EPPO

Reporting

Service

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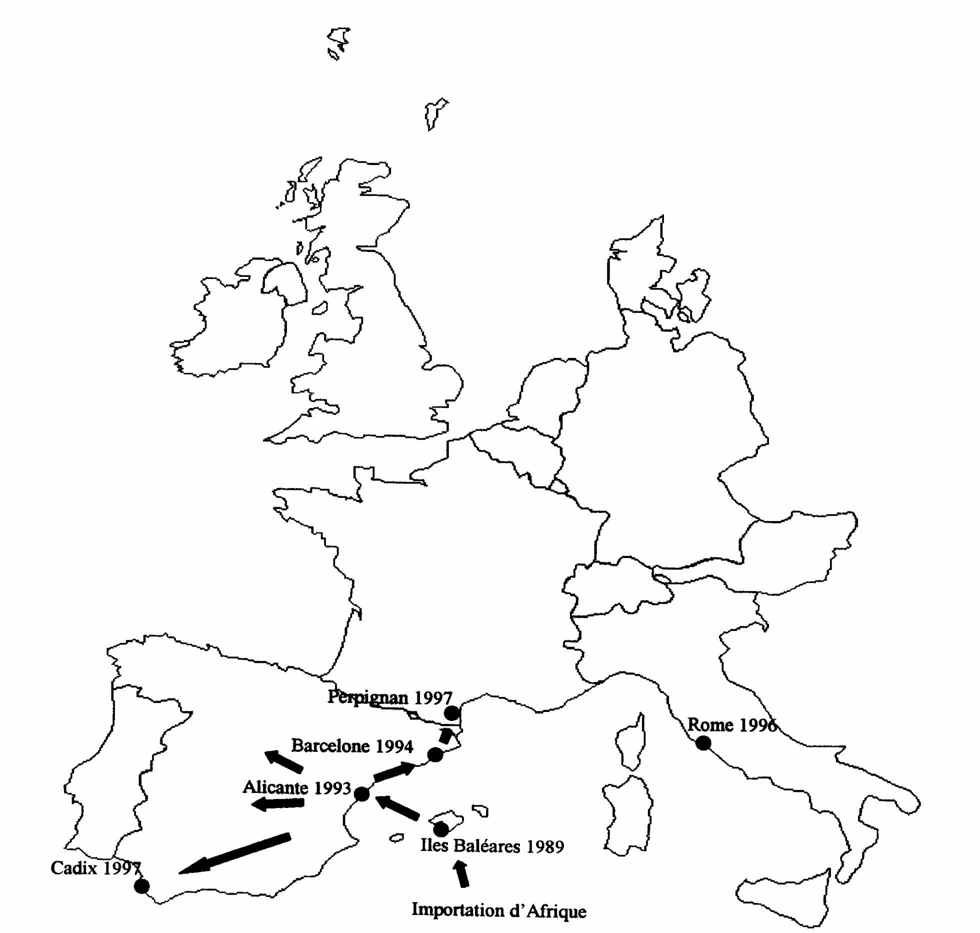
EPPO *Reporting Service*

98/080 *Cacyreus marshalli* found in France

The French Plant Protection Service has informed the EPPO Secretariat that *Cacyreus marshalli* (EPPO A2 quarantine pest) was found in the département of Pyrénées Orientales (south of France) in 1997. It can be recalled that *C. marshalli* is a pest of pelargonium which was introduced into Europe in 1989, in Menorca (Baleares, ES – see EPPO RS 520/03, 1992), probably from southern Africa. It reached continental Spain in the early 1990s (EPPO RS 94/033), and was found in Italy in 1996 (near Rome – see EPPO RS 97/139). The pest is widespread in Pyrénées Orientales, and high levels of infestation have been observed on pelargonium plants (up to 99 % plants attacked).
The following map (courtesy of French Plant Protection Service) illustrates the spread of *C. marshalli* in Europe.



Source: **French Plant Protection Service, 1998-04.**

Additional key words: new record

Computer codes: CACYMA, FR

98/081 *Phoracantha semipunctata* and apple proliferation phytoplasma found in the Netherlands

The Plant Protection Service of the Netherlands has recently informed the EPPO Secretariat that *Phoracantha semipunctata* (EPPO A1 quarantine pest) and apple proliferation phytoplasma (EPPO A2 quarantine pests) were found in the Netherlands.

- In summer 1997, adults of *Phoracantha semipunctata* were found emerging from eucalyptus wood in a private house. The wood originated from Australia and came to the Netherlands by ship as dunnage (supporting beams in a consignment of copper). The wood was destroyed in order to avoid any further spread, although it is very unlikely that this insect will survive in the Netherlands as eucalyptus is hardly present.
  In addition, in the Plant Protection Service 'Nieuwsbrief', it is noted that *Megacyllene falsa*, an American cerambycid, was recently found in dunnage on a sugar ship from Aruba. Attention is drawn on the danger that dunnage may present as a means of introducing exotic pests.

- Apple proliferation phytoplasma (EPPO A2 quarantine pest) was found on apple trees in the provinces of Limburg and Noord-Brabant in autumn 1997. Infected and neighbouring trees were destroyed. Inspections were regularly carried out in the concerned fields, and the disease has no longer been found. It is felt that apple proliferation phytoplasma has been eradicated. However, inspections will continue during the next season. The source of this infection is still under investigation.

Source: **Plant Protection Service of the Netherlands, 1998-05.**

de Goffau, L.J.W. (1998) [Cerambycids detected in dunnage.]
Nieuwsbrief 5(1), 1-2, Plant Protection Service, Wageningen.

Additional key words: eradication **Computer codes:** APPXXX, PHOASE, NL

98/082 Isolated finding of *Puccinia horiana* in Israel

The Plant Protection Service of Israel has recently informed the EPPO Secretariat that *Puccinia horiana* (EPPO A2 quarantine pest) was discovered on chrysanthemums in a single glasshouse of one nursery, located in the centre of the country. It is strongly suspected that *P. horiana* entered this Israeli nursery on plant propagation material imported from a European country. The Plant Protection and Inspection Services of Israel (PPIS) have immediately taken eradication measures: all infected plants are being destroyed and the premises appropriately disinfected. The PPIS is currently conducting surveys in the affected nursery and in premises of growers who bought chrysanthemum plants from it. As this finding was isolated, the PPIS noted that eradication is expected to be achieved within a month, and will keep the EPPO Secretariat informed of the situation.

Source: **Plant Protection Service of Israel, 1998-04.**

Additional key words: new record, eradication **Computer codes:** PUCCHN, IL

98/083 New records for the Federated States of Micronesia, Palau, Marshall islands and American Samoa

Insect surveys have been carried out in the Federated States of Micronesia, Palau (Dafus, 1997), Marshall islands (Dafus, 1996), and results have been published in Technical papers of the South Pacific Commission. The EPPO Secretariat has extracted the following information.

- *Liriomyza trifolii* (EPPO A2 quarantine pest) was found in Yap and Pohnpei (Federated States of Micronesia). It was found on beans and some economic loss were observed.
- *Maconellicoccus hirsutus*, the hibiscus mealybug, was abundant and damaging on hibiscus on Chuuk (Federated States of Micronesia*).
- *Parasassetia nigra* (EU Annex II/A1) occurs on Marshall islands* (it is reported from Kwajalein).
- *Phyllocnistis citrella* was found on citrus on Yap (Federated States of Micronesia*).
- *Thrips palmi* (EPPO A1 quarantine pest) has recently been introduced into Palau* (probably within the last 3 years) where it infests and damages cucumbers. Its presence in American Samoa* is also mentioned.
- *Unaspis citri* (EPPO A1 quarantine pest) is present in Pohnpei (Federated States of Micronesia*) and causes damage to citrus in some areas. It is not present elsewhere in the Federated States of Micronesia.

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* New records

Source: Nafus, D.M. (1996) An insect survey of the Marshall islands. Technical paper no. 208. South Pacific Commission, 35 pp.

Nafus, D.M. (1997) An insect survey of the Federated States of Micronesia and Palau. Technical paper no. 210. South Pacific Commission, 55 pp.

Additional key words: new records, detailed records

Computer codes: LIRITR, PHENHI, PHYNCI, SAISNI, THRIPL, UNASCI, AS, FM, MH, PW

98/084 Spread of *Erwinia amylovora* via commercial apple fruit: an insignificant risk

A team of American and New Zealander researchers have recently tried to assess the risk of introduction of *Erwinia amylovora* (EPPO A2 quarantine pest) associated with the movement of commercial apple fruits. It can be recalled that EPPO has always taken the view that this risk was negligible, but some countries like Australia, Japan South Africa, some South American countries have taken a totally different attitude and prohibit imports of pome fruits from countries where the disease occurs. The authors have made a critical review of the literature to evaluate the risk of introduction and establishment of *E. amylovora* via the movement of consignments of mature, symptomless apples, and have also tried to use a linear and simple model to study probabilities of such an event.

Their conclusion from the literature review is that considering: 1) the low epiphytic fitness (short survival, no multiplication) of *E. amylovora* on apple fruit; 2) the low incidence of viable populations on mature apple fruit (note: populations of *E. amylovora* on fruit have only been found in heavily infected trees or in the immediate vicinity of another infected host, generally pear); 3) and the lack of a documented pathway by which susceptible host material could become infected by fruit-borne inoculum, the risk of introduction and establishment of *E. amylovora* through trade of apples is extremely low.

By using the linear model, it was estimated that the probability of introduction into a new area followed by an outbreak, via infected apples, would be 1 outbreak every 38462 years under the current US and New Zealand apple export programs to Japan (which includes many requirements: free buffer zones around place of production, several growing season inspections, consignment treatments, consignment inspections before export and at place of destination). Under an export regime with less stringent phytosanitary requirements (no free buffer zones requested, one growing season inspection, low incidence of fireblight in orchards tolerated), it was estimated that only 1 outbreak in 11365 years may occur. The authors felt that the results of these estimations are further corroborated by the absence of known outbreaks of fireblight, despite the huge quantities of apples being traded around the world over many years.

Source: Roberts, R.G.; Hale, C.N.; van der Zwet, T.; Miller, C.E.; Redlin, S.C. (1998) The potential for spread of *Erwinia amylovora* and fire blight via commercial apple fruit; a critical review and risk assessment.
Crop Protection, 17(1), 19-28.

Additional key words: risk assessment **Computer codes:** ERWIAM

98/085 Whitefly-transmitted closteroviruses

A recent paper describes in detail the current knowledge on whitefly-transmitted closteroviruses. These viruses typically cause symptoms (stunting, interveinal yellowing or reddening of affected plants) which may easily be attributed to other causes, such as physiological or nutritional disorders, or even pesticide toxicity. They usually exist in low titres in infected plants and are generally restricted to phloem tissue. This has rendered diagnosis and isolation difficult. In recent years, this group has been rapidly expanding, and so far it includes the following viruses.

- **Beet pseudo-yellows closterovirus (BPYV)** was the first described whitefly-transmitted closterovirus. It was isolated from Californian glasshouses in 1965, and later found throughout the world. This virus is transmitted by *Trialeurodes vaporariorum* only. It has a broad host range: vegetables (carrot, cucumber, endive, lettuce, melon, spinach, courgette, sugar beet), ornamentals (*Aguilegia*, *Callistephus*, *Godetia*, *Gomphrena*, *Tagetes*, *Zinnia*), weeds (dandelion). Symptoms in cucurbits are first characterized by chlorotic angular spots on lower leaves. Leaf interveinal areas may become completely chlorotic except for the veins which remain green. Significant economic losses in cucurbit crops have been reported in North America, Europe and Asia. Other viruses transmitted by *T. vaporariorum*, cucumber yellows virus (found in Japan) and muskmelon yellows virus (found in France) are probably the same as beet pseudo-yellows closterovirus. Other probable synonyms are cucumber chlorotic spot virus (found in France) and melon yellows virus (found in Spain).

- **Cucurbit yellow stunting disorder closterovirus (CYSDV)** was first found in United Arab Emirates in 1982 on cucurbit crops. It was also found in cucurbits from Egypt, Israel, Jordan, Saudi Arabia, Spain and Turkey. This virus is apparently only present in the Old World. Its host range is limited to Cucurbitaceae. Symptoms are similar to those of beet-pseudo yellows closterovirus. It is transmitted efficiently by *Bemisia tabaci* biotype B, relatively inefficiently by *B. tabaci* biotype A and not transmitted by *T. vaporariorum*.

- **Lettuce infectious yellows closterovirus (LIYV)** (EPPO A1 quarantine pest) was found in the desert regions of California and Arizona in 1981, on lettuce, cucurbit and sugar beet. It is transmitted efficiently by *B. tabaci* biotype A and less efficiently by biotype B (100-fold less efficient). This virus is primarily restricted to the desert south-western USA. In 1981, severe losses (over 20 million USD) were observed on lettuce, cucurbit and sugar beet crops. Compared with previous years, yield reductions of 50 to 75 % and 20 to 30 %, were respectively seen on lettuce and sugar beet. In the 1980s and early 1990s, the displacement of biotype A by biotype B occurred. Due to this change, the cropping pattern had to be modified and in particular the melon crops planted in late-summer (which constituted very favourable hosts for the virus at that time of the year) had to be abandoned due to heavy damage caused by *B. tabaci* biotype B. As a result, since 1992, lettuce infectious yellows closterovirus has been present with a very low incidence (less than 0.1 %) and is no longer considered as a problem (provided changes in cropping patterns or vector populations do not occur).

- **Lettuce chlorosis closterovirus (LCV)** was observed in south-western USA when the incidence of LIYV became very low. Symptoms of lettuce chlorosis closterovirus are similar to those of LIYV in lettuce anõd sugar beet. An important difference is that lettuce chlorosis closterovirus does not infect cucurbits. It is efficiently transmitted by both A and B biotypes of *B. tabaci*. At present, this virus has not become a significant problem, and its incidence remains low.

- **Tomato infectious chlorosis closterovirus (TICV)** (see also EPPO RS 98/096) was first found in tomato fields in Orange county, California in 1993. In one season, the growers of this county suffered 2 million USD losses. This virus is specifically transmitted by *T. vaporariorum*. It affects tomatoes, several ornamentals (*Ranunculus*, china aster, petunia) and has also been detected in weeds (*Picris echoides*, *Nicotiana glauca*, *Cynara cardunculus*). It can also infect lettuce. Since its discovery, tomato infectious chlorosis closterovirus has been found mostly in tomatoes grown in commercial glasshouses and in tomatoes used in breeding programmes. The virus has now been identified in Italy, North Carolina and in several areas of California.

- **Tomato chlorosis closterovirus (ToCV)** was recently characterized, but it was known in Florida since 1989 as the yellow leaf disorder of tomato. It is transmitted by *T. vaporariorum*, *B. tabaci* biotypes A and B and by *T. abutilonea*. It appears that tomato chlorosis closterovirus is widely distributed in USA, as in addition to several counties in north central Florida, preliminary surveys showed that it is also present in glasshouse tomatoes in Colorado and Louisiana. During these surveys on tomatoes, another unnamed whitefly-transmitted closterovirus distinct from TICV and ToCV has been found, but further studies are needed.

- **Sweet potato closteroviruses**. Several virus names have been proposed in association with diseases of sweet potato in various countries (North and South America, Kenya, Israel): sweet potato chlorotic stunt virus, sweet potato virus-disease associated closterovirus, sweet potato virus disease associated closterovirus, sweet potato sunken vein virus, but it currently felt these are strains of the same virus called sweet potato chlorotic stunt closterovirus (SPCSV).

In addition to these viruses, more closteroviruses or clostero-like viruses have been reported, although not fully characterized: abutilon yellows virus, diodia vein chlorosis virus, nandina stem pitting virus. With the availability of biological and molecular diagnostic tools for whitefly-transmitted viruses, it is likely that new closteroviruses will be found. Finally it can be noted that taxonomy of closteroviruses is currently evolving, and it is now proposed to distinguish two genera within the family Closteroviridae:1) the genus Closterovirus to include monopartite aphid-transmitted viruses and 2) the genus Crinivirus to include bipartite and whitefly-transmitted viruses.

Source: Wisler, G.C.; Duffus, J.E.; Liu, H.-Y.; Li, R.H. (1998) Ecology and epidemiology of whitefly-transmitted closteroviruses.
Plant Disease, 82(3), 270-279.

Additional key words: biology, taxonomy **Computer codes:** LEIYXX

98/086 Detection method for tomato infectious chlorosis closterovirus

Tomato infectious chlorosis closterovirus has newly been described in California, US (EPPO RS 97/035). This virus occurs in glasshouses throughout California and infects several important ornamental and vegetable crops (tomato, tomatillo (*Physalis ixocarpa*), potato, artichoke, lettuce, petunia). It is transmitted in a semi-persistent manner by *Trialeurodes vaporariorum*. Tomato infectious chlorosis closterovirus (TICV) is a bipartite single-stranded RNA genome virus. It has long flexuous, filamentous particles (850 to 900 x 12 nm). Four detection methods (ELISA, Western blot, dot blot, RT-PCR) were developed, compared and used to study the distribution of TICV in plants and the relationships among isolates.
The comparative study of the four methods indicated that RT-PCR was 100-fold more sensitive than ELISA, Western blot and dot blot hybridization assays for the detection of TICV. It was also observed that TICV was detected in leaf, stem, flower and root tissues of infected tomato plants. However, the distribution of the virus within the plant was not uniform and the highest viral concentration was observed in fully developed young tomato leaves at the onset of yellowing symptoms. Five isolates of TICV were studied: three isolates from California, one from North Carolina and one from Italy (there were previously no indication that TICV was present in other US States and in Italy). No serological or molecular differences could be observed between those five isolates.

Source: Li, R.H.; Wisler, G.C.; Liu, H.Y.; Duffus, J.E. (1998) Comparison of diagnostic techniques for detecting tomato infectious chlorosis virus.
Plant Disease, 82(1), 84-88.

Additional key words: detection methods, detailed records, new record

<u>**98/087**</u> <u>Detection method for cherry little cherry 'closterovirus'</u>

An RT-PCR method has been developed for the detection of cherry little cherry 'closterovirus' (EU Annex II/A1 for non-European isolates). Several European isolates of cherry little cherry were compared by partial sequence analysis and dsRNA gel electrophoresis and the results showed high homology between them. The authors felt that the RT-PCR method may be applicable for the detection of a wide range of isolates (at least from Europe) and could be a useful tool for quarantine and certification purposes.

Source: Vitushkina, M.; Fechtner, B.; Agranovsky, A.; Jelkmann, W. (1997) Development of an RT-PCR for the detection of little cherry virus and characterization of some isolates occurring in Europe.
European Journal of Plant Pathology, 103(9), 803-808.

Additional key words: new detection method **Computer codes:** CRLCXX

<u>**98/088**</u> <u>Situation of tomato yellow leaf curl geminivirus in USA</u>

In July 1997, tomato yellow leaf curl geminivirus (EPPO A2 quarantine pest) was identified for the first time, in Florida (US), on a tomato plant (EPPO RS 97/169). Further studies showed that infected plants were present in two nurseries located in Homestead area (Dade county). The first report of the virus in commercial tomato fields came from Virginia. The tomato plants had been produced in a screenhouse in Manatee county (Florida). Infected plants were also found at low incidence in the following counties: Collier, St. Lucie, Palm Beach, Manatee, Hillsborough, and Dade (central and southern Florida). The incidence of tomato yellow leaf curl geminivirus has remained low in all commercial fields except those in Dade and Palm Beach counties. Growers used imidacloprid at transplantation in almost all fields against the insect vector <u>*Bemisia tabaci*</u> (EPPO A2 quarantine pest) and plants showing symptoms were eliminated. As a result, few infected plants were found at the end of the season in most counties of Florida.

Source: Tomato yellow leaf curl virus – USA (Florida) by Dr Jane E. Polston.
ProMED-mail post of 1998-05-18.
Promed@usa.healthnet.org

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

<u>98/089</u> <u>*Solanum nigrum* can be a reservoir for tomato yellow leaf curl geminivirus</u>

In Spain, tomato yellow leaf curl geminivirus (TYLCV - EPPO A2 quarantine pest) was first found in Almeria in 1992, and it is now present on tomato crops throughout the south eastern region of the country. In the region of Murcia, it was observed that many field-grown tomatoes were infected by TYLCV. In the vicinity of one severely infected tomato field, <u>*Solanum nigrum*</u> plants (weeds) showing severe leaf distortions and hosting colonies of <u>*Bemisia tabaci*</u> (EPPO A2 quarantine pest) were observed. Analysis showed that TYLCV was present in <u>*S. nigrum*</u>. In addition, it was shown in the laboratory that <u>*B. tabaci*</u> was able to transmit TYLCV from infected tomato plants to <u>*S. nigrum*</u> seedlings. The virus could then be acquired by <u>*B. tabaci*</u> and transmitted back from infected <u>*S. nigrum*</u> plants to tomato. The authors concluded that <u>*S. nigrum*</u> can a reservoir for TYLCV.

Source: Bedford, I.D.; Kelly, A.; Banks, G.K.; Briddon, R.W.; Cenis, J.L.; Markham, P.G. (1998) <u>*Solanum nigrum:*</u> an indigenous weed reservoir for a tomato yellow leaf curl geminivirus in southern Spain.
European Journal of Plant Pathology, 140 (2), 221-222.

Additional key words: epidemiology **Computer codes:** TYLCVX, ES

<u>98/090</u> <u>Detection methods (RT-PCR and DAS-ELISA) for citrus psorosis-ringspot virus</u>

Psorosis is a damaging disease of citrus whose etiology is still unclear. Two types of leaf symptoms have been described (chlorotic flecking and ringspot). Two names have been proposed: citrus-psorosis associated virus and citrus ringspot virus (EU Annex II/A1), to describe isolates of what is considered by several authors as being probably one virus. Detection methods (RT-PCR and DAS-ELISA) were developed to detect an isolate of citrus ringspot virus (CtRSV-4) from Florida, and were then tested to see how they could be used to detect 20 other isolates (including citrus ringspot, psorosis A and B). The PCR and ELISA methods were both successful in detecting CtRSV-4, but other isolates were less sensitively and reliably detected. However, 5 isolates could be detected by PCR and 17 by ELISA, which suggests that psorosis disease is commonly associated with virus strains that are fairly closely related to CtRSV-4. The authors concluded that both ELISA and PCR methods can be used for detection of a range of psorosis isolates, but that variation of the pathogens involved in the field might cause problems for these diagnostic tests.

Source: Garcia, M.L.; Sanchez de la Torre, M.E.; Dal Bo, E.; Djelouah, K.; Rouag, N.; Luisoni, E.; Milne, R.G.; Grau, O. (1997) Detection of citrus psorosis-ringspot virus using RT-PCR and DAS-ELISA.
Plant Pathology, 46(6), 830-836.

Additional key words: detection methods **Computer codes:** CSRSXX

98/091 A psorosis-like agent may be associated with Rio Grande gummosis disease of Citrus

Rio Grande gummosis is a serious disease in Florida on grapefruit (*Citrus paradisi*). This disorder is also called Florida gummosis and, in California, ferment gum disease. It is characterized by cracks in the bark which release yellow gum. Over the years, affected trees generally become unproductive and may die. Recently, the incidence of Rio Grande gummosis has increased in the Indian River region of Florida (3 to 74 % of diseased trees in surveyed orchards). The causal agent of the disease is not know and several causes have been suggested: fungi (e.g. *Physalospora rhodina*) or high chloride content in irrigation water. As symptoms resemble citrus psorosis (but with less gumming from bark cracks and callus tissue is formed beneath bark cracks), it was felt that citrus psorosis could be involved in this disorder. It may be recalled that the etiology of citrus psorosis is still unclear; psorosis A and psorosis B (citrus ringspot virus – EU Annex II/A1) have been described and there is uncertainty on whether these two forms correspond to strains of the same virus or to different pathogens. Trees from commercial orchards, showing symptoms of Rio Grande gummosis and asymptomatic trees were indexed on indicator plants. Results showed that 79% and 31 % of the commercial grapefruit and scion trees, respectively, contained a psorosis-like agent. This study does not demonstrate that a psorosis-like agent is responsible for Rio Grande gummosis, but it leaves open the possibility that such an agent might be a factor in this disorder.

Source: Powell, C.A.; Pelosi, R.R.; Sonoda, R.M.; Lee, R.F. (1998) A psorosis-like agent prevalent in Florida's grapefruit groves and budwood sources. **Plant Disease, 82(2), 208-209.**

Additional key words: etiology **Computer codes:** CSRSXX

98/092 Detection of iris yellow spot tospovirus in onion in Israel

In Israel (Bet Shean Valley) in March 1997, 20 to 30 % of field-grown onion (*Allium cepa*) showed unusual symptoms characterized by straw-coloured ringspots on leaves and flower stalks. Analyses showed that the plants were infected by iris yellow spot tospovirus. A high incidence of the disease observed in the surrounding fields and in other onion-growing areas in Israel was associated with large populations of *Thrips tabaci*. This virus is also known to occur in the Netherlands (Derks & Lemmers, 1996), where it has occasionally been detected in iris and leek.

Source: Derks, A.L.F.M.; Lemmers, M.E.C. (1996) Detection of tospoviruses in bulbous crops and transmissibility by vegetative propagation.
Acta Horticulturae, no. 432, 132-139.

Gera, A.; Cohen, J.; Salomon, R.. Raccah, B. (1998) Iris yellow spot tospovirus detected in onion (*Allium cepa*) in Israel.
Plant Disease, 82(1), p 127.

Additional key words: new record **Computer codes:** IYSVXX, IL

98/093 Studies on *Radopholus similis* and *Radopholus citrophilus* using electron microscopy

In the past, two races were recognized within the species *Radopholus similis* (EPPO A2 quarantine pest): one race attacking banana but not citrus (banana race), and the other attacking both citrus and banana (citrus race). In addition, other differences were observed between the two races, concerning karyotype (n=4 for banana race, n=5 for citrus race), isoenzymes, proteins and sexual behaviour. It was then proposed to consider the citrus race as a new species named *R. citrophilus* (EPPO A1 quarantine pest). *R. citrophilus* and *R. similis* could not be differentiated on the basis of morphological characters; and recently, it has been demonstrated (Hahn *et al*., 1996) that the chromosome number cannot be used as a diagnostic feature in *R. similis*. However, Huetel and Yaegashi (1988) have said that the observation of cuticular structure by scanning electron microscopy (SEM) could differentiate between *R. citrophilus* and *R. similis*. In the present study, two populations of *R. similis* from Guinea-Bissau and Côte d'Ivoire were studied by SEM. These two populations have similar cuticular structures, and showed a range of variation which overlap with the differences previously described by Huetel and Yaegashi (1988). Therefore, it is felt that *R. similis* and *R. citrophilus* cannot be distinguished by scanning electron microscopy. The authors suggested that it would appear more reasonable to consider *R. citrophilus* as a junior synonym of *R. similis*, the citrus and banana races representing two different pathotypes.

EPPO note: in these studies no populations of *R. citrophilus* were included.

Source: Hahn, M.L.; Wright, D.J.; Burrows, P.R.; (1996) The chromosome number in *Radopholus similis* – a diagnostic feature?
Nematologica, 42, 382-386.

Huettel, R.N.; Yaegashi, T.Y.; (1988) Morphological differences between *Radopholus citrophilus* and *R. similis*.
Journal of Nematology, 20, 150-157.

Valette, C.; Mounport, D.; Nicole, M.; Sarah, J.-L.; Baujard, D. (1998) Scanning electron microscope study of two African populations of *Radopholus similis* (Nematoda: Pratylenchidae) and proposal of *R. citrophilus* as a junior synonym of *R. similis*.
Fundamental and Applied Nematology, 21(2), 139-146.

Additional key words: taxonomy **Computer codes:** RADOCI, RADOSI

98/094 Control of *Ditylenchus dipsaci* by mechanical selection of lucerne seeds

In 1993-1994, heavy infestations of *Ditylenchus dipsaci* (EPPO A2 quarantine pest) were observed on lucerne in Emilia-Romagna (Italy). Studies were carried out on the efficacy of mechanical selection of lucerne seeds to control *D. dipsaci*. Mechanical methods (aspiration, ventilation, sieving etc.) can eliminate seeds of other plant species, plant debris and altered (shrivelled, empty etc.) seeds of lucerne which are likely to carry the nematode. The results showed that *D. dipsaci* was present at a very low level (0.07-0.08 %) in mechanically selected seeds, and at high levels in weed seeds and plant residues with which lucerne seeds are naturally mixed (97 %) and also in the dry stems of lucerne plants (95 %). In addition, field observations confirm that *D. dipsaci* occurs in mechanically selected dry seeds at low population densities (1-2 nematode/10 g), while in non-selected seeds, nematode populations can be as high as 84 nematodes per 10 g. The authors concluded that the use of selected lucerne seeds (without seeds of other species and plant debris) is a good control method, whereas the control of the nematode in the field is not efficient as it is very difficult to distinguish healthy plants from contaminated plants.

Source: Tacconi, R.; Pola, R.; Santi, R.; De Vincentis, F. (1995) [Effect of mechanical selection on natural alfalfa seed infested by *Ditylenchus dipsaci*.]
Nematologia mediterranea suppl., 23, 129-133.

Tacconi, R.; Santi, R.; Pola, R.; De Vincentis, F. (1996) [Field observation on the occurrence *Ditylenchus dipsaci* on alfalfa in reproduction.]
Nematologia mediterranea, 24, 245-248.

Additional key words: control method **Computer codes:** DITYDI

98/095 Use of high performance capillary electrophoresis to differentiate pathotypes of *Globodera rostochiensis* and *G. pallida*

Pathotypes of *Globodera rostochiensis* and *G. pallida* (EPPO A2 quarantine pests) are traditionally differentiated by their reproductive ability on a standard set of potato cultivars which contain different resistance genes to these nematodes. A technique of high performance capillary electrophoresis has been tested on a collection of different nematodes populations, and it provided polypeptide profiles which allow differentiation between pathotypes of *Globodera rostochiensis* and *G. pallida* (Ro1, Ro2, Ro3, Ro4, Ro5 and Pa1, Pa2/3). The authors felt that this simple and reliable method will provide a useful tool to differentiate pathotypes of potato cyst nematodes with minimum sample preparation.

Source: Hinch, J.M.; Alberdi, F.; Smith, S.C.; Woodward, J.R.; Evans, K. (1998) Discrimination of European and Australian *Globodera rostochiensis* and *G. pallida* pathotypes by high performance capillary electrophoresis. **Fundamental and Applied Nematology, 21(2), 123-128.**

Additional key words: identification methods **Computer codes:** HETDPA, HETDRO

98/096 Introductions of insect pests into Italy during the last 50 years

The insect pests introduced into Italy during the last fifty years (1945 to 1995) have been listed on the basis of bibliographic data. In this period, 115 insect species have been introduced (more than 2 species per year). When looking at the first twenty years (1945 to 1964), it appears that introductions were a rare event (only 12 species had been introduced). Starting from the decade 1965-1974, a remarkable increase in the number of introduced species is observed (6 species in the previous decade to 18). This increase is then even greater, as during the last 20 years, 84 new species have been introduced. The authors noted that this indeed reflects the great increase in commercial exchange, but probably also the fact that deeper studies are being made on the Italian fauna (leading to the discovery of new exotic species which may have been present for several years).
The introduced species are mainly pests of ornamentals, woody plants and citrus. The three orders accounting for most introductions are: Homoptera (76 % of the total number of introduced species), Coleoptera (10 %), Lepidoptera (7%). The majority of species came from America (36 %), Asia (25 %), Africa (17 %), Australia (7%).
In addition, several examples of introduction and spread of insect pests are given. *Metcalfa pruinosa* was detected in north eastern Italy in 1979, and has now colonized north Italy, central Italy, Sardegna. It is also recorded in France (1986), Switzerland and Slovenia (1993) (see EPPO RS 96/040). 11 insects of fruit trees and grapevine have been introduced, but only four have attained pest status; and they include *Scaphoideus titanus* (vector of grapevine

flavescence dorée – EPPO A2 quarantine pest) and *Rhagoletis completa* (see EPPO RS 97/103). The introductions of *Leptinotarsa decemlineata*, *Liriomyza huidobrensis* (EPPO A2 quarantine pests) and *Phyllocnistis citrella* are also mentioned as important examples.

Source: Pellizzari, G.; Dalla Montá, L. (1997) 1945-1995: Fifty years of incidental insect pest introductions to Italy.
Acta Phytopathologica et Entomologica Hungarica, 32(1-2), 171-183.

Additional key words: introductions

Computer codes: LEPTDE, LIRIHU, RHAGCO, PHYNCI, SCAPSP, IT

98/097 EPPO report on selected intercepted consignments

The EPPO Secretariat has gathered the intercepted consignment reports for 1998 received since the previous report (RS 98/077) from the following countries: Austria, Belgium, Bulgaria, Czechia, Finland, France, Germany, Italy, Ireland, Israel, Lithuania, Norway, Romania, Slovenia, 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.

Note: The following interceptions were made in 1997, and have not been reported before. There have been several interceptions of weeds which are noted separately.

Pest	Consignment	Type of commodity	Country of origin	Country of destination	nb
Clavibacter michiganensis* subsp. *sepedonicus	*Solanum tuberosum*	Ware potatoes	Germany	Netherlands (97)	2
***Pratylenchus* sp.**	*Lilium*	Bulbs	Netherlands	Tunisia (97)	1
***Pratylenchus* sp.**	*Rosa*	Plants for planting	France	Tunisia (97)	1
***Pratylenchus* sp., *Meloidogyne* sp.**	Ornamentals	Plants for planting	Italy	Tunisia (97)	1
Pseudomonas syringae* pv. *pisi	*Pisum sativum*	Seeds	United Kingdom	Tunisia (97)	1

Pest	Consignment	Type of commodity	Country of origin	Country of destination	nb
Adelgidae (*Pineus* sp.)	*Pinus*	Plants for planting	Bhoutan	United Kingdom	1
***Aphelenchus* sp.**	*Euphorbia* sp.	Plants for planting	Spain (Canary Isl.)	Germany	1
Bemisia tabaci	*Hardenbergia*	Plants for planting	Israel	United Kingdom	1
	Laurus	Plants for planting	Denmark	Lithuania	1
	Rosa	Cut flowers	Israel	France	1
	Solidago	Cut flowers	Israel	France	1
	Solidago	Cut flowers	Israel	Ireland	1
	Solidago	Cut flowers	Israel	United Kingdom	1
	Solidago	Cut flowers	Netherlands	Ireland	1
	Solidaster	Cut flowers	Israel	United Kingdom	1
Colletotrichum acutatum	*Fragaria ananassa*	Plants for planting	Hungary*	France	1
Frankliniella occidentalis, Thrips tabaci	Orchidaceae	Cut flowers	Singapore	France	1
***Frankliniella schultzei, Pseudococcus*, Tortricidae**	*Dendrobium*	Cut flowers	Thailand	United Kingdom	1
Fungus	*Osteospermum*	Cuttings	Netherlands	Israel	1
Globodera rostochiensis	*Fragaria ananassa*	Plants for planting	Netherlands	Finland	1
	Solanum tuberosum	Ware potatoes	Belgium	Czech Republic	1
***Hoplotylus* sp.**	*Pinus*	Plants for planting	Bhoutan	United Kingdom	1
Hymenia recurvalis	Unspecified leaves	Vegetables	Ghana	United Kingdom	1
Lepidopteran larvae	*Cordyline*	Cuttings	Netherlands	Israel	1
Leptinotarsa decemlineata	*Cichorium endivia*	Vegetables	France	United Kingdom	1
	Daucus carota	Vegetables	Spain	United Kingdom	1
	Petroselinum crispum	Vegetables	Spain	United Kingdom	1
Liriomyza huidobrensis	*Aster*	Cut flowers	Israel	Ireland	1
	Aster	Cut flowers	Netherlands	Ireland	1
	Coriandrum	Vegetables	Cyprus	United Kingdom	2
	Coriandrum, Trigonella foenum-graecum	Vegetables	Cyprus	United Kingdom	1
	Coriandrum, Trigonella foenum-graecum	Vegetables	Cyprus	United Kingdom	1
	Coriandrum, Trigonella foenum-graecum	Vegetables	Cyprus	United Kingdom	1
	Dendranthema	Cut flowers	Netherlands	United Kingdom	1
	Dendranthema	Plants for planting	Netherlands	United Kingdom	2
	Gypsophila	Cut flowers	Kenya*	Ireland	1
	Gypsophila	Cut flowers	Netherlands	Ireland	3
	Gypsophila	Cut flowers	Netherlands	United Kingdom	1
	Gypsophila	Cut flowers	Spain	Ireland	1
	Petroselinum, Coriandrum, Trigonella	Vegetables	Cyprus	United Kingdom	1
	Petroselinum, Eruca, Coriandrum, Trigonella,	Vegetables	Cyprus	United Kingdom	1

Pest	Consignment	Type of commodity	Country of origin	Country of destination	nb
Liriomyza sativae	*Ocimum basilicum*	Vegetables	Thailand	France	3
	Ocimum basilicum	Vegetables	Thailand	France	1
Liriomyza sativae, Bemisia tabaci	*Ocimum basilicum*	Vegetables	Thailand	United Kingdom	1
***Liriomyza* sp.**	*Gypsophila*	Cut flowers	(Netherlands)	United Kingdom	1
	Gypsophila	Cut flowers	Israel	France	1
	Gypsophila	Cut flowers	Israel	Germany	1
	Gypsophila	Cut flowers	Israel	United Kingdom	1
	Gypsophila	Cut flowers	Netherlands	Czech Republic	2
	Gypsophila	Cut flowers	Netherlands	United Kingdom	1
	Ocimum basilicum	Vegetables	Thailand	United Kingdom	2
Liriomyza trifolii	*Bupleurum sp.*	Cut flowers	Zimbabwe*	United Kingdom	1
	Ornamentals	Cut flowers	Israel	United Kingdom	1
Meloidogyne incognita	*Begonia*	Cuttings	Netherlands	Israel	1
***Meloidogyne* sp.**	*Rosa*	Plants for planting	Denmark	Norway	3
	Rosa	Plants for planting	Netherlands	Norway	2
Mites	*Argyranthemum*	Cuttings	Germany	Israel	1
Nematodes	*Dracaena, Caryota mitis*	Plants for planting	Malaysia	Germany	1
	Ravenea rivularis	Plants for planting	USA	Germany	1
Noctuidae	*Mimulus aurantiacus*	Plants for planting	Israel	United Kingdom	1
Paratylenchus, Helicotylenchus, Meloidogyne, Hemicycliophora	Peat moss	Growing medium	Romania	Israel	1
***Phoma* sp.**	*Cyclamen hederifolium*	Plants for planting	Israel	United Kingdom	1
Phthorimaea operculella	*Solanum tuberosum*	Ware potatoes	Israel	United Kingdom	1
Puccinia pelargonii-zonalis	*Pelargonium*	Cuttings	Spain	Norway	2
Sclerotinia sclerotiorum, Cirsium arvense	*Petroselinum crispum*	Seeds	Italy	Israel	1
Thripidae	*Ipomea*	Vegetables	Thailand	United Kingdom	1
	Momordica charantia	Vegetables	Thailand	France	2
	Orchidaceae	Cut flowers	Singapore	France	1
Thrips palmi	*Dendrobium*	Cut flowers	Thailand	United Kingdom	2
	Orchidaceae	Cut flowers	Malaysia	France	1
	Orchidaceae	Cut flowers	Thailand	France	2
Thrips sp.	*Dendrobium*	Cut flowers	Thailand	Italy	1
	Orchidaceae	Cut flowers	Malaysia	France	1
Unaspis citri, Pinnaspis citri, Lepidosaphes beckii, Lepidosaphes gloverii	*Citrus aurantifolia*	Fruits	Uruguay	United Kingdom	1
Xanthomonas campestris* pv. *campestris	*Brassica oleracea* (Broccoli)	Seeds	USA	Israel	1

- **Weeds**

Pest	Consignment	Type of commodity	Country of origin	Country of destination	nb
Acroptilon repens	*Medicago sativa*	Seeds	Italy	Bulgaria	1
Ambrosia artemisiifolia	*Asclepias*	Seeds	Germany	Israel	1
***Ambrosia* sp.**	*Helianthus annuus*	Seeds	Netherlands	Bulgaria	1

- **Fruit flies**

Pest	Consignment	Country of origin	Country of destination	nb
Bactrocera sp.	*Psidium guajava*	Malaysia	France	1
Ceratitis capitata	*Citrus*	Cyprus	Romania	1
	Citrus	Italy	Romania	1
	Citrus	Syria	Romania	1
	Citrus	Turkey	Romania	1
Ceratitis sp.	*Mangifera indica*	Kenya	France	1
	Mangifera indica	South Africa	France	3

- **Bonsais**

9 consignments of bonsai plants (*Acer, Buxus, Ligustrum, Sageretia, Ulmus, Zelkova)* from China (8) and Japan (1) were intercepted by Germany (1) and United Kingdom (8) because of the presence of the following nematodes: *Helicotylenchus dihystera, Helicotylenchus* sp., *Tylenchorhynchus* sp., *Xiphinema* sp.; and the aphid species: *Tinocallis takachihoensis.*

98/098 Contributions to a Manual of Palaearctic Diptera

The first volume of a series of three books entitled ‘Contributions to a Manual of Palaearctic Diptera’ edited by L. Papp and B. Darvas has just been published (592 pp). The three volumes will present the current knowledge on morphology, physiology, genetics, ecology and economic impact of Diptera. The genera and species included are those which have a significant importance as model organisms in genetics, as plant pests or beneficial organisms in agriculture, and as vectors of animal and human diseases. Morphological keys (with many figures) for adults and larvae are given.

Volume 2 on Nematocera and Lower Brachycera has just been published and contains chapters on 38 dipterous families prepared by 23 specialists from 12 countries. Volume 1 will concern general and applied dipterology and is expected in 1998. Volume 3 will present the Higher Brachycera and will be published in 1999.

Orders should be sent to:
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Additional key words: publication

98/099 The EPPO Web Site is now available

The EPPO Web Site is now available at the following address:

http://www.eppo.org

It provides general information on the Organization (activities, member countries, calendar of meetings etc.), and on its publications (books, standards and software). The EPPO Secretariat plans to add regularly more information and data about the work of the Organization, links with other useful Web Sites etc.
We invite you to visit our new Web Site and send us your comments.

Source: **EPPO Secretariat, 1998-05.**