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EPPO *Reporting Service*

95/048 **THRIPL...*Thrips palmi* eradicated from The Netherlands**

The EPPO Secretariat has recently been informed by the Dutch Plant Protection Service that *Thrips palmi* (EPPO A1 quarantine pest) has again been successfully eradicated from the Netherlands. It may be recalled that in 1994, *T. palmi* was found in two firms on *Ficus benjamina*, resulting from imports of infested plants from Guatemala (EPPO RS 94/107). Guatemala then declared that *T. palmi* does not occur (EPPO RS 94/015) on its territory.

In 1994, the Dutch Plant Protection Service has found in total 21 premises infested by *T. palmi*, exclusively on *Ficus benjamina* plants. At two firms, infestations were found as a result of direct imports from Guatemala. At three firms that supply plant material to other growers, infestations were also found, though the origin of these remain unclear (two of them receive material from importers who obtain plants from Guatemala and Florida (US) and the third exclusively from Belgium). During routine checks of all suppliers and customers of these firms, the Dutch Plant Protection Service has found 16 customers infested. Some customers and suppliers were based in other countries, whose Plant Protection Services had been informed of the addresses of these firms. No infestation was reported from these countries as a result from the Dutch notification.

The eradication programme was set up as soon as the first foci were found. All Plant Protection Officers were informed and asked to pay attention to possible infestations of *T. palmi* in all crops, for national and import inspections. On all 21 infested firms, chemical treatments with imidacloprid in combination with other plant protection products have been applied. In addition, surveys were carried out in all customers and suppliers of the firms found infested and in all Dutch firms where *Ficus* plants are grown. In total 251 firms have been inspected. During this survey, no further infestation was found.

In order to prevent any reinfestation, the Netherlands are taking official measures concerning imports from Guatemala. Discussions within the EU Standing Committee on Plant Health have resulted in stricter measures for imports into the EU with regard to *T. palmi*. These measures will come into force on the 1st April 1995, and will supersede the Dutch measures.

Source: **Dutch Plant Protection Service, (1995-02).**

95/049 **DACUDO...**Revision of the *Bactrocera dorsalis* complex

Drew and Hancock have revised the *Bactrocera dorsalis* complex in Asia, so that fifty-two species are now placed in it (twelve species have been revised and forty new species described). Eight of these species are considered of economic importance: *Bactrocera carambolae* sp n., *B. caryeae*, *B. dorsalis*, *B. kandiensis* sp n., *B. occipitalis*, *B. papayae* sp n., *B. philippinensis* sp n. and *B. pyrifoliae* sp n. A key to species is given in this publication, and for each of them, information on host plants and geographical distribution is given.
In addition to this study, CABI has published distribution maps for the eight species of economic importance.

- ***Bactrocera dorsalis*** **(Oriental fruit fly)**

HOST PLANTS: wide range of commercial fruits (e.g. *Carica papaya*, *Citrus sinensis*, *Mangifera indica*, *Musa paradisiaca*, *Prunus persica*) and probably a wide range of endemic rainforest fruits.

GEOGRAPHICAL DISTRIBUTION

Asia: Bangladesh (unconfirmed), Bhutan, China (Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Sichuan, Yunnan), Hong Kong, India (Assam, Bihar, Delhi, Himachal Pradesh, Jammu & Kashmir (unconfirmed), Karnataka, Maharashtra, Orissa, Punjab, Rajasthan, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal), Kampuchea (Cambodia), Laos, Myanmar (Burma), Nepal, Pakistan, Sri Lanka, Taiwan, Thailand, Vietnam.
North America: Hawaii
Oceania: Northern Mariana Islands (eradicated in Rota), Guam

- ***Bactrocera carambolae*** **(Carambola fruit fly)**

HOST PLANTS: *Averrhoa carambola*, *Syzygium samarangense* (*S. javanica*) and secondary hosts: *Malpighia punicifolia*, *Mangifera indica*, *Psidium guajava*.

GEOGRAPHICAL DISTRIBUTION

Asia: India (Andaman Islands), Brunei Darussalam, Indonesia (Java, Lombok, Sumbawa), Malaysia (Sabah, West Malaysia), Singapore, Thailand (southern part).
South America: French Guyana, Guyana (the *Dacus* species recently mentioned by IICA/CARAPHIN in Guyana, see RS 95/021, was probably *B. carambolae*), Suriname.

- ***B. caryeae***

HOST PLANTS: *Citrus* spp., *Mangifera indica*, *Psidium guajava*, *Artocarpus integer*.

GEOGRAPHICAL DISTRIBUTION

Asia: India (south, Karnataka, Tamil Nadu), Sri Lanka.

- ***B. kandiensis***

HOST PLANTS: *Mangifera indica*, *Garcinia* sp.

GEOGRAPHICAL DISTRIBUTION

Asia: Sri Lanka

- ***B. occipitalis***

HOST PLANTS: *Mangifera indica*, *Psidium guajava* and probably other fleshy fruits.

GEOGRAPHICAL DISTRIBUTION

Asia: Brunei Darussalam, Malaysia (Sabah), Philippines (Cebu, Luzon, Mindanao, Sulu Islands, Tawitawi Islands).

- ***B. papayae***

HOST PLANTS: wide range of commercial and endemic rainforest fruits.

GEOGRAPHICAL DISTRIBUTION

Asia: Indonesia (Bali, Flores, Irian Jaya, Java, Kalimantan, Lombok, Sulawesi, Sumbawa, Timor), Malaysia (Sabah, Western Malaysia), Singapore, Thailand.

Oceania: Australia (Queensland: Torres Straits Islands), Christmas Island, Papua New Guinea.

- ***B. philippinensis***

HOST PLANTS: *Artocarpus communis*, *Carica papaya*,, *Syzygium malaccensis*, *Mangifera indica*, *Pouteria duklitan* (wild rainforest host).

GEOGRAPHICAL DISTRIBUTION

Asia: Philippines (Cebu, Luzon, Mindanao, Negros, Panay).

- ***B. pyrifoliae***

HOST PLANTS: *Baccaurea ramiflora*, *Prunus persica*, *Psidium guajava*, *Pyrus pyrifolia*.

GEOGRAPHICAL DISTRIBUTION

Asia: Thailand (north).

Source: Drew, R.A.I.; Hancock, D.L. (1994) The *Bactrocera dorsalis* complex of fruit flies (Diptera: Tephritidae: Dacinae) in Asia.
Bulletin of Entomological Research Supplement Series, Supplement No.2, CABI, Wallingford, GB, 68 p.

CIE (1994) Distribution Maps of Pests, Series A, No. 109 (3rd revision), Nos. 546-553. CAB International, Wallingford, UK.

95/050 **DACUDO...**Influence of temperature on the demography of *Bactrocera dorsalis*

The effects of seven constant temperatures (19, 22, 25, 28, 31, 34 and 36 °C), with a photoperiod of 12:12 hours (light: dark) and 65-85 % RH, on the development, longevity and fecundity of *Bactrocera dorsalis* (EPPO A1 quarantine pest) have been studied in the laboratory. The insects used were taken from a stock colony maintained for 6 generations in China and originated from a guava orchard in Guangzhou. Development of eggs and larvae ranged from 30.4 days at 19 °C to 17.4 days at 36 °C. Adult life spans averaged 155 days at 19 °C to 30 days at 36 °C. Females laid the maximum number of eggs (1581 eggs) at 22 °C and the fewest (9 eggs) at 36 °C. The low fecundity of 36 °C is thought to be caused by high mortality and decreased rate of ovarian maturation. The intrinsic rate of increase ranged from 0.095 (individual per female per day) at 34 °C to 0.005 at 36 °C. In this experiment, the optimum temperature for *B. dorsalis* population growth is 34 °C. The authors concluded that the results of this study could be useful for mass-rearing projects and for pest management programs (e.g. construction of simulation models for predictions).

Source: Yang, P.; Carey, J.R.; Dowell, R.V. (1994) Temperature influences on the development and demography of *Bactrocera dorsalis* (Diptera: Tephritidae) in China.
Environmental Entomology, 23 (4), 971-974.

Additional key words: biology.

95/051 **CERTCA/DACUDO/DACUCU...**Use of DNA probes to differentiate *Ceratitis capitata*, *Bactrocera dorsalis* and *B. cucurbitae*

In Hawaii (US), DNA sequences have been isolated from the genomes of *Ceratitis capitata* (EPPO A2 quarantine pest), *Bactrocera dorsalis* and *B. cucurbitae* (both EPPO A1 quarantine pests) and have been used as probes. Results have shown that these DNA sequences can be used to differentiate the three fruit flies species using limited amounts of material from any stage of the life cycle (single eggs, larvae or adult body parts), on dot blots or squash blots. It is noted that in commodity treatment programs, rapid identification of the pest at an earliest possible stage is critical. Therefore, the authors concluded that this rapid and reliable method is particularly useful when infestations are found on commodities, as it is no longer necessary to rear insects until the species can be identified.

Source: Haymer, D.S.; Tanaka, T.; Teramae, C. (1994) DNA probes can be used to discriminate between Tephritid species at all stages of the life cycle (Diptera: Tephritidae).
Journal of Economic Entomology, 87 (3), 741-746.

Additional key words: new identification method.

95/052 **DACUTR...**Detection of irradiated *Bactrocera tryoni*

Laboratory studies have been carried out in Australia on detection of irradiated *Bactrocera tryoni* (EPPO A1 quarantine pest). For quarantine purposes, a dose of 75 Gray has been recommended but it does not produce an immediate mortality of all larval stages exposed (though 100 % mortality will be reached at pupation). Therefore, it is needed to know whether live insects found within commodities at the point of import have been irradiated or not. Protein profiles for control and irradiated larvae have been compared but were found similar, so this method was not considered suitable. Another method based on anatomical comparison showed that the size of the supraesophageal ganglion is significantly reduced in irradiated larvae, and the size reduction is more important for samples which have been treated at early stages. The authors concluded that this method could be successfully used to detect *B. tryoni* irradiated at quarantine dose rates.

Source: Lescano, H.G.; Congdon, B.C.; Heather, N.W. (1994) Comparison of two potential methods to detect *Bactrocera tryoni* (Diptera: Tephritidae) gamma-irradiated for quarantine purposes.
Journal of Economic Entomology, 87 (5), 1256-1261.

95/053 **BTNYVX...**Situation of Rhizomania in United States

Beet necrotic yellow vein furovirus (EPPO A2 quarantine pest), causing rhizomania, has been reported in United States in the following States: California (first found in several of the important sugar beet production areas in 1983, and reaching over 30.000 ha by 1989), Texas (first found in 1985 in one farm near Hereford) and papers published in 1993 mentioned its occurrence in Idaho (first found in 1992), Nebraska and Wyoming. In 1990 and 1991, surveys have been carried out in Texas and in New Mexico to determine the incidence of rhizomania, beet distortion mosaic virus and an unnamed soilborne sugar beet virus designated as Texas 7 (also transmitted by *Polymyxa betae*, morphologically similar to beet necrotic yellow vein furovirus but serologically different). Soil samples have been collected, sugar beets were planted in these samples and root tissues were then analyzed by ELISA. Beet necrotic yellow vein furovirus was found in eight of the ten sugar-beet growing countries in Texas and in one county of New Mexico. The unnamed virus Texas 7 was found in five counties in Texas, alone or in combination with rhizomania. Beet distortion mosaic virus has been found in four Texas counties and in one county in New Mexico. The authors noted that due to the widespread distribution of rhizomania in Texas, as in California, quarantine measures are pointless though strict control measures are being taken to slow further spread of the disease.

Source:

Heidel, G.B.; Rush, C.M. (1994) Distribution of beet necrotic yellow vein virus, beet distortion mosaic virus, and an unnamed soilborne sugar beet virus in Texas and New Mexico.
Plant Disease, 78 (6), 603-606.

Duffus, J.E.; Liu, H.Y. (1987) First report of rhizomania of sugar beet from Texas.
Plant Disease, 71, p 557.

Duffus, J.E.; Whitney, E.D.; Larsen, R.C.; Liu, H.Y.; Lewellen, R.T. (1984) First report in western hemisphere of rhizomania of sugar beet caused by beet necrotic yellow vein virus.
Plant Disease, 68, p 251.

Additional key words: detailed record.

95/054 **CSTXXX/GE...**Citrus tristeza closterovirus in Georgia

Citrus tristeza closterovirus was considered absent from all Republics of the USSR. Although the Soviet regulations identified CTV as a pest 'potentially dangerous for the USSR', they did not make any specific provisions concerning it. While plants of citrus were prohibited from countries where *Xanthomonas campestris* pv. *citri* occurred, this was not the case for CTV. Therefore planting material of citrus could enter under license, and did so, including from countries where the disease occurs. In 1988/1989 a few trees of satsuma (*C. unshiu*) and orange (*C. sinensis* cv. Washington Navel) were found to show suspect symptoms in the Black Sea coastal region of what was then the Georgian SSR, and the presence of the disease was confirmed by testing on Mexican lime, and by electron microscopy. So, CTV is now present in Georgia. Possible vectors in Georgia are *Toxoptera aurantii* and *Aphis spiraecola*. Measures are being taken to prevent further spread and to ensure that planting material is produced free from this virus.

Source: Kapanadze, D.E. (1994) [Citrus tristeza in Georgia].
Zashchita Rastenii, no. 6, 33.

Additional key words: new record.

95/055 **ERWIAM/UA...***Erwinia amylovora* is not present in Ukraine

The Ukrainian Plant Quarantine Inspection has declared to EPPO that *Erwinia amylovora* (EPPO A2 quarantine pest) is not present in Ukraine. This has been confirmed by annual surveys of orchards in the south and west of the country, suspect bacterial isolates being tested for their pathogenic, cultural, biochemical and serological properties.
Isolates obtained in the 1980s and mentioned in the publications of M.I. Kalinichenko as *Erwinia*-like were tested in the Microbiology and Virology Institute, Kiev by R.I. Gvozdyak and found to be *Pseudomonas syringae* and *Erwinia herbicola*.

Source: **Ukrainian Plant Quarantine Inspection, (1995-02).**

95/056 **ERWIAM...**Further information on *Erwinia amylovora* on *Rubus*

As stated in 'Quarantine Pests for Europe', *Erwinia amylovora* (EPPO A2 quarantine pest) has been isolated from diseased *Rubus* in USA. Because the pathogen has not been reported elsewhere on this genus, this remains slightly dubious. However, a small chapter is dedicated to fireblight in the APS Compendium of raspberry and blackberry diseases and insects. This article stated that fireblight on *Rubus* has been occasionally reported from Illinois, Maine and North Carolina and that more recent outbreaks have been observed in Ohio, Wisconsin and Illinois in the 1980s and in Wisconsin in 1990. The disease has been seen on red raspberry (*Rubus idaeus*), on wild and cultivated blackberry (*Rubus fruticosus*), but it is relatively uncommon and rarely of economic importance. On affected plants, water soaked lesions with abundant bacterial ooze can be seen. Diseased portions of canes become necrotic and purplish black; the tips may become curved. Infected berries do not mature and become brown, dry and very hard. It appears that strains of the bacterium isolated from *Rubus* can only infect *Rubus* and that strains from other rosaceous plants are not pathogenic to *Rubus*.

Source: Ries, S.M. (1991) Fire blight.
In: Compendium of Raspberry and Blackberry Diseases and Insects, Ellis, M.; Converse, R.H.; Williams, R.N.; Williamson, B. (Eds), APS Press, St Paul, Minnesota, qUSA, 40-41.

95/057 **BEMITA...**Studies on sampling for *Bemisia tabaci* on *Cucumis melo* in Arizona

Studies on spatial distribution of *Bemisia tabaci* (EPPO A2 quarantine pest) have been carried out in Arizona (US), in three fields of cantaloupe (*Cucumis melo*) grown in spring. Weekly sampling began when adult whiteflies were detected on sticky traps (April) and was carried over a period of 6-7 weeks. Each week, eggs, first to mid-fourth instars, late fourth instars (red-eyed nymphs) and adults were counted on leaves from terminal and crown portions of the plant. At sampling date, adults were counted at two different hours of the day (07.00 and 13.00) on entire leaves and immature stages were counted once on leaf portions. The results showed that adults were more abundant at 07.00 on terminal leaves, but red-eyed nymphs were more abundant on crown leaves. There were no significant density differences between leaf sections within leaf positions for any immature life stage. Eggs were also more abundant on terminal leaves. It was also observed that all life stages had an aggregated spatial distribution. The authors felt that during early season, it is preferable to sample adults early in the morning on terminal leaves of *C. melo*. These results could be useful when establishing sampling plans for the management of *B. tabaci* populations on *C. melo*.

Source: Tonhasca, A.JR., Palumbo, J.C.; Byrne, D.N. (1994) Distribution patterns of *Bemisia tabaci* (Homoptera: Aleyrodidae) in Cantaloupe fields in Arizona. **Environmental Entomology, 23 (4), 949-954.**

95/058 **TMYLCX/BEMITA...PCR detection of viruliferous *Bemisia tabaci***

A rapid, specific and simple PCR technique has been developed in Wisconsin (US) to detect tomato yellow leaf curl geminivirus (EPPO A2 quarantine pest) and tomato mottle geminivirus in their insect vector *Bemisia tabaci* (EPPO A2 quarantine pest). In fact, in this study, the B biotype of *Bemisia tabaci* (*B. argentifolii*) has been used. With this method, it was possible to detect both viruses in individual *B. tabaci* carrying either tomato yellow leaf curl or tomato mottle. The authors concluded that this method is particularly useful for epidemiological and disease management studies in the field.

Source: Mehta, P.; Wyman, J.A.; Nakhla, M.K.; Maxwell, D.P. (1994) Polymerase chain reaction detection of viruliferous *Bemisia tabaci* (Homoptera: Aleyrodidae) with two tomato-infecting geminiviruses.
Journal of Economic Entomology, 87 (5), 1285-1290.

95/059 **VIRUSES/BEMITA...PCR detection of whitefly-transmitted geminiviruses**

A PCR technique using degenerate primers has been developed in UK, in order to detect a range of whitefly-transmitted geminiviruses in plants and insects, including some geminiviruses which have been less well characterized. With this method it was possible to detect the following viruses in infected leaves: Kenyan type strain of African cassava mosaic geminivirus, a Ugandan isolate of African cassava mosaic geminivirus, an isolate of Indian cassava mosaic geminivirus, an isolate of East Africa cassava mosaic geminivirus from Madagascar, Abutilon mosaic geminivirus, euphorbia mosaic geminivirus, cowpea golden mosaic geminivirus from Nigeria, okra leaf curl geminivirus from Ivory Coast, an isolate of Indian tomato leaf curl geminivirus, tomato yellow leaf curl geminivirus isolates from Senegal, Nigeria, Sicily and Sardinia, and an uncharacterized pepper geminivirus from Belize. Individual viruses could then be distinguished by the patterns of DNA fragments obtained by the action of restriction endonucleases on the PCR products. For tomato geminiviruses, the patterns obtained for the tomato yellow leaf curl isolates from European origin were similar, whereas the other three viruses (TYLCV from Nigeria and Senegal, Indian tomato leaf curl geminivirus) gave different patterns (different from each other and from European viruses). With this method, it was also possible to detect geminiviruses in single viruliferous whiteflies (*Bemisia tabaci* biotype B = *B. argentifolii*).

Source: Deng, D.; McGrath, P.F.; Robinson, D.J.; Harrison, B.D (1994) Detection and differentiation of whitefly-transmitted geminiviruses in plants and vector insects by the polymerase chain reaction with degenerate primers.
Annals of Applied Biology, 125 (2), 327-336.

95/060 **BEMITA...**First report of squash silverleaf disorder in New York State

Symptoms of squash silverleaf have been observed for the first time in Northeastern United States, on *Cucurbita pepo* (cultivated in the field but transplanted from the greenhouse) during August 1993 at the Long Island Horticultural Research Laboratory, New York (US). Whitefly populations associated with this disorder were identified as *Bemisia argentifolii* (*Bemisia tabaci* biotype B - EPPO A2 quarantine pest). The authors concluded that although *B. argentifolii* and associated disorders have become a major limitation to vegetable production in Florida, Arizona, California and other southern states, this may not occur in northern states where the pest cannot overwinter outdoors. They felt that the unusually hot and dry conditions of the 1993 growing season, which were very favourable to the insect development, may have contributed to this outbreak.

Source: McGrath, M.T.; Gilrein, D.; Brown, J.K. (1994) First report of squash silverleaf disorder associated with B-biotype sweetpotato whitefly in New York. **Plant Disease, 78 (6), p 641.**

95/061 **TMYLCX/BEMITA...**Transmission of tomato yellow leaf curl geminivirus by *Bemisia argentifolii* (*B. tabaci* biotype B)

The transmission of an Egyptian isolate of tomato yellow leaf curl geminivirus by *Bemisia argentifolii* (*B. tabaci* biotype B) (both EPPO A2 quarantine pests) has been studied in Wisconsin (US). The virus can be transmitted with one adult *B. argentifolii* per tomato plant, but the efficiency of transmission increased fourfold when the number of adults was increased to five per plant (a maximum efficiency of 97 % was reached with 20 adults per plant). Tomato yellow leaf curl geminivirus is transmitted after a minimum acquisition-access period of 15 min (the maximum rate of transmission is reached after 24 h of acquisition period) and a minimum inoculation-access period of 15 min (the rate of transmission then increased and reached its maximum after 12 h of inoculation-access period). It was also shown that adults of *B. argentifolii* are unable to transmit the virus until 24 h after the initiation of the acquisition-access period regardless of the length of acquisition provided. The authors felt that this period of 24 h includes the acquisition-access period and the latent period during which the virus probably circulates within the vector. In addition, it was also shown that nymphs could acquire the virus. The authors pointed out that the fact that the virus is retained from nymphal to adult stage give support for a circulative mode of transmission. Finally, data on the virus titer within *B. argentifolii* indicate that there is a multiplication of tomato yellow leaf curl geminivirus in the insect vector.

Source: Mehta, P.; Wyman, J.A.; Nakhla, M.K.; Maxwell, D.P. (1994) Transmission of tomato yellow leaf curl geminivirus by *Bemisia tabaci* (Homoptera: Aleyrodidae).
Journal of Economic Entomology, 87 (5), 1291-1297.

95/062 **POSTXX...Detection method of potato spindle tuber viroid in true potato seeds with a non-radioactive DNA probe**

A simple, sensitive and non-radioactive method for detecting potato spindle tuber viroid (EPPO A2 quarantine pest) in germinated true potato seeds has been developed. To produce seedlings, seeds are placed on moist filter paper in plastic boxes and allowed to germinate for 10 days in darkness at 25 °C. The method is based on nucleic acid hybridization with a PSTVd-specific DNA probe labelled with digoxigenin. The authors have found that with this method it was possible to detect one diseased seedling in approximately 150 healthy ones. This method can be used on ungerminated seeds but is less sensitive. They pointed out that this method is a good alternative to procedures based on phenol/chloroform extractions and hybridization procedures using radioactive probes and concluded that it could be of interested to most seed testing laboratories and institutions involved in the exchange of potato germplasm.

Source: Borkhardt, B.; Vongsasitorn, D.; Albrechtsen, S.E. (1994) Chemiluminescent detection of potato spindle tuber viroid in true potato seed using a digoxigenin labelled DNA probe.
Potato Research, 37 (3), 249-255.

95/063 **PLPXXX...Existence of two major groups of isolates of plum pox potyvirus**

The variability of 28 isolates of plum pox potyvirus (EPPO A2 quarantine pest) from several European and Mediterranean countries has been studied by using three different methods (electrophoretic properties, antigenic properties of the N- and C- parts of the coat protein, RFLP analysis of a PCR amplified cDNA fragment corresponding to the 3' end coat protein gene). It can be recalled that two serological isolates have previously been identified in France: PPV-M (Markus strain), a peach isolate introduced from Northern Greece which severely reduced the growth of GF 305 peach seedlings, and PPV-D (Dideron strain) an apricot isolate from southeastern France inducing less reduction of plant growth. Each of the three methods gave similar results. They were all effective and showed a close correlation in the typing of the 28 isolates. This confirms the existence of two major groups of isolates designated as PPV-D and PPV-M.

Source: Bousalem, M.; Candresse, T.; Quiot-Douine, L.; Quiot, J.B. (1994) Comparison of three methods for assessing plum pox virus variability: further evidence for the existence of two major groups of isolates.
Journal of Phytopathology, 142 (2), 163-172.

Additional key words: new detection method.

95/064 **GVFDXX...MLOs are associated with a grapevine yellows disease 'Vergilbungskrankheit' in Germany**

Studies have been carried out in Germany to confirm the assumption that, as in the case of other yellows diseases of grapevine, MLOs were associated with 'Vergilbungskrankheit' (VK) which is of increasing importance in some viticultural regions of Germany (e.g. Mosel valley). MLOs could be detected in tissues of symptomatic grapevines by PCR that amplified a sequence of the 16S rRNA gene. A preliminary characterization of the MLO from the infected grapevine (by RFLP) revealed a close relationship with the MLO causing stolbur disease of solanaceous plants. The authors also found that the VK agent is distinct from flavescence dorée MLO (EPPO A2 quarantine pest). This could explain some of the differences observed between these two diseases, such as susceptibility of cultivars and the non-transmission of VK by *Scaphoideus titanus* (vector of grapevine flavescence dorée). The authors concluded that further studies on the epidemiology of this disease and its relation with other European grapevine yellows which are not transmitted by *S. titanus* are needed.

Source: Maixner, M.; Ahrens, U., Seemüller, E. (1994) Detection of mycoplasmalike organisms associated with a yellows disease of grapevine in Germany. **Journal of Phytopathology, 142 (1), 1-10.**

95/065 **XANTPR...**Studies on the epiphytic persistence of *Xanthomonas campestris* pv. *pruni*

Twig cankers have been often cited as the probable overwintering sites for *Xanthomonas campestris* pv. *pruni* (EPPO A2 quarantine pest). The aim of this study was to determine whether *Xanthomonas campestris* pv. *pruni* could also persist as epiphytic populations. Leaves, twigs, buds, flowers and fruits of susceptible peach (15 year-old *Prunus persica* cv. Blake) and plum (13 year-old *Prunus domestica* cv. Methley) have been sampled at intervals during a 13 months period (1984-1985), in South Carolina (US). During the growing season, samples were collected at 5 to 15 days intervals and after leaf fall in autumn, the sampling period was reduced to once or twice each month. The bacterium has been found on all symptomless organs each time they were sampled. Epiphytic populations were consistently found, though their levels were variable according to the time of the year and the organ on which they were isolated. The authors concluded that these results show that *Xanthomonas campestris* pv. *pruni* can be found on symptomless plant surfaces and can survive on stems and buds throughout the whole year. This may have consequences on control strategies against this disease, such as timing of chemical treatments (if allowed) and pruning (removal of diseased twigs during pruning may not be as useful as previously thought for disease prevention).

Source: Shepard, D.P.; Zehr, E.I. (1994) Epiphytic persistence of *Xanthomonas campestris* pv. *pruni* and peach and plum.
Plant Disease, 78 (6), 627-629.

Additional key words: epidemiology.

95/066 **TILLCO...**Use of electrophoresis to distinguish teliospores of *Tilletia controversa* from *T. tritici*

As it is difficult to distinguish morphologically teliospores of common bunt of wheat (*Tilletia tritici*) from dwarf bunt (*Tilletia controversa* - EPPO A2 quarantine pest), the authors have tried to identify a stable biochemical marker by analyzing protein preparations from the two fungi. Teliospores from 12 races of *T. tritici* and 12 isolates of *T. controversa* were sampled in the field from several cultivars of wheat (*Tricicum aestivum*) artificially inoculated. Proteins of teliospores were extracted and analyzed by electrophoresis. The authors have found that a 116 kD polypeptide was always present in *T. controversa* teliospores, but absent in *T. tritici*. The authors concluded that this 116 kD polypeptide could be a useful marker for identification of *T. controversa* teliospores in wheat shipments.

Source: Banowetz, G.M.; Doss, R.P. (1994) A comparison of polypeptides from teliospores of *Tilletia controversa* (Khun) and *Tilletia tritici* (Bjerk) Wint. **Journal of Phytopathology, 140 (4), 285-292.**

Additional key words: new detection method.

95/067 **QUADPE...**Identification of *Quadraspidiotus perniciosus* using RADP-PCR

A molecular determination key for six *Quadraspidiotus* species, based on RADP-PCR, has been developed in Switzerland. The following species have been studied: *Q. pyri*, *Q. marani*, *Q. ostreaeformis* (native orchard pest), *Q. perniciosus* (not native in Switzerland - EPPO A2 quarantine pest), *Q. gigas* (living on poplar and willow) and *Q. zonatus* (living mainly on oak and beech). The authors stressed that no purification of the DNA prior to analysis is needed, the technique is highly reproducible and it can be used for both sexes and all developmental stages. By using this method, it is possible to identify the species of trapped adult males and therefore establish reliable data on the occurrence and distribution of *Q. perniciosus* which is an important quarantine pest for Switzerland.

Source: Frey, J.F.; Frey, B. (1994) Species identification with RADP-PCR: a determination key for six species of the genus *Quadraspidiotus* MacGillivray (Diaspididae). **Phytoparasitica, 22 (3), 240-241.** **Abstract of a paper presented at the "7th international symposium of scale insect studies", Bet Dagan (IL), 1994-06-12/17.**

Additional key words: new identification method.

95/068 **QUADPE...**Scale insects of orchards in Georgia

The following species of armoured scale insects are considered as important pests of fruit trees in Georgia: *Quadraspidiotus perniciosus* (EPPO A2 quarantine pest) which develops two annual generations, *Parlatoria oleae*, *Lepidosaphes ulmi*, *Epidiaspis leperii* and *Quadraspidiotus ostreaeformis*. Natural enemies such as predators (*Chilocorus bipustulatus* and *C. renipustulatus*) and parasitoids (*Encarsia perniciosi*, *Aphytis proclia*, *A. maculicornis* and *A. mytilaspidis*) are able to regulate the pest populations to a large extent. Chemical control is also used. According to the EPPO Secretariat this is the first report of *Q. perniciosus* in Georgia.

Source: Aleksidze, G. (1994) Armoured scale insect (Diaspididae) pests of fruit orchards and their control in the Republic of Georgia.
Phytoparasitica, 22 (3), p 258.
Abstract of a paper presented at the "7th international symposium of scale insect studies", Bet Dagan (IL), 1994-06-12/17.

Additional key words: new record.