shoots grow each spring. The species is considered a "weed", "quarantine weed", and "noxious weed" by the Global Compendium of weeds. Additionally, spines are a problem for dogs and stock but are particularly troublesome to humans as they penetrate skin.

This species could spread within the Mediterranean area of the EPPO region, but it does not seem to present a major risk. Therefore, the EPPO Secretariat decided not to include it in the EPPO Alert List.

Sources: A Global Compendium of Weeds.
http://www.hear.org/gcw/alpha_select_gcw.htm
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Additional key words: invasive alien plant **Computer codes:** ALRRE

2009/017 The situation of *Cotula coronopifolia* in the EPPO region

Cotula coronopifolia (Asteraceae) has been voluntarily introduced for ornamental purposes or for revegetation in many countries, and is also though to have been introduced as a contaminant, probably in sediments and ballast waters. It has shown invasiveness in some countries.

Geographical distribution
EPPO region: Belgium, Denmark, France (including Corsica), Germany, Greece, Italy (including Sardinia), the Netherlands, Norway, Portugal, Spain (including Islas Baleares), Sweden and the United Kingdom.
Africa (native): Namibia, South Africa
North America: Canada (British Columbia, Quebec), USA (Alaska, Arizona, California, Massachusetts, Nevada, Oregon, Washington).
South America: Argentina, Chile.
Oceania: Australia (New South Wales, Queensland, South Australia, Tasmania, Victoria, Western Australia), New Zealand.

Note: within the EPPO region, the species is not considered to be a problem except in Spain, Sardinia, and to a lesser extent in France.

Morphology
C. coronopifolia behaves either as an annual dying during the first autumn frosts (e.g. in Europe), or as a perennial under subtropical conditions. It is an herb that can reach 50 cm in height, the alternate leaves are 2-7 cm long, flower heads are 6-15 mm in diameter and are bright yellow, fruits are achenes of 1-2 mm long. Its yellow flower heads produce small seeds, which are distributed by moving waters, or rarely by birds. Seeds remain viable for 1-2 years. Stems can produce roots at the nodes, allowing the plant to reproduce vegetatively. It is a pioneer plant of bare, wet and nutrient-rich soils. The spread of this plant appears to be relatively slow in California.

Habitats

C. coronopifolia prefers moist habitats, including salt and freshwater marshes, wetlands and vernal pools. It most commonly invades disturbed sites, but can spread into undisturbed sites as well.

Impacts

The plant is considered to able to build up dense populations that crowd out native vegetation. Nevertheless, in California, the state wide impact of *C. coronopifolia* was assessed to be limited by the California Invasive Plant Council (Cal-IPC). The species is considered an "agricultural weed" or "environmental weed" by the Global Compendium of weeds.

Considering the wide distribution of this species in the EPPO region, and the limited impacts reported, the EPPO Secretariat decided not to include it in the EPPO Alert List.

Sources:

A Global Compendium of Weeds.
http://www.hear.org/gcw/alpha_select_gcw.htm

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http://akweeds.uaa.alaska.edu/pdfs/species_bios_pdfs/Species_bios_COCO7.pdf

CalFlora – *Cotula coronopifolia*
http://www.calflora.org/cgi-bin/species_query.cgi?where-calrecnum=2404
http://www.cal-ipc.org/ip/management/plant_profiles/Cotula_coronopifolia.php

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USDA Germplams Resources Information Network – *Cotula coronopifolia*
http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?316639

Weber E (2003) Invasive Plant Species of the World. CABI Publishing Wallingford, (GB) pp. 125.

Additional key words: invasive alien plant **Computer codes:** CULCO

2009/018 New data on *Humulus japonicus* in the EPPO region

Humulus japonicus (= *H. scandens*) (Cannabaceae - EPPO Alert List) has for the first time been found in Serbia (Savic *et al*., 2008).
Additionally, studies have shown that the pollen of *H. japonicus* is allergenic, and this species has been known as one of the important causes of pollen allergy in Korea and China (Park *et al*., 1999).

Source: Park J W, Ko S H, Kim C W, Jeoung B J & Hong C S (1999) Identification and characterization of the major allergen of the *Humulus japonicus* pollen - *Clinical and Experimental Allergy* **29**, 1080-1086.

Savic D, Anackov G & Boza P (2008) New chorological data for flora of the Pannonian region of Serbia - *Central European Journal of Biology* **3**, 461-470.

Additional key words: new record **Computer codes:** HUMJA, RS

2009/019 *Myriophyllum heterophyllum* in the EPPO region: addition to the EPPO Alert List

Myriophyllum heterophyllum (Haloragaceae, common name variable watermilfoil) is an aquatic perennial plant native to the Southeast of the USA. The species is used in aquarium and for ornamental purposes in ponds. Within the EPPO region, its distribution is still limited. Because this plant has shown invasive behaviour where it has been introduced elsewhere in the world and is still limited in the EPPO region, it can be considered an emerging invader in Europe.

Geographical distribution

EPPO region: Austria, Germany, Spain.
North America: Canada (British Columbia, New Brunswick, Ontario, Quebec), USA (Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington, West Virginia, Wisconsin).

Note: there is no consensus on the native distribution of this species, however, USDA considers the species indigenous in Eastern North America (Canada and USA), and exotic in Western North America.

Morphology

M. heterophyllum is a submersed, rooted macrophyte. It has both submerged and emergent leaves growing from a stem up to 3 mm in diameter and 100 cm in length. Stems are dark red to reddish-brown. Submerged leaves are feather-like, green and 2-5 cm long and 2-4 cm wide, dissected into 7-11 leaflets and arranged into whorls of 4-5 leaves. The highly variable emergent leaves develop during late summer and can reach 5-15 cm above the water; they are 0.4-3 cm long and 1.5-5 mm wide. Inflorescence is a spike 5-35 cm long, consisting of flowers in whorls of four. Flowers have 4 stamens and petals are 1.5-3 mm long. Fruits are 1-1.5 mm in length, round, with 4 chambers.

Biology and ecology
Reproduction occurs primarily through vegetative fragmentation and rhizome division, although the plant may also reproduce by seeds remaining in lake and ponds sediments. The flowers and fruits appear from June to September. *M. heterophyllum* over-winters in the frozen lakes of northern climates and can thrive in warm southern water bodies. It has also been found growing under a wide range of water temperatures and chemical conditions: it can be found calcium-rich waters, but tends to prefer acid pH waters. Vegetative parts of the plant may be spread by animals and human activities (e.g. fishing, movement of boats). Waterfowl can also facilitate the spread of the plant by eating seeds.

Habitats
M. heterophyllum's habitats are freshwater ponds, lakes, ditches, standing and slow flowing waters. It can grow in waters up to 1.8 m deep. According to the Corine Land Cover nomenclature, these habitats correspond to "continental waters (water courses, water bodies)".

Pathways
M. heterophyllum is used as an aquarium plant and as an ornamental plant in garden ponds.

Impacts
M. heterophyllum is highly competitive and can grow and spread rapidly, and is able to displace other submerged macrophyte species. It produces dense mats that reduce sunlight and can restrict water movement, and particularly when decomposing, that reduce water quality and available oxygen. The low oxygen conditions can kill fish and harm other aquatic organisms. The dense mats can impede swimming, boating and fishing. Moreover, dense mats along lake shorelines have been reported to reduce property values by 20-40%.
In Eastern USA, the species may hybridize with the native *M. pinnatum*, resulting in a more aggressive hybrid *Myriophyllum heterophyllum x pinnatum*.

Control
Small, recently detected infestations may be successfully eradicated through careful and thorough hand-pulling or using a tarpaulin. Great care should be taken with such methods since they cause fragmentation of the plant and therefore its spread. Dense stands occurring in shallow lakes in Nordrhein-Westfalen (Germany) have been mechanically controlled. Benthic barriers may be used in small areas (swimming beaches, boating lanes, around docks) to restrict light and upward growth. Nevertheless, barriers can have a negative impact on benthic organisms and need to be properly maintained. Drawdown can also be used to control *M. heterophyllum* where applicable, if it is extensive enough to prevent re-growth from seeds, but this control method could have a negative impact on native plants and animals (fish, reptiles, amphibians, etc.).
Herbicide control (e.g. diquat-dibromide and 2,4-D) is recommended in some States of USA to manage this species.
So far, no biological control agents have been identified.

This plant is thought to have the potential to become invasive, especially in shallow lakes and channels accross the whole EPPO region.

Source: Commonwealth of Massachusetts ~ Department of Conservation and Recreation ~ Office of Water Resources ~ Lakes and Ponds Program - Variable Milfoil: An Invasive Aquatic Plant - *Myriophyllum heterophyllum.*
http://www.mass.gov/dcr/waterSupply/lakepond/factsheet/Variable%20Milfoil.pdf
Delivering Invasive Alien Species Inventories for Europe (DAISIE) Database.

http://www.europe-aliens.org/

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Invasive Plant Atlas of New England (IPANE) - *Myriophyllum heterophyllum.* http://nbii-nin.ciesin.columbia.edu/ipane/icat/browse.do?specieId=77

USDA – Plant profile for *Myriophyllum heterophyllum* http://plants.usda.gov/java/profile?symbol=MYHE2

Washington State Noxious Weed Control Board Website http://your.kingcounty.gov/dnrp/library/water-and-land/weeds/Brochures/Myriophyllum-heterophyllum.pdf

Additional key words: invasive alien plant, alert list **Computer codes:** MYPHE

2009/020 World Conference on Biological Invasions and Ecosystem Functioning (BIOLIEF), Porto (PT), 2009-10-27/30

The World Conference on Biological Invasions and Ecosystem Functioning (BIOLIEF) will take place in Porto (PT) on 2009-10-27/30. This conference will focus on biology, ecology and population dynamics of biological invasions, and in particular on the functioning of ecosystems under biological invasions. As many ecosystems and kingdoms as possible will be covered. The deadline to submit an abstract, either for poster or oral communications is 2009-05-31.

Source: World Conference on Biological Invasions and Ecosystem Functioning (BIOLIEF) website http://www.ciimar.up.pt/biolief/

Additional key words: conference, invasive alien species