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CONTENTS

2000/039 Situation of *Erwinia amylovora* in Spain

In Spain, *Erwinia amylovora* (EPPO A2 quarantine pest) was first found in 1995 in País Vasco in the province of Guipúzcoa in an orchard of cider apple (see EPPO RS 96/107). The disease later spread towards the north-east, 25 foci being detected in 1996 and 1997, essentially on cider apple. Fireblight was then found throughout the province of Guipúzcoa.
In 1996, it was detected in Navarra and is now widespread in the north and centre of Navarra where it mainly affects *Pyracantha*. In the north, several foci were found in 10 municipalities located in the valley of Baztán. A similar situation occurs near Pamplona. Active eradication measures prevented the spread of the disease towards the south of Navarra where numerous fruit trees are grown.
In Cataluña, an infected pear tree was intercepted at La Tallada (Girona) in 1997 and was destroyed. No new cases have been reported from this area. In 1998, fireblight was detected in Lérida and 6 foci were found in commercial pear orchards (including one of 10 ha in the municipalities of Torreserona and Corbins), but were successfully eradicated. In 1999 in the same area, eight smaller foci were detected and eradicated in commercial pear orchards. These appeared to be related to the most important foci previously found in 1998. In this case, rapid eradication measures prevented the spread of the disease in this important production area of apples and pears.
In Segovia (Castilla-León), foci of various extent were found in nurseries in 1996 and were eradicated. In Guadalajara (Castilla - La Mancha) in 1998, several foci were found in *Crataegus* and various Rosaceae including fruit trees. These were eradicated but new foci appeared again in 1999. In 1998 and 1999, fireblight was found on *Pyracantha* and eradicated in gardens at Jaca (Huesca, Aragón).
The pattern of appearance of fireblight foci in Spain suggests that in many cases new foci are linked to the introduction of infected plant material. Efforts will continue to limit the spread of the disease.

Source: Montesinos, E.; López, M.M.; Murillo, J. (1999) Importancia y situatión actual del fuego bacteriano (*Erwinia amylovora*) en España. Epidemiología, daños y prevención.
Phytoma-España, no. 114, 128-136.

Additional key words: detailed record **Computer codes:** ERWIAM, ES

2000/040 Details on the situation of *Erwinia amylovora* in Albania

Erwinia amylovora (EPPO A2 quarantine pest) was first detected in Albania in 1995 (EPPO RS 96/074). In 1995, surveys were carried out to determine the extent of the disease and organize eradication programmes and production of propagation material in nurseries. Results showed that *E. amylovora* is present in almost all coastal districts of Albania. The disease was particularly severe in the districts of Berat, Shkodër and Kavajë. Fireblight was absent in areas located at higher altitudes (Elbasan, Librazhd, Pogradec) and only one infected plant was observed in Korçë. During this survey, 10,000 trees were observed (7,000 pear trees, 3,000 apple trees and a few quinces). Sixty plants (58 pear trees and 2 quinces) were found infected.

Source: Cariddi, C.; Paçe, H.; Myrta, A. (1999) [Monitoring of fireblight in Albania]. **Informatore Fitopatologico, 49(11), 40-44.**

Additional key words: detailed record **Computer codes:** ERWIAM, AL

2000/041 Surveys on *Clavibacter michiganensis* subsp. *michiganensis*, *Pseudomonas corrugata* and *Ralstonia solanacearum* in Tanzania

In 1997/1998, surveys carried out on solanaceous crops in southern and northern regions of mainland Tanzania and Zanzibar showed the presence of three wilt pathogens: *Clavibacter michiganensis* subsp. *michiganensis* (EPPO A2 quarantine pest), *Pseudomonas corrugata* and *Ralstonia solanacearum* (EPPO A2 quarantine pest). The EPPO Secretariat had previously no data on the occurrence of *C. michiganensis* subsp. *michiganensis* in Tanzania. The bacterium was isolated from wilting tomato plants in the southern highlands in Lushoto district (Tanga region, north). In addition, it was found in several sources of seeds (farmer-saved seeds and seeds extracted from diseased plants).
In 1998, *Ralstonia solanacearum* was detected for the first time in Zanzibar on tomato and aubergine. It was also detected in other studied regions of Tanzania. In tomatoes, only biovar 3 was detected. On potatoes, biovar 3 was found in mid-altitude fields and biovar 2 (race 3) was found only at altitudes above 1,500 m.

Source: Black, R.; Seal, S. Abubakar, Z.; Nono-Womdim, R.; Swai, I. (1999) Wilt pathogens of Solanaceae in Tanzania: *Clavibacter michiganensis* subsp. *michiganensis*, *Pseudomonas corrugata* and *Ralstonia solanacearum*. **Plant Disease, 83(11), p 1070.**

Additional key words: new record, detailed record **Computer codes:** CORBMI, PSDMSO, TZ

2000/042 Host plants of *Anoplophora glabripennis*

In USA, *Anoplophora glabripennis* (EPPO A1 quarantine pest) was discovered in New York in 1996 (EPPO RS 96/214) and later in Chicago (EPPO RS 98/200). In these cities, it attacks essentially maples (*Acer platanoides*, *A. rubrum*, *A. saccharum*, *A. saccharinum*, *A. negundo*, *A. pseudoplatanus*) and horse chestnut (*Aesculus hippocastanum*). But it can also be found on many other hardwood species: *Betula*, *Populus*, *Salix*, *Ulmus*, *Fraxinus*, *Liriodendron tulipifera*, *Morus alba*, *Robinia pseudoacacia*. In New York, it has been found on rose of Sharon shrubs (*Hibiscus syriacus*). Studies are being done to determine which North American tree species are suitable for larval development and adult maturation feeding. Using 55 plant species from 35 genera, preliminary results showed that adults preferred to feed on *Acer platanoides*, *A. saccharum*, *A. palmatum*, *A. macrophyllum*, *Betula pyrifera*, *B. populifolia*, *Fagus grandifolia*, *Ulmus procera*, *Salix nigra*. But *Citrus*, *Pinus*, *Juglans*, *Liriodendron tulipifera* were not liked. Oviposition and egg development were observed on the following species, but was higher in *Acer saccharum*, *A. platanoides*, *A. circinatum*, *Betula alleghaniensis*, *Liriodendron tulipifera*, *Ulmus americana*; than in: *Acer macrophyllum*, *Alnus rubra*, *Betula nigra*, *Betula populifolia*, *Nyssa sylvatica*, *Populus tremuloides*, *Robinia pseudoaccacia*, *Salix babylonica*, *Sassafras albidum*, *Ulmus procera*. It is not yet quite clear which are the trees on which *A. glabripennis* most successfully completes its life cycle. In addition, it remains (fortunately) contained within city areas and there is no experience of how it might behave in natural forests.

In China, *A. glabripennis* is mainly a pest of poplar (*Populus*) plantations. The major hosts are species and hybrids of section Aegeiros of the genus *Populus*: *P. nigra*, *P. deltoides*, *P.* x *canadensis* and the Chinese hybrid *P. dakhuanensis*. These poplars have been very widely planted in China in recent decades, which has favoured the multiplication and spread of *A. glabripennis*. Some poplars of the other sections of the genus (Alba and Tacamahaca) are also attacked, but are only slightly susceptible (Li & Wu, 1993). *Salix* spp. (*S. babylonica*, *S. matsudana*) are also major hosts. The following host species are mentioned in the literature: *Acer* (e.g. *A. negundo*, *A. truncatum*), *Alnus*, *Malus*, *Morus*, *Platanus*, *Pyrus*, *Robinia*, *Rosa*, *Sophora japonica*, *Ulmus* (e.g. *U. parvifolia*, *U. pumila*). These trees are either grown in plantations or as city trees. There is no indication that *A. glabripennis* is a pest of natural forests in China (e.g. in Manchuria).

Source:

Personal communication with Dr Kathleen Shields, USDA, Forest Service, Insect Biocontrol Research Unit Hamden, Connecticut, 1999-11.

Anoplophora glabripennis on INTERNET
http://www.ceris.purdue.edut/napis/pests/alb/albintro.html (NAPIS)
http://www.ctwoodlands.org/Summer/beetle.html (New exotic tree-infesting longhorn beetle invades New York, by Carol Lemmon).

Gao, R.T.; Zheng, S.K. (1997) Control of three kinds of poplar longicorn using adult feeding habits. **Journal of-Beijing Forestry University, 20(1), 43-48 (abst).**

He, P.; Huang, J.F. (1993) Adult behaviour of *Anoplophora glabripennis*. **Acta Entomologica Sinica, 36(1), 51-55 (abst)**.

Jiang, S.D.; Wang, G.X.; Zhang, Z.Z.; Li, Y.Z. (1991) A preliminary study on the control of some stem borers of trees using microwave technology. **Forest Pest and Disease, No. 1**, **20-22 (abst).**

Li E & Wu C (1993) [Integrated management of longhorn beetles damaging poplar trees.] **China Forest Press, Beijing (CN) (in Chinese).**

Qin, X.X.; Gao, R.T.; Li, J.Z.; Hao, W.Q.; Liu, K.J. (1985) A preliminary investigation on the resistance of different clones of poplars to *Anoplophora glabripennis* (Motsch.). **Scientia Silvae Sinicae, 21(3), 310-314 (abst).**

Sun, J.Z.; Zhao, Z.Y.; Ru, T.Q.; Qian, Z.G,; Song, X.J. (1990) Control of *Anoplophora glabripennis* by using cultural methods. **Forest Pest and Disease., No. 2, 10-12 (abst).**

Tang, H.; Shao, C.B.; Ma, G.H.; Liu,Y.I. (1996) The natural population life table of *Anoplophora glabripennis* on *Ulmus pumila*. **Journal of Northwest Forestry College 11(4), 45-49 (abst).**

Wang, J.; Zhou, Z.Y. (1994) Studies on resistance mechanisms of poplar clones to *Anoplophora glabripennis*. **Journal of Beijing Forestry University, 16(3), 48-53 (abst).**

Additional key words: host plants **Computer codes:** ANOLGL

2000/043 Soilborne wheat mosaic diseases: new viruses are being described

Soilborne wheat mosaic diseases can be caused by different viruses. The main viruses involved are soilborne wheat mosaic bymovirus and wheat spindle streak mosaic bymovirus (closely related or identical to wheat yellow mosaic bymovirus) which are transmitted by the soil-inhabiting fungus *Polymyxa graminis* and occur in many countries from various parts of the world.

In France, these two viruses are present, essentially in the south-east of Paris Basin, region Centre, Gard, and south of Brittany. Resistant wheat cultivars can be grown in infested areas, and so far no resistant-breaking strains have been observed. In 1999 in département of Aube, mosaic symptoms were observed on resistant cultivars (*Triticum aestivum* cvs. Sponsor, Charger). Electron microscopy revealed the presence of a virus, which is serologically distinct from soilborne wheat mosaic and wheat spindle streak mosaic bymoviruses. The field distribution of the disease suggested soil transmission, but so far, *Polymyxa graminis* was not detected in roots of infected plants. Virus vector nematodes were not found. This apparently new virus has tentatively been called Aubiane wheat mosaic virus.

The authors noted that other new wheat mosaic viruses are being found in other countries. They mentioned the occurrence of a virus called soilborne rye mosaic virus in Germany, which is transmitted by *P. graminis* and of a unnamed virus found in England. Concerning the latter, Clover *et al*. (1999) explained that an unknown disease of wheat has been observed on winter wheat (cv. Riband) in a crop in Bedfordshire in England, since 1995. A virus was found to be associated with diseased plants. It is morphologically similar to soilborne wheat mosaic bymovirus but serologically distinct. This new virus is seed-transmitted and its distribution pattern in the field suggested soil transmission but vectors are not known.

Finally, it can be recalled that a new soilborne virus has also been described in China and called wheat China mosaic virus (EPPO Alert List).

Source: Clover, G.R.G; Hugo, S.A.; Harju, V.A.; Wright, D.M.; Henry, C.M. (1999) Preliminary investigations of an uncharacterized virus of winter wheat (*Triticum aestivum* L.) in England.
Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz, 106(3), 275-283 (abstract).

Hariri, D.; Fouchard, M.; Gelie, B.; Lapierre, H. (1999) Mosaïques sur blé: mise en évidence d'un nouveau virus.
Phytoma - La Défense des Végétaux, no. 519, 21-22.

Additional key words: new pests **Computer codes:** DE, FR, GB

2000/044 Virus diseases of almond in Western Anatolia (Turkey)

Turkey is an important producer of almonds; among Mediterranean countries it is the second largest producer after Spain. Western Anatolia produces 25% of total Turkish production. Surveys were done in 1992 and 1993 in three districts of Western Anatolia (Aydýn, Balýkesir and Ýzmir) on virus diseases of almond. State and commercial nursery plantations of almond were surveyed (19,300 almond trees in 1992 and 19,000 in 1993), and leaf samples were collected and tested by DAS-ELISA (56 samples in 1992 and 40 in 1993). During this survey, the main virus symptoms observed were chlorotic and necrotic spots, calico, mosaic, narrowing and deformation of leaves, gummosis, weak growth, dwarfing and short internodes of the trees. The following viruses were detected: prunus necrotic ringspot ilarvirus, prune dwarf ilarvirus, raspberry ringspot nepovirus, peach rosette mosaic nepovirus (EPPO A1 quarantine pest) and tomato ringspot nepovirus (EPPO A2 quarantine pest). The most commonly detected was prunus necrotic rinspot ilarvirus and then prune dwarf ilarvirus. Few samples were infected by peach rosette mosaic nepovirus, and very few by tomato ringspot nepovirus.

Note: The EPPO Secretariat had previously no data on the occurrence in Turkey of peach rosette mosaic nepovirus, which was so far not considered as present in Europe. A publication from Awad *et al*. (1997) mentions its presence in Egypt on peach trees in Qualubia.

Source: Azerý, T.; Çýçek, Y. (1997) Detection of virus diseases affecting almond nursery trees in Western Anatolia (Turkey).
Bulletin OEPP/EPPO Bulletin, 27(4), 547-550.

Awad, M.A.E.; Ibrahem, L.M.; Aboul-Ata, A.E.; Ziedan, M.; Mazyad, H.M.; Abdel-Aziz, E.; Mansour, N. (1998) Virus-free plum and peach mother plant production in Egypt.
Acta Horticulturae, no. 472, 531-536.

Additional key words: new record, detailed record **Computer codes:** PCRMXX, TMRSXX, EG, TR

2000/045 Details on citrus tristeza closterovirus in Turkey

Although the purpose of a study carried out in the Eastern Mediterranean Region of Turkey was to compare immunoprinting to ELISA in detecting citrus tristeza closterovirus (EPPO A2 quarantine pest), it also showed that the virus is present in this region. Positive samples were found in the Provinces of Hatay and Icel.

Source: Yilmaz, M.A.; Baloglu, S. (1998) Detection of CTV by immunoprinting in the Eastern Mediterranean Region of Turkey. In: Proceedings of the Mediterranean Network on Certification of Citrus, 1995-1997. **Options Méditerranéennes, series B 21, CIHEAM publications, 129-133.**

Additional key words: detailed record **Computer codes:** CSTXXX, TR

2000/046 Begomoviruses of solanaceous crops: Additions to the EPPO Alert List

The overall importance of diseases caused by geminiviridae transmitted by *Bemisia tabaci* to solanaceous crops is obvious as severe crop losses are reported from many parts of the world, but it is still very difficult to assess the relative importance of the various pathogens involved. In many instances, the emergence of these diseases is associated with the evolution of *B. tabaci* populations, and in particular with the spread of the B biotype (also referred to as *B. argentifolii*). Although the significance of some begomoviruses is clearly visible, e.g. tomato mottle (EPPO A1 quarantine pest) and tomato yellow leaf curl (EPPO A2 quarantine pest), for the majority of other begomovirus species the situation remains extremely complex. Various reasons can be given: similarity of symptoms, partial characterization of virus species (mainly on molecular characteristics), relationships among many begomovirus species still unknown, apparently very limited geographical distribution for some species, occurrence of mixed infections, epidemiological situation still evolving (linked to *B. tabaci* populations, cultivated or wild host plants). The EPPO Secretariat has tried to gather some information on best characterized begomoviruses of solanaceous crops, acknowledging that for many of them data is lacking, in particular on economic importance. Many of these viruses were briefly mentioned in the data sheet on tomato mottle begomovirus in the 2nd edition of *Quarantine Pests for Europe*. They are here given individual treatment as entries in the EPPO Alert List.

Chino del tomate begomovirus

Why	Chino del tomate begomovirus came to our attention as causing an emerging disease of tomato and capsicum in the Americas.
Where	Symptoms of Chino del tomate have been observed in cultivated tomato fields in Sinaloa, Mexico, since the 1970s (Brown & Nelson, 1988). The virus was later found in other Mexican states: Chiapas, Morelos and Tamaulipas. Recently, it was also found in glasshouse tomatoes in Sonora (Idris *et al*., 1999). Its presence is also reported in Texas, USA (internet). Chino del tomate begomovirus is sometimes found in mixed infection with pepper huasteco and Texas pepper begomovirus. Distribution: Mexico (Chiapas, Morelos, Sinaloa, Sonora, Tamaulipas), USA (Texas).
On which plants	Capsicum (*Capsicum annuum*) and tomato (*Lycopersicon esculentum*).The weed *Malva parviflora* (Malvaceae) is also mentioned as a natural host plant.
Damage	It was reported that in the west coast of Sinaloa, the disease could affect 100 % tomato plants in the field (Brown & Nelson, 1988). Symptoms are characterized by curling, rolling of leaves, thickening of veins, yellow mosaic, stunting, reduction of fruit set.
Transmission	Transmitted by *Bemisia tabaci*. Not transmitted by seed or by contact between plants.
Note	Tomato leaf crumple which was described in Sinaloa, Mexico, by Paplomatas *et al*. (1994) is now considered as a strain of Chino del tomate begomovirus (Torres-Pacheco *et al*., 1996).
Pathway	Infected tomato and capsicum plants, fruits?, viruliferous *B. tabaci* from countries where Chino del tomate begomovirus occurs.
Possible risks	Tomato and capsicum are important crops in the EPPO region, both indoor and outdoor. Disease significance appears to be rather high on tomato crops, symptoms are sometimes reported to be severe (no data for capsicum?). The vector is present in many parts of the EPPO region.
Source(s)	Brown, J.K.; Nelson, M.R. (1988) Transmission, host range and virus-vector relationships in chino del tomate virus, a whitefly-transmitted geminivirus from Sinaloa, Mexico. Plant Disease, 72(10), 866-869. Idris, A.M.; Lee, S.H.; Brown, J.K. (1999) First report of Chino del tomate and pepper huasteco geminiviruses in greenhouse-grown tomato in Sonora, Mexico. Plant Disease, 83(4), p 396. Paplomatas, E.J.; Patel, V.P.; Hou, Y.M.; Noueiry, A.O.; Gilbertson, R.L. (1994) Molecular characterization of a new sap-transmissible bipartite genome geminivirus infecting tomatoes in Mexico. Phytopathology, 84(10), 1215-1224. Polston, J.E.; Anderson, P.K. (1997) The emergence of whitefly-transmitted geminiviruses in tomato in the Western Hemisphere. Plant Disease, 81(12), 1358-1369. Torres-Pacheco, I.; Garzón-Tiznado, A.; Brown, J.K.; Bercerra-Flora, A.; Rivera-Bustamante, F.R. (1996) Detection and distribution of geminiviruses in Mexico and the Southern United States. Phytopathology, 86, 1186-1192. INTERNET GEMINI DETECTive Web site by Dr. Judith Brown, University of Arizona and Dr. Stephen D. Wyatt, Washington State University (US) http://ipmwww.ncsu.edu/nipmn/GEMINI/descriptions/CDTV.html (description and pictures)

EPPO RS 95/043, 98/044, 99/178, 2000/046

Panel review date - Entry date 2000-03

Pepper huasteco begomovirus

Why	Pepper huasteco begomovirus came to our attention as causing an emerging disease of capsicum and tomato in the Americas.
Where	Pepper huasteco begomovirus was first reported on capsicum (Garzón-Tiznado, 1993), in a region called Las Huastecas in northern Mexico (Tamaulipas state). It is reported to occur in Guanajuato, Quintana Roo, Sinaloa, and also in Rio Grande valley in Texas (USA) (Torres-Pacheco *et al.*, 1996). Recently, it was also found in glasshouse tomatoes in Sonora (Idris *et al*., 1999). Pepper huasteco begomovirus is sometimes found in mixed infection with Chino del tomate and Texas pepper begomovirus. Distribution: Mexico (Guanajuato, Quintana Roo, Sinaloa, Sonora, Tamaulipas), USA (Texas).
On which plants	Capsicum (*Capsicum annuum*), but also tomato (*Lycopersicon esculentum*).
Damage	According to Guevara-Gonzalez *et al.* (1999), pepper huasteco begomovirus is widely distributed in horticultural areas in Mexico and southern USA, and is probably the most

	important begomovirus affecting Mexican agriculture. Symptoms are characterized by chlorotic mottle, leaf rolling, leaf distortion.
Transmission	Transmitted by *Bemisia tabaci*.
Pathway	Infected tomato and capsicum plants, fruits?, viruliferous *B. tabaci* from countries where pepper huasteco begomovirus occurs.
Possible risks	Tomato and capsicum are important crops in the EPPO region, both indoor and outdoor. Among begomoviruses of tomato and capsicum, pepper huasteco begomovirus is reported as the most serious one in Mexico, but actual data on its severity and extent in the field is lacking. The vector is present in many parts of the EPPO region.
Source(s)	Garzón-Tiznado, J.A.; Torres-Pacheco, I.; Ascencio-Ibanez, J.T.; Herrera-Estrella, L.; Rivera-Bustamante, R.F. (1993) Inoculation of peppers with infectious clones of a new geminivirus by a biolistic procedure. Phytopathology, 83(5), 514-521. Guevara-Gonzalez, R.G.; Ramos, P.L.; Rivera-Bustamante, R.F. (1999) Complementation of coat protein mutants of pepper huasteco geminivirus in transgenic tobacco plants. Phytopathology, 89, 540-545. Idris, A.M.; Lee, S.H.; Brown, J.K. (1999) First report of Chino del tomate and pepper huasteco geminiviruses in greenhouse-grown tomato in Sonora, Mexico. Plant Disease, 83(4), p 396. Torres-Pacheco, I.; Garzón-Tiznado, A.; Brown, J.K.; Bercerra-Flora, A.; Rivera-Bustamante, F.R. (1996) Detection and distribution of geminiviruses in Mexico and the Southern United States. Phytopathology, 86, 1186-1192.
EPPO RS 98/044, 99/178, 2000/046	
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<u>Pepper mild tigre begomovirus</u>

Why	Pepper mild tigre begomovirus came to our attention as causing an emerging disease of capsicum and tomato in the Americas. It was first described by Brown *et al*. (1989) on capsicum from Mexico.
Where	Mexico (Sinaloa, Tamaulipas), USA (Texas).
On which plants	*Capsicum annuum* (cvs Jalapeno and Serrano). Tomato (*Lycopersicon esculentum*).
Damage	Capsicum: mild interveinal chlorosis, veinal distortion and mild stunting. Tomato: leaf curling, mild interveinal chlorosis and moderate stunting.
Transmission	Transmitted by *Bemisia tabaci*.
Pathway	Infected capsicum and tomato plants, fruits?, viruliferous *B. tabaci* from countries where pepper mild tigre begomovirus occurs.
Possible risks	Tomato and capsicum are important crops in the EPPO region, both indoor and outdoor. The vector is present in many parts of the EPPO region. Data is lacking on disease severity and extent. Very little data is available in the literature.
Source(s)	Brown, J.K.; Campodonico, O.P.; Nelson, M.R. (1989) A whitefly-transmitted geminivirus from peppers with tigre disease. Plant Disease, 73(7), p 610. INTERNET GEMINI DETECTive Web site by Dr. Judith Brown, University of Arizona and Dr. Stephen D. Wyatt, Washington State University (US) http://ipmwww.ncsu.edu/nipmn/GEMINI/descriptions/PMTV.html (description and pictures) VIDE database http://biology.anu.edu.au/Groups/MES/vide/descr600.htm (Pepper mild tigré bigeminivirus)
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<u>Potato yellow mosaic begomovirus</u>

Why	Potato yellow mosaic begomovirus came to our attention as causing an emerging disease of potato and tomato in the Americas.
Where	Potato yellow mosaic was first described in Venezuela in 1986 on potatoes (Roberts *et al.*, 1986). A very similar virus was found on tomato crops in Venezuela (Guzman <u>*et al*</u>., 1997). These findings were considered as strains or tomato-infecting isolates of potato yellow mosaic virus. Potato yellow mosaic begomovirus was found on tomato crops in the Caribbean: in Guadeloupe (1992), Martinique (1993), Puerto Rico (1994) (Polston *et al*., 1998), Trinidad and Tobago (Polston & Anderson, 1997). Distribution: Guadeloupe, Martinique, Puerto Rico, Trinidad and Tobago, Venezuela
On which plants	Potato (*Solanum tuberosum*), tomato (*Lycopersicon esculentum*).

Damage	On potato, it causes a bright yellow mosaic, leaf distortion and stunting. On tomato, it causes chlorotic mottling, leaf distortion, leaf rolling and stunting. Epidemic levels were reported on tomato crops from Guadeloupe and Martinique, as many tomato fields had more than 70 % plants showing symptoms. High incidence was also reported on tomato in Trinidad and Tobago. No indication is given on the significance of the disease on potato crops.
Transmission	Transmitted by *Bemisia tabaci*, and in particular epidemic levels in the Caribbean were associated with *B. tabaci* biotype B.
Note	It is not known whether tomato-infecting isolates can infect potato.
Pathway	Infected potato and tomato plants, potato tubers?, tomato fruits?, viruliferous *B. tabaci* from countries where potato yellow mosaic begomovirus occurs.
Possible risks	Potato and tomato are important crops in the EPPO region. The significance of the disease is unknown on potato, but appears to be rather high on tomato crops. The vector is present in many parts of the EPPO region.
Source(s)	Guzman, P.; Arredondo, C.R.; Emmatty, D.; Portillo, R.J.; Gilbertson, R.L. (1997) Partial characterization of two whitefly-transmitted geminiviruses infecting tomatoes in Venezuela. Plant Disease, 81(3), p 312. Polston, J.E.; Anderson, P.K. (1997) The emergence of whitefly-transmitted geminiviruses in tomato in the Western Hemisphere. Plant Disease, 81(12), 1358-1369. Polston, J.E.; Bois, D.; Ano, G.; Poliakoff, F.; Urbino, C. (1998) Occurrence of a strain of potato yellow mosaic geminivirus infecting tomato in the Eastern Caribbean. Plant Disease, 82(1), p 126. Roberts, E.J.F.; Buck, K.W.; Coutts, R.H.A. (1986) A new geminivirus infecting potatoes in Venezuela. Plant Disease, 70(6), p 603.

EPPO RS 98/044, 2000/046
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Serrano golden mosaic begomovirus

Why	Serrano golden mosaic begomovirus came to our attention as causing an emerging disease of capsicum and tomato in the Americas.
Where	Serrano golden mosaic begomovirus was first reported by Brown & Poulos (1990) in tomato and capsicum crops in Sinaloa (Mexico) and Arizona (USA). On internet, its presence is also reported in Sonora (Mexico) and Texas (USA). Distribution: Mexico (Sinaloa, Sonora), USA (Arizona, Texas).
On which plants	Tomato (*Lycopersicon esculentum*), capsicum (*Capsicum annuunm*). In transmission experiments, the virus can cause symptoms to *Capsicum frutescens*.
Damage	Symptoms on tomato: golden foliar mosaic; on capsicum: yellow mosaic. Fruit deformation. It is reported that in 1989, the disease could affect 80-100 % of the plants in symptomatic fields in Sinoaloa, and that the virus was detected in numerous tomato and pepper samples.
Transmission	Transmitted by *Bemisia tabaci*.
Pathway	Infected tomato and capsicum plants, fruits?, viruliferous *B. tabaci* from countries where Serrano golden mosaic begomovirus occurs.
Possible risks	Tomato and capsicum are important crops in the EPPO region, both indoor and outdoor. Data on severity and extent of the disease is lacking, and very little data is available in the litterature on this virus. The vector is present in many parts of the EPPO region.
Source(s)	Brown, J.K.; Poulos, B.T. (1990) Serrano golden mosaic virus a newly identified whitefly-transmitted geminivirus of pepper and tomato in the United States and Mexico. Plant Disease, 74(9), p720. Polston, J.E.; Anderson, P.K. (1997) The emergence of whitefly-transmitted geminiviruses in tomato in the Western Hemisphere. Plant Disease, 81(12), 1358-1369. INTERNET GEMINI DETECTive Web site by Dr. Judith Brown, University of Arizona and Dr. Stephen D. Wyatt, Washington State University (US) http://ipmwww.ncsu.edu/nipmn/GEMINI/descriptions/SGMV.html (description and pictures)

EPPO RS 98/044, 2000/046
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Sinaloa tomato leaf curl begomovirus

Why	Sinaloa tomato leaf curl begomovirus came to our attention as causing an emerging disease of tomato and capsicum in the Americas.

Where	Sinaloa tomato leaf curl begomovirus was first observed in Sinaloa, Mexico, in tomato and capsicum crops in 1989 (Brown *et al*., 1993). It was then partially characterized by Idris & Brown (1998) and considered as a distinct virus. Recently, it was found in Costa Rica. Symptoms were observed, in October 1998, in tomato plantings near Turrialba, and Sinaloa tomato leaf curl begomovirus was detected in diseased tomato plants (Idris *et al*., 1999). Distribution: Costa Rica, Mexico (Sinaloa)
On which plants	Tomato (*Lycopersicon esculentum*), capsicum (*Capsicum annuum*). Tobacco (*Nicotiana tabacum*) is reported as a natural host. Experimentally, the virus can cause symptomless infection in aubergine (*Solanum melongena*) which is an unusual feature among begomoviruses from the Americas. However, aubergine crops have not been surveyed and it is not known whether the virus can latently be present on them.
Damage	Tomato: foliar curling and chlorosis, unique purpling on the abaxial side of leaves, and shortened internodes. Capsicum: green-yellow foliar mosaic, shortened internodes and stunting. In Sinaloa, the disease is reported as widespread.
Transmission	Transmitted by *Bemisia tabaci*.
Pathway	Infected tomato, capsicum plants and possibly aubergines?, fruits?, viruliferous *B. tabaci* from countries where Sinaloa tomato leaf curl begomovirus occurs.
Possible risks	Tomato and capsicum are important crops in the EPPO region, both indoor and outdoor. The vector is present in many parts of the EPPO region. Data on disease significance in the field is lacking. It is also difficult to appreciate the potential risk presented by latent infections on aubergines.
Source(s)	Brown, J.K.; Idris, A.M.; Fletcher, D.C. (1993) Sinaloa tomato leaf curl virus, a newly described geminivirus of tomato and pepper in west coastal Mexico. Plant Disease, 77(12), p 1262. Idris, A.M.; Brown, J.K. (1998) Sinaloa tomato leaf curl geminivirus: biological and molecular evidence for a new subgroup III virus. Phytopathology, 88(7), 648-657. Polston, J.E.; Anderson, P.K. (1997) The emergence of whitefly-transmitted geminiviruses in tomato in the Western Hemisphere. Plant Disease, 81(12), 1358-1369. Idris, A.M.; Rivas-Platero, G.; Torres-Jerez, I.; Brown, J.K. (1999) First report of Sinaloa tomato leaf curl geminivirus in Costa Rica. Plant disease, 83(3), p 303. INTERNET GEMINI DETECTive Web site by Dr. Judith Brown, University of Arizona and Dr. Stephen D. Wyatt, Washington State University (US) http://ipmwww.ncsu.edu/nipmn/GEMINI/descriptions/STLCV.html (description and pictures)

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Texas pepper begomovirus

Why	Texas pepper begomovirus came to our attention as causing an emerging disease of capsicum and tomato in the Americas.
Where	First described on capsicum in Texas (US) by Stenger *et al*. (1990). The virus is reported in Mexico (Coahuila, Sinaloa, Tamaulipas), Guatemala, USA (Arizona, Texas) (Polston & Anderson, 1997) and also in Costa Rica, Honduras, Tabasco state in Mexico (internet). Distribution: Costa Rica, Guatemala, Honduras, Mexico (Coahuila, Sinaloa, Tabasco, Tamaulipas), USA (Arizona, Texas). Mixed infections with Chino del tomate and pepper huasteco begomoviruses have been found.
On which plants	Capsicum (*Capsicum annuum*), tomato (*Lycopersicon esculentum*). Tobacco (*Nicotiana tabacum*) is also reported as a natural host.
Damage	Symptoms on capsicum are leaf curling, malformation, vein clearing and stunting. Symptoms on tomato are leaf curling, mosaic and stunting. Polston & Anderson (1997) noted that the disease was first seen in Texas in 1987, but outbreaks lasted only for a few years. Nevertheless, the disease was still important in Tamaulipas (Mexico). Little data is available on the incidence of the virus in the field.
Transmission	Transmitted by *Bemisia tabaci*.
Note	The virus tentatively called pepper jalapeño, occurring on capsicum in Sinaloa and other states of Mexico is considered as a strain of Texas pepper begomovirus (Torres-Pacheco *et al*., 1996).
Pathway	Infected tomato and capsicum plants, fruits?, viruliferous *B. tabaci* from countries where Texas pepper begomovirus occurs.

Possible risks	Tomato and capsicum are important crops in the EPPO region, both indoor and outdoor. Data on disease incidence is lacking. The vector is present in many parts of the EPPO region.
Source(s)	Polston, J.E.; Anderson, P.K. (1997) The emergence of whitefly-transmitted geminiviruses in tomato in the Western Hemisphere. Plant Disease, 81(12), 1358-1369. Stenger, D.C.; Duffus, J.E.; Villalon, B. (1990) Biological and genomic properties of a geminivirus isolated from pepper. Phytopathology, 80(8), 704-709. Torres-Pacheco, I.; Garzón-Tiznado, A.; Brown, J.K.; Bercerra-Flora, A.; Rivera-Bustamante, F.R. (1996) Detection and distribution of geminiviruses in Mexico and the Southern United States. Phytopathology, 86, 1186-1192. INTERNET GEMINI DETECTive Web site by Dr. Judith Brown, University of Arizona and Dr. Stephen D. Wyatt, Washington State University (US) http://ipmwww.ncsu.edu/nipmn/GEMINI/descriptions/TPV.html (description and pictures)

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Tomato golden mosaic begomovirus

Why	Tomato golden mosaic begomovirus came to our attention as causing an emerging disease of tomato in the Americas. The disease was first reported in Brazil in 1975, and more recently in Costa Rica (Rosset *et al*., 1990).
Where	Brazil, Costa Rica.
On which plants	Tomato (*Lycopersicon esculentum*).
Damage	Stunting and severely deformed young leaves and shoots, bright yellow mosaic. The disease was first reported in Brazil in 1975, but did not cause significant losses. However, since 1994, a sharp increase of symptoms has been observed on tomato in several areas occurring simultaneously with the appearance of the B biotype of *Bemisia tabaci*. Several begomoviruses were found including bean golden mosaic, tomato golden mosaic and tomato yellow vein streak begomoviruses. Damage caused by begomoviruses of tomato are reported to be severe in Brazil (Ribeiro *et al*., 1998; SBV Web site).
Transmission	Transmitted by *Bemisia tabaci*.
Note	It is not clear whether tomato yellow mosaic in Venezuela and tomato golden mosaic in Brazil are caused by distinct begomoviruses.
Pathway	Infected tomato plants, fruits?, viruliferous *B. tabaci* from countries where tomato golden mosaic begomovirus occurs.
Possible risks	Tomato is an important crop in the EPPO region, both indoor and outdoor, and insect vector is present in many parts of the EPPO region. Data is also lacking on the relationships of this virus with other begomoviruses of tomato present in Brazil, such as tomato golden mosaic, as well data on severity and extent of the disease in Brazil.
Source(s)	Polston, J.E.; Anderson, P.K. (1997) The emergence of whitefly-transmitted geminiviruses in tomato in the Western Hemisphere. Plant Disease, 81(12), 1358-1369. Ribeiro, S.G.; de Avila, A.C.; Bezerra, I.C.; Fernandes, J.J.; Faria, J.C.; Lima, M.F.; Gilbertson, R.L.; Maciel-Zambolim, E.; Zerbini, F.M. (1998) Widespread occurrence of tomato geminiviruses in Brazil, associated with the new biotype of the whitefly vector. Plant Disease, 82(7), p 830. Rosset, P.; Meneses, R.; Lastra, R.; gonzalez, W. (1990) Estimation of loss and identification of the geminivirus transmitted to tomato by the whitefly *Bemisia tabaci* Genn. (Homoptera: Aleyrodidae) in Costa Rica. Manejo Integrado de Plagas, no. 15, 24-35 (abstract). INTERNET GEMINI DETECTive Web site by Dr. Judith Brown, University of Arizona and Dr. Stephen D. Wyatt, Washington State University (US) http://ipmwww.ncsu.edu/nipmn/GEMINI/descriptions/TGMV.html (description and pictures) ITCV Web site - Tomato golden mosaic virus http://www.ncbi.nlm.nih.gov/ITCVdb/ICTVdB/29030038.htm (description)

Sociedade Brasileira de Virologia Web site
Informativo da SBV, Ano: XII Número: 30 Maio - Agosto de 1998. Opinião: Expansão de geminivirus no Brazil: um grave problem em várias culturas de importância econômica by Bezerra, I.; de Avila, C.; Resende, R.O.
http://www.dbbm.fiocruz.br/sbv/inf.html

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Tomato yellow mosaic begomovirus

Why	Tomato yellow mosaic begomovirus came to our attention as causing an emerging disease of tomato in the Americas. The disease was first reported in Venezuela in 1963 as a virus transmitted by *Bemisia tabaci*.
Where	Venezuela. The VIDE database mentions its presence in Brazil (as mosaico dourado do tomateiro which is also the disease name of tomato golden mosaic begomovirus in Brazil?)
On which plants	Tomatoes (*Lycopersicon esculentum*). Natural infection has once been reported in potato (*Solanum tuberosum*) causing up to 70 % losses in potato cv. Sebago (Debrot & Centeno, 1985). Weeds like *Lycopersicon esculentum* var. *cerasiforme* and *L. pimpinellifolium* are reported as natural hosts.
Damage	Symptoms are a golden yellow mosaic and stunting. No fruit is produced if plants are infected early. It is reported that tomato yellow mosaic has caused millions of dollar losses in tomato commercial fields in Venezuela. By the time of flowering, 90-100 % of tomato plants could become infected by the virus (Piven *et al.*, 1995)
Transmission	Transmitted by *Bemisia tabaci*.
Note	It is not clear whether tomato yellow mosaic in Venezuela and tomato golden mosaic in Brazil are caused by distinct begomoviruses. Relationships between tomato yellow mosaic and potato yellow mosaic begomoviruses are not known.
Pathway	Infected tomato plants, fruits?, viruliferous *B. tabaci* from countries where tomato yellow mosaic begomovirus occurs.
Possible risks	Tomato is an important crop in the EPPO region, both indoor and outdoor and the virus vector is present in many parts of the EPPO region. The disease is causing problems on tomato in Venezuela but the situation on potato is not clear. Data is also lacking on the relationships of this virus with other begomoviruses of tomato.
Source(s)	Debrot, E.A.; Centeno, F. (1985) Natural infection of potato in Venezuela by tomato yellow mosaic, a geminivirus transmitted by whiteflies. Agronomia Tropical, 35(-3), 125-138 (abstract). Piven, N.M.; Uzcátegui, de R.C.; Infante, H.D. (1995) Resistance to tomato yellow mosaic virus in species of *Lycopersicon*. Plant Disease, 79(6), 590-594. Polston, J.E.; Anderson, P.K. (1997) The emergence of whitefly-transmitted geminiviruses in tomato in the Western Hemisphere. Plant Disease, 81(12), 1358-1369. Uzcátegui, de R.C.; Lastra, R. (1978) Transmission and physical properties of the causal agent of mosaico amarillo del tomate (tomato yellow mosaic). Phytopathology, 68(7) , 985-988. INTERNET VIDE database http://biology.anu.edu.au/Groups/MES/vide/descr841.htm (Tomato yellow mosaic bigeminivirus) http://biology.anu.edu.au:Groups/MES/vide/descr827.htm (Tomato golden mosaic bigeminivirus)

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Tomato yellow vein streak begomovirus

Why	Tomato yellow vein streak begomovirus came to our attention as causing an emerging disease of tomato in the Americas. It was described as a new begomovirus affecting tomato by Faria *et al.* (1997).
Where	Brazil (near Campinas, State of São Paulo).
On which plants	Tomato (*Lycopersicon esculentum*). Experimentally, *Bemisia tabaci* was able to transmit the virus from infected tomato plants to healthy tomato and potato plants, reproducing the original symptoms in tomato. On potato, the apical leaves showed yellow or green mottle which developed into leaf distortion with yellow blotches (apparently no natural infection have been found on potato).
Damage	Yellow streaking of veins on the apical shoots. Leaf symptoms developed into patches of yellow mosaic and the leaves became wavy. In the observed fields near Campinas, approximately 20 % of young tomato plants showed symptoms.

Transmission	Transmitted by *Bemisia tabaci*.
Pathway	Infected tomato plants, fruits?, viruliferous *B. tabaci* from countries where tomato yellow mosaic begomovirus occurs.
Possible risks	Tomato is an important crop in the EPPO region, both indoor and outdoor and the virus vector is present in many parts of the EPPO region. The disease appears so far, limited in Brazil but data is lacking its extent and severity. It is not known whether potato can be naturally infected.
Source(s)	Faria, J.C.; Souza, J.A.C.; Slack, S.A.; Maxwell, D.P.; (1997) A new geminivirus associated with tomato in the State of São Paulo, Brazil. Plant Disease, 81(4), p 423. Polston, J.E.; Anderson, P.K. (1997) The emergence of whitefly-transmitted geminiviruses in tomato in the Western Hemisphere. Plant Disease, 81(12), 1358-1369.

EPPO RS 97/094 98/044, 2000/046

Panel review date - Entry date 2000-03

Source: EPPO Secretariat, 2000-02.

2000/047 Tomato dwarf leaf curl virus a new begomovirus of tomato and sweet pepper in Jamaica - Addition to the EPPO Alert List

Since 1992, leaf curling and severe dwarfing with or without marginal chlorosis were observed on tomato (*Lycopersicon esculentum*) and sweet pepper (*Capsicum annuum*) plants in south and central Jamaica. Molecular studies revealed the presence of a new begomovirus which was called tomato dwarf leaf curl virus. It was found in mixed infection with tomato yellow leaf curl begomovirus (EPPO A2 quarantine pest) in both sweet pepper and tomato. Tomato dwarf leaf curl virus is most probably transmitted by whiteflies, although this has not been demonstrated. The authors felt that tomato yellow leaf curl begomovirus is probably more important than tomato dwarf leaf curl begomovirus, but more studies are needed on the possible interactions of these two viruses.

Tomato dwarf leaf curl begomovirus - a new virus of tomato and sweet pepper in Jamaica

Why	Tomato dwarf leaf curl virus came to our attention because it was reported as a new virus of tomato and pepper in Jamaica.
Where	Jamaica
On which plants	Tomato (*Lycopersicon esculentum*) and pepper (*Capsicum annuum*)
Damage	Leaf curling and severe dwarfing with or without marginal chlorosis. Tomato dwarf leaf curl virus was always found in association with tomato yellow leaf curl begomovirus.
Transmission	Transmission by whiteflies is most probable but has not been demonstrated nor studied.
Pathway	Tomato and pepper plants from Jamaica, vegetables ?
Possible risks	Tomatoes and sweet pepper are important crops in the EPPO region. Whiteflies are also present, but more data is needed on insect vectors. In addition, knowledge is lacking on the real impact of the virus on plants, as it was always found in association with tomato yellow leaf curl begomovirus.
Source(s)	Roye, M.E.; Wernecke, M.E.; McLaughlin, W.A.; Nakhla, M.K.; Maxwell, D.P. (1999) Tomato dwarf leaf curl virus, a new bipartite geminivirus associated with tomatoes and peppers in Jamaica and mixed infection with tomato yellow leaf curl virus. Plant Pathology, 48(3), 370-378.
EPPO RS 2000/047	
Panel review date	- Entry date 2000-03

Additional key words: new pest **Computer codes:** JM

2000/048 Deletions from the EPPO Alert List

At its last meeting (2000-01-18/21), the EPPO Panel on Phytosanitary Measures reviewed the EPPO Alert List and decided that it was not necessary to maintain the following pests on it:

Abutilon yellows closterovirus
Acroptilon repens
Ambrosia artemisiifolia
Echinothrips americanus
Olive phytoplasma diseases
Phytophthora cambivora on alder
Pseudomonas syringae pv. *syringae* on mango
Puccinia distincta
Rhynchophorus bilineatus
Rhynchophorus phoenicis
Rhynchophorus vulneratus
Stocky prune nepovirus
Striga gesnerioides
Striga hermonthica
Striga lutea
Trialeurodes abutilonea

Source: **EPPO Secretariat, 2000-02.**

Additional key words: Alert List, deletions

2000/049 Monoclonal antibodies to identify adults of *Trialeurodes vaporarium* and *Bemisia tabaci*

There is an obvious need for rapid and simple methods to identify adult whiteflies, either in consignments moving in trade or in crops. As a first step, two monoclonal antibodies have been developed to distinguish between adults of *Trialeurodes vaporariorum* and *Bemisia tabaci* (EPPO A2 quarantine pest). When used in combination, these monoclonal antibodies can readily identify adults of *T. vaporariorum* and *B. tabaci* in an ELISA test. The authors noted that further studies are needed to incorporate these monoclonal antibodies in a detection kit which could be used by growers, extension workers, phytosanitary inspectors and even gardeners. In addition, studies will continue on the development of monoclonal antibodies to distinguish *B. tabaci* biotype B (also referred to as *B. argentifolii*) from other biotypes.

Source: Symondson, W.O.C.; Gasull, T.; Liddell, J.E. (1999) Rapid identification of adult whiteflies in plant consignments using monoclonal antibodies. **Annals of Applied Biology, 134(3), 271-276.**

Additional key words: identification method **Computer codes:** BEMITA

2000/050 Weed hosts of *Bemisia tabaci* biotype B in Italy

In Central Italy, laboratory studies were carried out on the host preference and performance of *Bemisia tabaci* biotype B (also referred to as *B. argentifolii* - EPPO A2 quarantine pest) on weeds found around cultivated greenhouses. 18 weed species were proposed to whiteflies in a choice test, and several parameters of the insect life cycle were measured to assess the effects of the different host plants on the developmental rate. Out of the 18 weed species, 10 were accepted by *B. tabaci* biotype B populations. After 72 h, whiteflies showed a marked preference for *Sonchus oleraceus* and *Solanum nigrum* (53 % of the total insect population). A large part of the remaining population preferred: *Conyza canadensis*, *Euphorbia helioscopia*, *E. peplus*, *Trifolium repens*, and a very low number of insects were found on *Ricinus communis*, *Euphorbia characias*, *E. maculata* and *E. dendroides*. The life table statistics coincided with the ranking of host preference. The authors noted that even in the absence of cultivated host plants such as tomato, courgette etc., *B. tabaci* biotype B can find weed hosts on which it can complete its development. However, they stressed that these laboratory studies still need to be confirmed in field experiments.
Note: the EPPO Secretariat had previously no data on the occurrence of *B. tabaci* biotype B in Italy.

Source: Calvitti, M.; Remotti, P.C. (1998) Host preference and performance of *Bemisia argentifolii* (Homoptera: Aleyrodidae) on weeds in Central Italy. **Environmental Entomology, 27(6), 1350-1356.**

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

2000/051 *Striga lutea* does not occur in Australia

The Australian Quarantine and Inspection Service has recently informed the EPPO Secretariat that *Striga lutea* does not occur in Australia. The record appearing in the EPPO RS 2000/02 is based on a misidentification. The only *Striga* species present in Australia are three native species: *S. curviflora*, *S. multiflora* (both occurring in Western Australia, Northern Territory and Queensland) and *S. parviflora* (occurring in Northern Territory and Queensland).

Source: Personal communication with Brian Stynes, Australian Quarantine and Inspection Service, 2000-02.

Additional key words: denied record **Computer codes:** STRLU; AU

2000/052 EPPO report on selected intercepted consignments

The EPPO Secretariat has gathered the intercepted consignment reports for 1999 received since the previous report (EPPO RS 2000/038) from the following countries: Denmark, France, Germany, Netherlands, United Kingdom; and 2000 interceptions received from: Cyprus, Denmark, Estonia, Finland, Guernsey, Ireland, Netherlands, Norway, Poland, Switzerland, United Kingdom. When a consignment has been re-exported and the country of origin is unknown, the re-exporting country is indicated in brackets. When the occurrence of a pest in a given country is not known to the EPPO Secretariat, this is indicated by an asterisk (*).

The EPPO Secretariat has selected interceptions made because of the presence of pests. Other interceptions due to prohibited commodities, missing or invalid certificates are not indicated. It must be pointed out that the report is only partial, as many EPPO countries have not yet sent their interception reports.

1999 interceptions

Pest	Consignment	Type of commodity	Country of origin	C. of destination	nb
Bemisia tabaci	*Anubias*	Aquarium plants	Israel	France	1
	Anubias	Aquarium plants	Spain (Canary Isl.)	France	1
	Crossandra infundibuliformis	Cuttings	Philippines	Denmark	1
	Echinodorus subulatus	Aquarium plants	Israel	France	1
	Eryngium	Vegetables	Thailand	France	1
	Gypsophila	Cut flowers	Israel	France	1
	Helianthus	Cut flowers	Israel	France	1
	Hygrophila	Aquarium plants	Sri Lanka	Germany	1
	Hygrophila corymbosa	Aquarium plants	Thailand	France	1
	Hygrophila costata	Aquarium plants	Malaysia	France	1
	Hygrophila costata	Aquarium plants	Singapore	France	1
	Hygrophila polysperma	Aquarium plants	Singapore	France	1
	Hygrophila polysperma	Aquarium plants	Thailand	France	3
	Hygrophila salicifolia	Aquarium plants	Malaysia	France	1
	Hygrophila salicifolia	Aquarium plants	Morocco	France	1
	Hygrophila salicifolia	Aquarium plants	Singapore	France	1
	Piper sarmentosum	Vegetables	Thailand	France	1
	Rosa	Cut flowers	Israel	France	1
Guignardia citricarpa	*Citrus limon*	Fruits	Argentina	Netherlands	3
	Citrus limon	Fruits	South Africa	Netherlands	1
	Citrus paradisi	Fruits	USA*	Netherlands	1
	Citrus reticulata	Fruits	Brazil	Netherlands	1
	Citrus sinensis	Fruits	Argentina	Netherlands	2
	Citrus sinensis	Fruits	Brazil	Netherlands	6
	Citrus sinensis	Fruits	South Africa	Netherlands	14
	Citrus sinensis	Fruits	Swaziland*	Netherlands	7
Helicoverpa armigera	*Dianthus*	Cut flowers	Israel	Netherlands	1
	Dianthus caryophyllus	Cut flowers	Israel	France	1

Pest	Consignment	Type of commodity	Country of origin	C. of destination	nb
Heliothis	*Dianthus*	Cut flowers	Israel	Germany	1
Liriomyza	*Gypsophila*	Cut flowers	Israel	France	1
	Helianthus	Cut flowers	Israel	France	1
	Ocimum basilicum	Vegetables	Israel	France	4
	Ocimum basilicum	Vegetables	Morocco	France	1
	Trichocoronis rivularis	Aquarium plants	Morocco	France	1
Liriomyza bryoniae	*Gypsophila*	Cut flowers	Israel	United Kingdom	1
Liriomyza sativae	*Ocimum basilicum*	Vegetables	Thailand	France	5
Plum pox potyvirus	*Prunus*	Plants for planting	Poland	France	1
Thrips palmi	*Cucurbita maxima*	Vegetables	Mauritius	France	1
	Dendrobium	Cut flowers	Thailand	France	1
	Dendrobium	Cut flowers	Thailand	Germany	1
	Orchidaceae	Plants for planting	Singapore	Denmark	1
	Orchidaceae	Cut flowers	Singapore	France	1
Thysanoptera	*Dendrobium*	Cut flowers	Thailand	Germany	8
	Orchidaceae	Cut flowers	Singapore	France	2
	Solanum melongena	Vegetables	Thailand	France	1
Unspecified organism	*Citrus limon*	Fruits	Argentina	Netherlands	1

- **Fruit flies**

Pest	Consignment	Country of origin	C. of destination	nb
Bactrocera dorsalis	*Mangifera indica*	Brazil*	Netherlands	1
Ceratitis	*Psidium guajava*	Guinea	France	1

- **Wood**

Pest	Consignment	Type of commodity	Country of origin	C. of destination	nb
Insects (larvae and adults)	Unspecified	Packing material	China	Denmark	1
Monochamus alternatus	Coniferae	Wood	China	Netherlands	1

- **Bonsais**

One consignment of *Serissa* bonsais from China was intercepted by United Kingdom because of the presence of *Rhizoecus hibisci*.

2000 interceptions

Pest	Consignment	Type of commodity	Country of origin	C. of destination	nb
Ambrosia	*Helianthus annuus*	Stored products	Hungary	Poland	3
	Zea mays	Stored products	Slovakia	Poland	7
Ambrosia artemisiifolia	*Zea mays*	Stored products	Slovakia	Poland	2
Bemisia tabaci	*Brachychiton populneus*	Plants for planting	Israel	United Kingdom	1
	Dendranthema morifolium	Cut flowers	Spain (Canary Isl.)	United Kingdom	1
	Echinodorus paniculatus	Aquarium plants	Singapore	United Kingdom	1
	Hygrophila stricta	Aquarium plants	Singapore	Denmark	1
	Hypericum	Cut flowers	Israel	United Kingdom	1
	Solanum tuberosum	Ware potatoes [1]	Israel	United Kingdom	1
	Solidago	Cut flowers	Israel	United Kingdom	1
	Solidago	Cut flowers	Netherlands	Ireland	1
	Solidaster	Cut flowers	Israel	United Kingdom	1
	Trachelium	Cut flowers	Israel	United Kingdom	1
	Trachelium	Cut flowers	Netherlands	Ireland	2
	Trachelium	Cut flowers	Netherlands	United Kingdom	1
***Bemisia tabaci* (biotype B)**	*Anubias barteri*	Aquarium plants	Thailand	Netherlands	1
	Hibiscus	Cuttings	Egypt	Netherlands	1
	Phyllanthus myrtifolius	Plants for planting	Thailand	Netherlands	1
Bemisia tabaci, Liriomyza	*Eustoma*	Cut flowers	Israel	United Kingdom	1
Clavibacter michiganensis* subsp. *sepedonicus	*Solanum tuberosum*	Ware potatoes	Germany	Finland	1
	Solanum tuberosum	Ware potatoes	Germany	Netherlands	5
Claviceps purpurea	*Secale cereale*	Stored products	Germany	Poland	1
Ditylenchus dipsaci	*Narcissus*	Bulbs	United Kingdom	Netherlands	1
Helicoverpa armigera	*Dianthus*	Cut flowers	Israel	Netherlands	1
	Dianthus caryophyllus	Cut flowers	Kenya	United Kingdom	1
Leucaspis pusilla	*Pinus nigra*	Plants for planting	Italy	United Kingdom	1
Liriomyza	*Ocimum basilicum*	Vegetables	Thailand	Denmark	16
Liriomyza huidobrensis	*Bupleurum*	Cut flowers	Netherlands	United Kingdom	1
	Carthamus tinctorius	Cut flowers	Netherlands	United Kingdom	2
	Dendranthema	Cut flowers	Brazil	Netherlands	1
	Dendranthema	Cut flowers	Netherlands	Ireland	2
	Eustoma	Cut flowers	Netherlands	United Kingdom	1
	Gypsophila	Cut flowers	Israel	Ireland	2
	Pisum	Vegetables	Kenya*	United Kingdom	1
	Pisum	Vegetables	Zimbabwe*	United Kingdom	1
	Primula	Plants for planting	Netherlands	United Kingdom	1
***Liriomyza* (suspect *huidobrensis*)**	*Carthamus*	Cut flowers	Netherlands	United Kingdom	1
	Dendranthema	Cut flowers	South Africa	United Kingdom	1

[1] Found in potato haulms accompanying the consignment.

Pest	Consignment	Type of commodity	Country of origin	C. of destination	nb
Liriomyza trifolii	*Dendranthema*	Cut flowers	Kenya	Guernsey	1
Liriomyza (*suspect *trifolii)	*Allium*	Vegetables	Mexico	United Kingdom	1
	Gypsophila	Cut flowers	Spain	United Kingdom	1
Liriomyza (*suspect *trifolii* or *sativae)	*Allium fistulosum*	Vegetables	Mexico	United Kingdom	1
	Eruca sativa	Vegetables	USA	United Kingdom	2
Meloidogyne	*Rosa*	Cuttings	Netherlands	Poland	1
Phytophthora infestans	*Solanum tuberosum*	Seed potatoes	Ireland	Cyprus	1
***Puccinia horiana,* mines of Agromyzidae**	*Dendranthema*	Cut flowers	Spain	Estonia	1
Rhizopertha dominica, Sitophilus oryzae	*Secale cereale*	Stored products	Germany	Poland	1
Sitophilus oryzae	*Zea mays*	Stored products	Hungary	Poland	1
Stephanitis (*suspect *takeyai)	*Pieris japonica*	Plants for planting	Netherlands	United Kingdom	1
Streptomyces scabies	*Solanum tuberosum*	Seed potatoes	Belgium	Cyprus	1
Thrips	*Orchidaceae*	Plants for planting	Thailand	Finland	1
Thrips palmi	*Dendrobium*	Cut flowers	Thailand	United Kingdom	1
	Momordica charantia	Vegetables	Dominican Rep.	United Kingdom	2
	Orchidaceae	Cut flowers	Thailand	Finland	2
	Solanum melongena	Vegetables	Dominican Rep.	Netherlands	1
Thrips (*suspect *palmi)	*Momordica charantia*	Vegetables	Dominican Rep.	United Kingdom	1
Tribolium	*Avena sativa*	Stored products	Slovakia	Poland	1
	Hordeum vulgare	Stored products	Czechia	Poland	5
	Triticum aestivum	Stored products	Czechia	Poland	1
Vizella	*Protea*	Plants for planting	South Africa	United Kingdom	1

- **Fruit flies**

Pest	Consignment	Country of origin	C. of destination	nb
Bactrocera	*Mangifera indica*	Dominican Rep.*	Netherlands	1
Ceratitis capitata	*Citrus limon, C. sinensis*	Spain	Poland	1
	Citrus reticulata	Italy	Poland	1
	Citrus reticulata	Spain	Poland	1
	Citrus reticulata, C. limon, C. sinensis	Spain	Poland	1

- **Wood**

Pest	Consignment	Type of commodity	Country of origin	C. of destination	nb
Bursaphelenchus xylophilus	Coniferae	Packing material	Japan	Finland	1
	Coniferae	Packing material	USA	Finland	1
Criocephalus rusticus, Tetropium castaneum	*Pinus sylvestris, Picea abies*	Wood	Lithuania	Poland	1
Grub holes (>3 mm)	Coniferae	Packing material	Canada	Finland	1
	Coniferae	Packing material (wooden pallets)	Japan	Finland	1
	Unspecified	Packing material (wooden pallets)	China	Finland	1
	Unspecified	Packing material (containers)	China	Denmark	9
	Unspecified	Packing material (crates)	China	Denmark	1
	Unspecified	Packing material (wooden pallets)	Taiwan	Finland	2
	Unspecified	Packing material (wooden pallets)	USA	Finland	5
Monochamus	*Pinus sylvestris*	Wood	Lithuania	Poland	1
Monochamus (grub holes)	Unspecified	Packing material (wooden pallets)	Japan	Finland	1
	Unspecified	Packing material (wooden pallets)	USA	Finland	1

Source: EPPO Secretariat, 2000-02.

2000/053 New book: Diseases of banana, abacá and enset

A new book 'Diseases of banana, abacá and enset', edited by Dr D.R. Jones has recently been published by CABI. In particular, this comprehensive book gives much detail on fungal diseases of foliage (e.g. sigatoka leaf spots), root, corm, pseudostem and fruit; on bacterial diseases (e.g. Moko disease); virus diseases and nematodes (e.g. *Radopholus* spp.). It also includes a chapter on quarantine and the safe movement of *Musa*. Non-infectious disorders and breeding aspects are also covered.
Diseases of banana, abacá and enset (2000) D.R. Jones (ed.), 544 pp, can be obtained from CABI at a price of 85.00 GBP.

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Source: EPPO Secretariat, 2000-01.

Additional key words: publication

2000/054 Workshop on *Bactrocera zonata* for Mediterranean countries (2000-05-09/11, Alexandria, EG)

As reported in EPPO RS 99/060, *Bactrocera zonata* (EPPO A1 quarantine pest) has recently been introduced into Egypt. The FAO Regional Office for the Near East, in collaboration with the joint FAO/International Atomic Energy Agency (IAEA) is organizing a workshop on *Bactrocera zonata* on 2000-05-09/11, in Alexandria, Egypt. The objectives of the workshop are: to inform countries of the threat presented by *B. zonata* to Mediterranean agriculture, to assess the extent of field infestations, to train users on how to use trapping as a means of detection, to give advice on control and containment measures, and to establish a Mediterranean network to conduct trapping programmes and exchange information.
EPPO member countries, and in particular Mediterranean countries, are encouraged to participate in this Workshop.
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