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CONTENTS ***Pests & Diseases***

Invasive Plants

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2006/095 New data on quarantine pests and pests of the EPPO Alert List

By browsing through the literature, the EPPO Secretariat has extracted the following new data concerning quarantine pests and pests included on the EPPO Alert List. The situation of the pest concerned is indicated in bold, using the terms of ISPM no. 8.

- **New records**

Callidiellum rufipenne (Coleoptera: Cerambycidae – formerly on the EPPO Alert List) was recently introduced into Argentina (di Iorio, 2004). **Present, no detail**.

Frankliniella occidentalis (Thysanoptera: Thripidae – EPPO A2 list) was first reported in some protected areas of Beijing, China, in July 2003 (Wu *et al.*, 2005). **Present, found in 2003 under protected conditions in Beijing.**

Liriomyza sativae (Diptera: Agromyzidae – EPPO A2 list) occurs in Sri Lanka (Niranjana *et al.*, 2005). **Present, no detail.**

- **Detailed records**

In China, *Agrilus planipennis* (Coleoptera: Buprestidae – EPPO A1 list) is present in the municipality of Tianjin and the provinces of Xinjiang and Inner Mongolia (Wei *et al*., 2004).

Bemisia tabaci (Homoptera: Aleyrodidae – EPPO A2 list) occurs in Lakshadweep, India (Dubey *et al.*, 2004).

The presence of both fruit fly species, *Anastrepha obliqua* (Diptera: Tephritidae – EPPO A1 list) and *Ceratitis capitata* (EPPO A2 list) is reported in Rio Grande do Norte, Brazil (Araujo *et al.*, 2005).

In Islas Canarias (Spain), the presence of *Cacyreus marshalli* (Lepidoptera: Lycaenidae – EPPO A2 list) is reported in Fuerteventura and Gran Canaria (Acosta-Fernández, 2005). The pest is also reported on other Mediterranean islands: Archipelago Toscano (Elba, Giglio, Capraia) and Sicilia (IT), and Corsica (FR) (Dapporto, 2003; Cernigliaro *et al*., 2003).

Scaphoideus titanus (Homoptera: Cicadellidae), vector of grapevine flavescence dorée, occurs in Serbia and Montenegro. It has been found on several localities including Tuleš (Aleksandrovac), Krušedol, Radmilovac and Banatski Karlovac. In Tuleš (Aleksandrovac), the presence of

grapevine flavescence dorée has also been detected. It is considered that *S. titanus* is already widespread in the central and southern regions of Serbia (Magud and Tošeski, 2004).

In Brazil, *Spodoptera eridania* (Lepidoptera: Noctuidae - EPPO A1 list) is present in Minas Gerais (Miranda *et al.*, 2005).

Source:

Acosta-Fernández B (2005) [*Cacyreus marshalli* Butler, [1988] in Fuerteventura and Gran Canaria (Canary Islands, Spain) (Lepidoptera: Lycaenidae)]. SHILAP *Revista de Lepidopterología* **33**(131), 245-246.

Araujo EL, Medeiros MKM, Silva VE, Zucchi RA (2005) [Fruit flies (Diptera: Tephritidae) in the semi-arid region of the State of Rio Grande do Norte, Brazil: host plants and infestation indices]. *Neotropical Entomology* **64**(6), 889-894.

Cernigliaro A, Di Benedetto R, Leotta R (2003) Nuovi dati sulla presenza di Macrolepidotteri in Sicilia (Lepidoptera). *Bollettino della Società Entomologica Italiana* **135(3)**, 181-187 (abst.).

Dapporto (2003) Due specie di lepidotteri nuove per l'Arcipelago Toscano: *Cacyreus marshalli* Butler, 1898 e *Aletia languida* (Walker, 1858) (Lycaenidae, Noctuidae). *Atti della Societa Toscana di Scienze Naturali, Serie B* **110**, 1-2. http://www.stsn.it/serB110/01Dapporto.pdf

Dubey AK, Regu K, Sundararaj R (2004) Aleyrodid (Hemiptera: Aleyrodidae) fauna of the Lakshadweep, India. *Entomon* **29**(3), 279-286 (abst.).

di Iorio OR (2004) Exotic species of Cerambycidae (Coleoptera) introduced in Argentina. Part 2. New records, host plants, emergence periods, and current status. *Agrociencia (Montecillo)* **38**(6), 663-678 (abst.).

Magud B, Tošeski I (2004) [*Scaphoideus titanus* Ball. (Homoptera, Cicadellidae): a new pest in Serbia.] *Biljni Lekar* **32**(5), 348-349 (abst.).

Miranda MMM, Picanço MC, Zanuncio JC, Bacci L, da Silva EM (2005) Impact of integrated pest management on the population of leafminers, fruit borers, and natural enemies in tomato. *Ciência Rural* **35**(1), 204-208 (abst.).

Niranjana RF, Wijeyagunesekara HNP, Raveendranath S (2005) Parasitoids of *Liriomyza sativae* in farmer fields in the Batticaloa District. *Tropical Agricultural Research* **17**, 214-220.

Wei X, Reardon D, Wu Y, Sun JH (2004) [Emerald ash borer, *Agrilus planipennis* Fairmaire (Coleoptera: Buprestidae), in China: a review and distribution survey.] *Acta Entomologica Sinica* **47**(5), 679-685 (abst.).

Wu QJ, Zhang YJ, Xu BY, Zhu GR (2005) [The biological character, damage and management of an invasive insect pest, *Frankliniella occidentalis*.] *Entomological Knowledge* **42**(1), 11-14 (abst.).

Additional key words: new records, detailed records

Computer codes: AGRLPL, ANSTOB, BEMITA, CACYMA, CERTCA, CLLLR, FRANOC, LIRISA, PRODER, SCAPLI, AR, BR, CN, ES, FR, IN, IT, LK, YU

2006/096 Current situation of *Anoplophora glabripennis* and *A. chinensis* in France

The NPPO of France recently informed the EPPO Secretariat about the current situation of *Anoplophora glabripennis* and *A. chinensis* (Coleoptera: Cerambycidae – both EPPO A1 list) on its territory.

- *Anoplophora glabripennis*

The first outbreak was discovered in 2003 (see EPPO RS 2003/114) in an industrial area at Gien (Loiret department, Centre region). It is thought that the origin of this outbreak was infested packing wood from China. In 2003, 30 infested trees were identified and destroyed. This infestation was relatively old and large (slightly less than 1 km radius) and numerous insects were found (202 larvae, 3 pupae and 5 adults in their pupal chambers). In 2004, 12 adults were caught, and 10 new infested trees were found and destroyed. In 2005, 2 adults were caught and 6 infested trees were destroyed.

The second outbreak of *A. glabripennis* was discovered in 2004 (see EPPO RS 2004/163) in a rural area ('bocage' landscape) in the small city of Sainte-Anne-sur-Brivet (Loire-Atlantique department, Pays de la Loire region). Similarly, the origin of this outbreak is thought to be infested packing wood from China. In 2004, 77 suspect trees were destroyed, and 163 larvae and 4 eggs were found, showing that insect populations were active. This outbreak of approximately 250 m radius was probably detected at a rather late stage when many trees were already infested. In 2005, 5 adults were found and 33 trees were cut down and burnt as soon as infestation was found.

In conclusion, the two outbreaks are still present probably because of the rather late detection of the pest which in the meantime had already been infested dozens of trees. Eradication efforts therefore continue. However, no symptoms have been observed in the surrounding forests, both at Gien or Sainte-Anne-sur-Brivet, and the number of infested trees is diminishing from one year to the next. Considering the relatively small extent of the outbreaks, their location and the ongoing active surveillance, it is considered that eradication is still feasible.

The status of *Anoplophora glabripennis* in France is officially declared as follows: **Present, only in certain areas, under eradication.**

- *Anoplophora chinensis*

In 2003, an outbreak of *A. chinensis* was discovered (see EPPO 2004/074) in a nursery at Soyons (Ardèche department, Rhône-Alpes region). It is suspected that the origin of this outbreak was the import of bonsai plants from Asia. In 2003, 5 adults were caught on the premises and 2 infested trees were detected and burnt. As a precaution, all susceptible bonsai plants of the nursery were also destroyed. It is considered that this outbreak was recent, limited to a small area and that control measures had been applied at a sufficiently early stage. Three surveys were conducted in 2004, and five in 2005, on all susceptible tree species within a radius of 1 km around the infested site. No symptoms of the presence of *A. chinensis* were detected. The NPPO of France now considers that this outbreak has been eradicated.

The status of *Anoplophora chinensis* in France is officially declared as follows: **Absent, pest eradicated.**

Source: NPPO of France, 2006-05.

Additional key words: detailed record, eradication **Computer codes:** ANOLCH, ANOLGL, FR

2006/097 Situation of *Anoplophora chinensis* in Italy

In Italy, *Anoplophora chinensis* (Coleoptera: Cerambycidae – EPPO A1 list) was first reported in 2000 in a nursery at Parabiago (north of Milano in Lombardia; see EPPO RS 2001/101). After this first record, it was discovered in a student collection of insects that the same species had been collected in 1997 in the area of Parabiago. Since then, surveys have been carried out in Lombardia and phytosanitary measures applied. In 2004, *A. chinensis* was found in 13 municipalities (provinces of Milano and Varese) on an area of approximately 90 km^2. Further details can be found on the EPPO website in a note kindly provided by Maspero *et al.* in February 2005. Later in the year, *A. chinensis* was discovered in 3 new municipalities (again in the provinces of Varese and Milano). During this survey, 1229 plants showing symptoms were newly observed. In Lombardia, *A. chinensis* is mainly found on *Acer, Carpinus, Betula, Fagus, Corylus, Platanus* and *Lagerstroemia.* In the infested areas which have been delimited, phytosanitary measures are the following: complete destruction of infested trees, on some trees when destruction cannot be done wire mesh nets are applied around trunks and above the soil to trap any adults emerging from the trunk or roots, plantation of preferred host plants (see above) is prohibited, compulsory insecticide treatments of host plants are applied at regular intervals, trade and movements of host plants inside infested areas are prohibited. General information to the public is also provided. Host plants of *A. chinensis* imported from China, Korea and Japan are also submitted to a quarantine period of 2 years. In 2006, the eradication campaign is continuing and it is planned to destroy 1000 trees and to give compensation to the owners.
The situation of *Anoplophora chinensis* in Italy can be described as follows: **Present, found in several localities in Lombardia (provinces of Varese and Milano), under official control.**

Source: Caremi G, Ciampitti M (2006) Il coleottero *Anoplophora chinensis* in Lombardia: diffusione e strategie di controllo. *Atti Giornate Fitopatologiche 2006 I*, 205-210.

Maspero M, Jucker C, Colombo M, Hérard F, Lopez J, Ciampitti M, Caremi G, Cavagna B (2005) Current situation of *Anoplophora chinensis* in Italy.
http://www.eppo.org/QUARANTINE/anoplophora_chinensis/chinensis_in_it.htm

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

2006/098 Recent interceptions of *Anoplophora* species in United Kingdom

The NPPO of United Kingdom provided the EPPO Secretariat with interesting details about recent interceptions of *Anoplophora chinensis* and *Anoplophora glabripennis* (Coleoptera: Cerambycidae – both EPPO A1 pests) on imported *Acer* plants from China and packing wood. Most of these interceptions have been reported earlier in the EPPO report on notifications of non-compliance (e.g. 2005/188, 2004/127).

- In April 2006 (2006-04-11), a container with 41,000 live *Acer palmatum* plants from China was held at Southampton after exit holes were found. Live *Anoplophora chinensis* were subsequently found. This was notified on 2006-04-13 to the Chinese authorities.
- In August 2005, *Anoplophora chinensis* was found in 46,000 *Acer palmatum* plants in a nursery in Hampshire. The plants had arrived from China in April 2005. Chemical treatments were applied in August and the outbreak was eradicated.
- Before these findings, there had been several interceptions of single *Anoplophora glabripennis* by the Forestry Commission, all associated with wooden packing material from China. Action taken was treatment by fumigation or destruction.

Source: NPPO of United Kingdom, 2006-05.

Additional key words: interceptions **Computer codes:** ANOLGL, ANOLCN, GB

2006/099 *Anoplophora chinensis* eradicated from the Netherlands

In 2003, an isolated finding of *Anoplophora chinensis* (Coleoptera: Cerambycidae – EPPO A1 list) was reported from the Netherlands (EPPO RS 2004/002). One adult male was discovered in a private garden in an *Acer japonicum*. The tree was immediately destroyed. This infested tree was part of a consignment of *A. japonicum* trees which had been imported by a garden centre from China. Trace-back studies were carried out and no further findings were made on other plants belonging to this lot. A survey was also conducted in the vicinity of the garden concerned without any further finding. *A. chinensis* is therefore considered as eradicated from the Netherlands.
The status of *Anoplophora chinensis* in the Netherlands is officially declared as follows: **Absent, pest eradicated.**

Source: NPPO of the Netherlands, 2006-06.

Additional key words: eradication **Computer codes:** ANOLCN, NL

2006/100 Detection and eradication of *Anoplophora glabripennis* in Yokohama, Japan

In July 2002, *Anoplophora glabripennis* (Coleoptera: Cerambycidae – EPPO Action List) was detected on *Ulmus parvifolia* trees planted along a street in Yokohama city, Japan. All other trees situated in the vicinity were inspected and only a few were found infested. Chemical treatments were applied in September 2002 and heavily damaged trees were destroyed. The origin of this infestation remained unknown. Investigations have been carried out since March 2003 and no beetles have been captured or observed. It is now considered that *A. glabripennis* has been eradicated in Yokohama.

Source: Takahashi N, Ito M (2005) [Detection and eradication of the Asian longhorned beetle in Yokohama, Japan]. *Research Bulletin of the Plant Protection Service* no. **41**, 83-85 (abstract).

Additional key words: eradication **Computer codes:** ANOLGL, JP

2006/101 First record of *Dryocosmus kuriphilus* in Slovenia

Dryocosmus kuriphilus (Hymenoptera: Cynipidae - EPPO Alert List) was probably introduced into Slovenia on young chestnut plants (*Castanea sativa*) imported at a dormant stage in autumn 2004. In spring 2005, damage was locally observed on the young trees which had already been planted. The presence of *D. kuriphilus* was confirmed at 2 locations (Nova Gorica and Krško) and emergency measures were taken. Trace-back studies were done. From the 1250 *Castanea* plants of the original consignment, 640 plants could be retrieved and were inspected. As a result, 10 young trees at 4 locations in 3 regions were found infested by *D. kuriphilus*. In 2006, a systematic survey was done at all locations where the pest was previously found, as well as in other critical areas all over Slovenia. By the end of May 2006, no new findings were reported. The situation of *Dryocosmus kuriphilus* in Slovenia can be described as follows: **Transcient, under eradication.**

Source: NPPO of Slovenia, 2006-05.

Additional key words: new record **Computer codes:** DRYOKU, SI

2006/102 First report of *Phytophthora ramorum* on *Fagus sylvatica* in the Netherlands

In the Netherlands, the presence of *Phytophthora ramorum* (EPPO Alert List) on *Fagus sylvatica* (beech) is reported for the first time. In June 2006, during routine surveillance, *P. ramorum* was identified (by morphology and real-time PCR) in samples taken from bleeding cankers on 2 *F. sylvatica* trees. These findings were done at 2 locations (public parks) where outbreaks of *P. ramorum* had previously been found on *Rhododendron* plants growing under the trees. At one location, the infected parts of *Rhododendron* plants had been removed and destroyed in the preceding years. In addition, at the same location, 8 infested *Quercus rubra* (Northern red oaks) had been found (see EPPO RS 2004/024). Further inspections will take place to determine the extent of this outbreak. However, it is presumed that *P. ramorum* is not capable of sporulating on beech trees, and therefore these infested trees are not considered as presenting a major risk to nearby hosts of *P. ramorum*. At one location, the infected *F. sylvatica* tree will be removed as it threatens a house, but at the other location the infected tree will be left for further observations.
The pest status of *Phytophthora ramorum* in the Netherlands is officially declared as: **Present, subject to official control, only in public parks (*Rhododendron, Quercus rubra, Fagus sylvatica*).**

Source: NPPO of the Netherlands, 2006-06.

Additional key words: detailed record **Computer codes:** PHYTRA, NL

2006/103 First report of *Ciborinia camelliae* in the Netherlands

In April 2006, *Ciborinia camelliae* (EPPO A2 list) was found for the first time in the Netherlands during routine surveillance activities. The identity of the fungus was determined on the basis of the EPPO diagnostic protocol (PM 7/15). *C. camelliae* was initially detected on a single *Camellia* plant in a public garden. A follow-up survey was conducted during the *Camellia* flowering period. 69 samples were collected from symptomatic plants and 11 of them were found infected by *C. camelliae*. The fungus was detected on a limited number of plants in public parks, private gardens and few plant trading companies, but at 3 geographically distant locations in the Netherlands. Based on the biology of the pathogen, it is presumed the pest is already widespread in the country. Phytosanitary measures were applied for all plants intended to be moved or traded, but as the pest is probably widespread no measures were applied to contain or eradicate the pest in private gardens or public parks. The pest status of *Ciborinia camelliae* in the Netherlands is officially declared as: **Present, in all parts of the area.**

Source: NPPO of the Netherlands, 2006-06.

Additional key words: new record **Computer codes:** SCLECA, NL

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2006/104 First report of *Gibberella circinata* in France

The NPPO of France recently informed the EPPO Secretariat of the first record of *Gibberella circinata* (anamorph *Fusarium circinatum* – EPPO Action list A1) on its territory, in Languedoc-Roussillon. The presence of *G. circinata* was confirmed on 2005-12-07 by the National Laboratory of Mycology at Malzeville, on a sample of *Pseudotsuga menziesii* (Douglas fir). This sample had been collected from a declining *P. menziesii* (approximately 20 years old), in a private garden at Perpignan (department of Pyrénées-Orientales). In this garden, enquiries revealed that pine trees (*Pinus* sp.) had started to decline at the end of summer 2004 with the death of one tree, followed by a second one in spring 2005. Both dead pine trees were cut up. Then, a *P. menziesii* tree (the one from which the infected sample was collected) started to decline, as well as two other coniferous trees (*Pinus* sp., *P. menziesii*). It was considered that all these declining trees, as well as the remaining stumps, were infected by *G. circinata*. No other susceptible coniferous tree was identified in their vicinity. Eradication measures were initiated in March and April 2006. The infected *P. menziesii* and the two suspect coniferous trees were cut up, and all remaining stumps (5 in total, 2 *P. menziesii* and 3 *Pinus*) were up-rooted and destroyed. The NPPO considers that this outbreak has now been eradicated.
The situation of *Gibberella circinata* in France can be described as follows: **Transient, found on a few trees (*Pinus, Pseudotsuga menziesii*) in a private garden in Pyrénées-Orientales, under eradication.**

Source: NPPO of France, 2006-06

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

2006/105 *Paysandisia archon* found in large palms in Puglia (Italy)

In Puglia region (south of Italy), *Paysandisia archon* (Lepidoptera: Castiniidae – EPPO Alert List) was first found in spring 2004, but remained confined to palm tree nurseries. However, observations made in 2006 in the area of Polignano a Mare (Province of Bari) showed that the pest was also present in old palm trees. 5 *Phoenix canariensis* (3 metres tall) growing far from infested nurseries showed signs of damage and larvae were collected. Prof. Pellizzari kindly provided EPPO with a note describing this finding which is now available from the EPPO website: 'Porcelli F, Monfreda R, Ricci MS, Stingi N, Cavallo C, Pellizzari G (2006) *Paysandisia archon* (Burmeister, 1880) escapes from nurseries and colonizes large palms in South Italy.' http://www.eppo.org/QUARANTINE/Alert_List/insects/paysar_details.htm

Source: Personal communication with Prof. G. Pellizzari, University of Padova (IT), 2006-05.

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

2006/106 *Toxoptera citricidus* in Spain and Portugal

In Portugal, *Toxoptera citricidus* (Homoptera: Aphididae – EPPO A1 list) was first reported in 1994 on the island of Madeira (EPPO RS 95/007) and then from the mainland in 2004 (EPPO RS 2004/130). A short communication from Ilharco *et al.* (2005) provides more details on this finding in mainland Portugal and also in nearby Spain. *T. citricidus* was first collected in a yellow water trap in August 2002 at Tapia de Casariego (coastal area in Asturias, Spain) and in November 2003 on *Citrus deliciosa* at Arões in the North of Portugal. In Spain, the aphid was later found in several other localities in Asturias (Arbón, Argüelles, Villaviciosa) and Galicia (Vigo). In the North of Portugal, the pest was detected in several localities (Monção, Valença, Vila Verde, Amares, Barcelos, Braga, Vila Nova de Famalicão, Guimarães, Santo Tirso, Felgueiras, Celorico de Basto, Amarante, Penafiel, Marco de Canavezes and Santa Marta de Penaguião).
The situation of *Toxoptera citricidus* in Portugal can be described as follows: **Present, few localities in the north of the country, also present in Madeira.**
The situation of *Toxoptera citricidus* in Spain can be described as follows: **Present, few localities in Asturias and Galicia.**

Source: Ilharco FA, Sousa-Silva CR, Alvarez Alvarez A. (2005) First report on *Toxoptera citricidus* (Kirkaldy) in Spain and continental Portugal (Homoptera, Aphidoidea). *Agronomia Lusitana* **51**(1), 19-21.

Additional key words: detailed record, new record **Computer codes:** TOXOCI, ES, PT

EPPO *Reporting Service*

2006/107 *Toxoptera citricida* or *Toxoptera citricidus*?

A recent paper from Nieto Nafría *et al*. (2005) provides useful explanations and arguments about the correct nomenclature which should be used for the brown citrus aphid. In 1907, the species was first described from Hawaii (US) on *Citrus* by Kirkaldy as *Myzus citricidus* (the name was chosen to mean citrus-killer). In 1938, Takahashi reassigned it to the genus *Toxoptera*. In 1994, Stoetzel considered that the correct name should be *Toxoptera citricida* because in Latin 'citrus-killer' (*citricida*) should be constructed in a similar way as '*fratricida'* or '*suicida'*, etc. which are nouns deriving from verbs, and therefore which do not change for gender accord. Moreover, the name *'citricidus'* was originally proposed as a latinized adjective with a masculine ending to match the genus name (*Myzus* is masculine in Latin whereas *Toxoptera* is feminine).
But in the current International Code for Nomenclature, it is said that if the author has not indicated whether the name was regarded as a noun or an adjective (which is apparently the case for *M. citricidus*), the name should be treated as a noun in apposition to the name of its genus (the original spelling is to be retained, with gender ending unchanged), and that incorrect latinizations are not to be considered inadvertent errors (such errors would otherwise need to be corrected). In addition, the prevailing use is more in favour of *T. citricidus* (e.g. 55-60% of the records of the species on the web are *T. citricidus*). Therefore, the original spelling '*citricidus'*, although an incorrect latinization, should be retained. In conclusion, Nieto Nafría *et al*. considered that the correct spelling of the species name is *Toxoptera citricidus* (Kirkaldy) and that *T. citricida* should be considered as a synonym.

Source: Nieto Nafría JM, Alonso-Zarazaga MA, Pérez Hidalgo N (2005) Nomenclatural Notes. *Toxoptera citricida* or *Toxoptera citricidus*? The validity of a specific name (Hemiptera, Aphididae, Aphidini). *Graellsia* **61**(1), 141-142.

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

2006/108 Studies on the survival of *Ralstonia solanacearum* on different types of packing material

Boxes and bags used for transport and storage of potatoes may be contaminated by *Ralstonia solanacearum* (EPPO A2 list) and ensure further spread of the disease over short or long distances. Studies were done in Italy on the survival of *R. solanacearum* on poplar and oak wood, high-density polyethylene, and jute bags in cold storage (4°C). Samples of wood, polyethylene and jute were immersed in a bacterial suspension. After air-drying at room temperature, material was stored in open trays in a cold store (4°C and 80-90% HR). Survival was assessed on concentrates obtained by washing samples of contaminated materials, centrifugation of washing liquids and plating onto selective media. Results showed that *R. solanacearum* survived on oak wood for approximately 4 days and on poplar wood for 17 days. On high-density polyethylene, after 2 days no bacterium survived. On jute fabric, the number of living bacteria dropped considerably after 24 hours, but survival was zero only after 78-108 days. It is concluded that jute sacks contaminated with rotting or exuding infected tubers are a probable source of inoculum and a means for further dissemination of the disease. As a consequence, jute bags should be thoroughly cleaned before being reused.

Source: Pasqua di Bisceglie D, Saccardi A, Giosue S, Traversa F, Mazzucchi U (2005) Survival of *Ralstonia solanacearum* on wood, high density polyethylene and on jute fabric in cold storage. *Journal of Plant Pathology* **87**(2), 145-147.

Additional key words: biology **Computer codes:** PSDMSO

2006/109 PCR test to detect *Xanthomonas axonopodis* pv. *dieffenbachiae*

An immunocapture PCR test (IC-PCR) has been developed to detect *Xanthomonas axonopodis* pv. *dieffenbachiae* (EPPO Action List) in *Anthurium* plant tissues. This method combined the use of a monoclonal antibody specific of the genus *Xanthomonas* followed by PCR with specific primers. During this study, 3 sets of new specific primers were obtained. The IC-PCR was found to be more sensitive than the conventional PCR and indirect ELISA. The new primers could be used both for the diagnostic of *X. axonopodis* pv. *dieffenbachiae* in single PCR reactions or in multiplex reactions to differentiate between strains of the bacterium.

Source: Khoodoo MHR, Sahin F, Jaufeerally-Fakim Y (2005) Sensitive detection of *Xanthomonas axonopodis* pv. *dieffenbachiae* on *Anthurium andreanum* by immunocapture-PCR (IC-PCR) using primers designed from sequence characterized amplified regions (SCAR) of the blight pathogen. *European Journal of Plant Pathology*, **112**(4), 379-390.

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

2006/110 New version of PQR (4.5) is now available

A new version of PQR (version 4.5) has now been released and can be ordered from the EPPO Secretariat. PQR is a database on geographical distribution and host plants of regulated pests. It gives access to data on:

- all the pests of the EPPO A1 and A2 lists and of EU Directive 2000/29, appearing in the EPPO/CABI publication "Quarantine Pests for Europe" (QPE) (2nd edition)
- pests added to these lists since that publication
- pests of the EPPO Alert List
- plants of the EPPO priority invasive plant list
- many other quarantine pests and invasive plants of interest to other regions of the world (data obtained from FAO, CABI or from the RPPOs).

PQR is provided on CD-Rom. NPPOs of EPPO member countries are currently receiving free copies of PQR; other users can order it from the EPPO Secretariat at the price of 75 EUR.

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For more information, consult our web page: http://www.eppo.org/PUBLICATIONS/pqr/pqr.htm

Source: **EPPO Secretariat, 2006-05.**

Additional key words: publications

2006/111 Behaviour of glufosinate and glyphosate in *Ambrosia artemisiifolia*

Ambrosia is reported to have a tendency to be xerophile (resistant to drought) and is even sometimes described as halophyte (resistant to a certain concentration of salt in the soil). One characteristic of drought resistant species is to have a cuticule which is not very permeable to water. This lipidic structure is in fact a barrier to hydrophilic substances and water. Previous studies have shown that glufosinate and glyphosate seem to penetrate very rapidly in *A. artemisiifolia* even though these herbicides present important hydrophilic characteristics. The foliar epidermis of *A. artemisiifolia* and the behaviour of these herbicides have therefore been studied to understand this paradox. Both leaf surfaces exhibited 3 types of trichomes, varying by their size and shape. Epicuticular waxes appeared amorphous, which may explain the high levels of spray retention. Glufosinate and glyphosate were rapidly and almost completely taken up by *A. artemisiifolia* leaves; half maximum uptake was nearly reached after 5 and 3 hours respectively. The longest trichomes were stained with $AgNO_3$, indicating the presence of hydrophilic domains, which possibly facilitated the uptake of these very hydrophilic herbicides. Both were ambimobile, with 10-15% translocation out of the treated leaves. Glufosinate was mainly directed towards the apical developing tissues, with low amount reaching the roots. Glyphosate was directed towards the apical developing tissues and the roots. The sensitivity of *A. artemisiifolia* to glufosinate and glyphosate can be explained by high spray retention, rapid and important foliar uptake, and appreciable migration out of the plant parts hit by the spray.

Source: Gauvrit C, Grangeot M, Chauvel B (2006) Les paradoxes du glufosinate et du glyphosate – comportement dans l'ambroisie à feuille d'armoise. *Phytoma - La Défense des Végétaux* no. **591**, 8-11

Additional key words: biology, control **Computer codes:** AMBEL

2006/112 Absence of *Crassula helmsii* in Portugal

Crassula helmsii had been previously reported in EPPO RS 2004/042 as present in Portugal. This information is invalidated by Ing. Teresa Vasconcelos from the Department of Plant Protection and Phytoecology of the Higher Institute of Agronomy, Lisbon (PT) (pers. comm. 2006). Francisca Aguiar also added that there is no record in the Herbarium "João de Carvalho e Vasconcellos" (LISI), which holds more than 96,500 specimens of vascular plants collected in Portugal.

Source: Personal communication with Francisca Aguiar (PT), 2006.
Personal communication with Ing. Teresa Vasconcelos, Department of Plant Protection and Phytoecology, Higher Institute of Agronomy, Lisbon (PT), 2006.

Additional key words: denied record **Computer codes:** CSBHE, PT

EPPO *Reporting Service*

2006/113 First records of *Heteranthera* in the Delta del Ebro, Spain

Heteranthera species were first found in the middle of the 1990s in the Delta del Ebro (Spain) and then in 1991 in Poleñino (Huesca). *Heteranthera* species (Ponteridaceae) originate from the American continent and are annual aquatics producing stolons. They are known for their huge production of seeds and their great ability to colonize crops. In the Delta del Ebro, the species found are *Heteranthera limosa* and *H. reniformis*. *H. limosa* is quoted as invasive in freshwaters in Portugal (Francisca Aguiar, pers. comm. 2005) and in Sardinia (Giuseppe Brundu, pers. comm. 2005) and it is present in France and Italy (HYPPA Database). *H. reniformis* is also reported as invasive in freshwater in Portugal (Francisca Aguiar, pers. comm. 2005) and is present in Italy (Tutin *et al.*, 1980) and in France (HYPPA Database).
According to a survey done in the Delta del Ebro, *Heteranthera* spp. have been localized in 101 plots corresponding to 419 ha, which represents 2% of the total surface of rice cultivation in the Delta. *Heteranthera reniformis* is the most commonly found with *H. limosa* only representing 23 ha of the infested surfaces. On the left bank of the river, the plant colonizes 101 ha on Deltebre, and the areas of Cava and Jesús y Maria. On the right bank of the river, the plant colonizes 318 ha on Amposta, Sant Jaume d'Enveja and Sant Carles de la Ràpita.
It is considered that control measures should be applied against *Heteranthera* species in the Delta del Ebro. These measures could include: herbicide treatments with appropriate active substances and timing of applications; cleaning of agricultural machinery following its use in contaminated areas; better organization of farm work (i.e. beginning work with non infested plots); raising awareness of growers to control the plant.

Source:
Llenes JM, Roque A, Taberner A, Taberner A, Matamoros E, Martinez M, Gisbert D (2006) Primera prospección de *Heteranthera* en el Delta del Ebro. *Phytoma España*. **178**, 52-56

Tutin, TG, Heywood VH, Burges NA, Moore DM, Valentine DH, Walters SM and Webb DA (eds) (1980) Flora Europaea, vol. 5. Cambridge University Press, Cambridge. 452 pp. *Heteranthera* Ruiz & Pavon, p. 85.

HYPPA Database: http://www.dijon.inra.fr/hyppa/hyppa-a/hetre_ah.htm, http://www.dijon.inra.fr/hyppa/hyppa-a/hetli_ah.htm

Personal communication with Francisca Aguiar, 2005.

Personal communication with Giuseppe Brundu, 2005.

Additional key words: new record **Computer codes:** HETLI, HETRE, ES

2006/114 New weed problems in Spain

The following plants have been recently introduced in Spanish fields and are considered a threat:

- *Leptochloa uninervia* (Poaceae) originating from the Americas.
- *Leptochloa fascicularis* (Poaceae) originating from North-America where it is considered endangered and threatened in some places.
- *Heteranthera reniformis* (Pontederiaceae) originating from tropical America.
- *Heteranthera limosa* (Pontederiaceae) originating from tropical America.
- *Heteranthera rotundifolia* (Pontederiaceae) originating from America.
- *Sagittaria montevidensis* (Alismataceae) originating from the Americas.
- *Amsinckia lycopsoides* (Boraginaceae) originating from the eastern part of North America, it occurs in waste places and is naturalized in Britain (Tutin *et al*. 1964/80).
- *Amsinckia calicina* (Polemoniaceae) originating from the Americas, found in waste lands and naturalized in France (Tutin *et al*. 1964/80).).
- *Solanum physalifolium* (Solanaceae) originating from South America. It has already been reported as an emerging weed for Europe (EPPO RS 2005/174).
- *Sycios angulatus* (Cucurbitaceae) was presented in EPPO RS 2005/050 and 2006/091. It is one of the most recently introduced weeds, first recorded in Gerona in 1996. In 2004, 5 maize fields were found infested in Lérida.

Source: Pablo del Monte J, Angeles Mendiola M (2005) Malas hierbas: un problema constante, nuevos problemas. *Phytoma España*. **169**, 86-89.

Tutin TG, Heywood VH, Burges NA, Moore DM, Valentine DH, Walters SM and Webb DA (1964/80) *Flora Europeaea*, Vol 1-5. Cambridge University Press, Cambridge.

Additional key words: new records

Computer codes: AMSCA, AMSLY, HETLI, HETRE, HETRO, LEFFA, LEFUN, SAGMO, SIYAN, SOLPS, ES

2006/115 Non-indigenous flora of the Azores Archipelago (PT)

The 9 Azores islands are located in the North Atlantic Ocean, about 1500 km from Europe. The climate is temperate oceanic with a mean annual temperature of 17°C at sea level, and relative humidity is high as rainfall ranges from 1500 to 3000 mm. The proportion of non-indigenous vascular plants is 69% higher than in other island ecosystems, which has resulted from the removal of native vegetation and the introduction of many cultivated and ornamental plants, and from the relatively large extension of the agricultural landscape. The introduced plants were largely subcosmopolitan therophytes and hemicryptophytes, followed by chamaephytes. In contrast to Hawaii, vines are not significant weeds, probably a reflection of the temperate climate.

The families with highest absolute contributions were similar to those in other areas of the world (Poaceae, Asteraceae, Fabaceae, Brassicaceae, Scrophulariaceae). Many were introduced as ornamental or crop plants, but there were also many accidental introductions of weeds. About 55% of the non-indigenous taxa are considered weeds elsewhere. A somewhat unexpected result is the apparently reduced number of hybrid taxa, namely those resulting from crosses between native and exotic species of the same genus.

Considering the 9 islands, the percentage of introductions was positively correlated with human population density and island surface below 300 m, and negatively correlated to island surface allocated to natural areas, altitude and slope. Non-indigenous plants in the Azores occur not only in marginal habitats but also in a variety of different systems, from crops to stone walls, coastal and wooded areas, either native, planted or mixed.

Table of the non-indigenous plants in the Azores, in order of importance from highest to lowest (according to a random survey done on 529 sampling plots).

Taxa	Family	Origin	Situation
Rubus inermis	Rosaceae	Europe	It has invaded coastal wetlands.
Pittosporum undulatum	Pittosporaceae	Australia	It has invaded coastal halophytic systems and is one of the plants with the highest impact in the Azorean vegetation. It is able to overgrow native vegetation, forming pure stands and is very frequent and abundant in native woods of *Myrica faya*.
Hedychium gardnerianum	Zingiberaceae	Himalaya	It has invaded coastal halophytic systems and has the ability to completely replace native vegetation.
Holcus lanatus	Poaceae	Europe	It has invaded coastal wetlands.
Mentha suaveolens	Lamiaceae	S. & W. Europe	Found in pastures.
Conyza bonariensis	Asteraceae	Tropical America	

Selaginella kraussiana	Selaginellaceae	Tropical and Southern Africa	
Tradescantia fluminensis	Commelinaceae	SE Brazil to Argentina	
Arundo donax	Poaceae	S. & C. Asia	It has invaded large areas in coastal areas, threatening halophytic coastal meadows and dune vegetation. Initially used as a windbreak, it now dominates many cliffs near the coast. It is a major threat to water resources in California (US).
Cryptomeria japonica	Taxodiaceae	C. & S. Japan	
Cyperus esculentus (EPPO list of invasive alien plants)	Poaceae	Mediterranean & SW Europe	It has invaded coastal wetlands. It is a common weed of agricultural crops such as cornfields, vineyards and horticultural crops.
Paspalum dilatatum	Poaceae	Brazil to Argentina	
Acacia melanoxylon	Fabaceae	S.E. Australia, Tasmania	
Sporobolus indicus	Poaceae	Tropics & subtropics	
Polygonum capitatum	Polygonaceae	Himalayas	It has invaded coastal halophytic systems
Phytolacca americana	Phytolaccaceae	N. America	
Erigeron karvinskianus	Asteraceae	Mexico	
Digitaria sanguinalis	Poaceae	S. & S.C. Europe	It is a common weed of agricultural crops such as maize fields, vineyards and horticultural crops.
Cynodon dactylon	Poaceae	W., S., S.E. & E.C. Europe	It is frequent in coastal areas throughout the Archipelago, invading native communities on dunes.

Trifolium repens (Fabaceae), *Plantago lanceolata* (Plantaginaceae), *Hypochoeris radicata* (Poaceae), *Setaria pumila* (Poaceae), *Lolium perenne* (Poaceae), *Rumex obtusifolius* ssp. *obtusifolius* (Polygonaceae), *Prunella vulgaris* (Lamiaceae), *Lavatera cretica* (Malvaceae), and *Bromus willdenowii* (Poaceae), all originating from Europe, where also listed among the most important non-indigenous plants in the Azores.

Other non-indigenous plants invading native coastal communities, including rocky coasts, are *Carpobrotus edulis* (Aizoaceae), *Cyrtomium falcatum* (Drypteridaceae), *Mesembryenthemum* spp. (Aizoaceae) and *Aptenia cordifolia* (Aizoaceae). *Tamarix gallica* (Tamaricaceae) is widely planted and is invading dunes and coastal wetlands. *Ricinus communis* (Euphorbiaceae), *Petroselinum crispum* (Apiaceae) and *Tetragonia tetragonioides* (Aizoaceae) have invaded coastal wetlands.

Moreover, *Agave americana* (Agavaceae), *Clethra arborea* (Clethraceae), *Gunnera tinctoria* (Gunneraceae), *Leycesteria formosa* (Caprifoliaceae), *Opuntia ficus-indica* (Cactaceae) and *Ulex europaeus* (Fabaceae) also seem to present a risk.
Hydrangea macrophylla (Hydrangeaeceae) is a woody species forming dense stands within native vegetation and abandoned pastures. *Ailanthus altissima* (Simaroubaceae, EPPO list of invasive alien plants) is a potential invader. *Lantana camara* (Verbenaceae) forms occasional dense stands. *Solanum mauritianum* (Solanaceae) is already common on several islands, although generally near human settlements. It forms dense stands in woods and along roads, trails and streams (see EPPO RS 2006/043).

Source:

Borges PAV, Cunha R, Gabriel R, Martins AF, Silva L, Vieira V (eds) (2005) A list of the terrestrial fauna (Mollusca and Arthropoda) and flora (Bryophyta, Pterophyta and Spermatophyta) from the Azores. Direcção Regional do Ambiente and Universitade dos Açores, Horta, Angra do Heroísmo and Ponte Delgada, 317 pp.
Silva L, Smith CW (2004) A characterization of the non-indigenous flora of the Azores Archipelago. *Biological Invasions* **6,** 193-204
Silva L, Smith CW (2004) A quantitative approach to the study of non-indigenous plants: an example from the Azores Archipelago. *Biodiversity and Conservation* **15**, 1661–1679
Tutin TG, Heywood VH, Burges NA, Moore DM, Valentine DH, Walters SM and Webb DA (1964/80) *Flora Europeaea*, Vol 1-5. Cambridge University Press, Cambridge.
Symposium on invasive plants in Ponte Delgada (Azores, Portugal)
http://www.uac.pt/isiwpi/

Additional key words: new records

Computer codes: RUBUL, PTUUN, HEYGA, HOLLA, MENSU, ERIBO, SELKR, TRAFL, ABKDO, CMYJA, CYPES, PASDI, ACAME, SPZIN, POLCT, PHTAM, ERIKA, DIGSA, CINDA, TRFRE, PLAVA, HRYRA, SETPF, LOLPE, RUMOB, PRUVE, LVACR, BROCA, CBSED, CWUFA, APJCO, TAAGA, RIICO, PARCR, TEATE, AGVAM, CXEAR, GUATI, LEYFO, OPUFI, ULEEU, HYEMA, AILAL, LANCA, SOLMR, PT

2006/116 Origin and evolution of invasive naturalized *Rhododendron ponticum* in the British Isles

Information concerning the area of origin, genetic diversity and possible acquisition of germplasm through hybridization is fundamental to understanding the evolution, ecology and possible control measures for an introduced invasive plant species. *Rhododendron ponticum* (EPPO list of invasive alien plants) is extensively naturalized in the British Isles, where it has very few natural enemies. It is recognized as a threat to native communities and is a pest of forestry. The species is native of the area near the south of Black Sea (i.e. Caucasus, northern Turkey and the southeast corner of Bulgaria) and, disjunctly, Lebanon and three small areas in the Iberian Peninsula, i.e. in Southwest Spain, and Southern and Central Portugal. It is not known whether native material in Turkey, Spain or Portugal gave rise to the naturalized material, or to what extent introgression has affected this material. Chloroplast (cp) and nuclear ribosomal DNA (rDNA) restriction fragment length polymorphisms (RFLPs) were sought which could distinguish between native material of *R. ponticum*, and between 15 other *Rhododendron* species including the closest relatives of *R. ponticum*. Thereafter, a total of 260 naturalized accessions of *R. ponticum* from throughout the British Isles was examined with respect to informative polymorphisms. It was found that 89% of these accessions possessed a cpDNA haplotype that occurred in native material of *R. ponticum* derived almost entirely from Spain, while 10% of accessions had a haplotype unique to Portuguese material. These results therefore indicated an Iberian origin for British material. rDNA or cpDNA evidence of introgression from *R. catawbiense* was found in 27 British accessions of *R. ponticum*, and such accessions were significantly more abundant in the coldest region of Britain, eastern Scotland, than elsewhere. This could indicate that introgression from *R. catawbiense* confers improved cold tolerance. Introgression from *R. maximum* and an unidentified species was also detected.

Source: Milne RI, Abbott RJ (2000) Origin and evolution of invasive naturalized material of *Rhododendron ponticum* L. in the British Isles. *Molecular Ecology*. **9**, 541-556

Additional key words: genetics **Computer codes:** RHOPO, GB