

### Report of a Pest Risk Analysis for *Xanthomonas axonopodis* pv. *poinsetticola*

This summary presents the main features of a pest risk analysis which has been conducted on the pest.

**Pest:** *Xanthomonas axonopodis* pv. *poinsetticola*  
**PRA area:** EPPO region  
**Assessors:** James Woodhall & Claire Sansford (CSL, GB). Summary pest risk analysis for interceptions reviewed by the Panel on Phytosanitary Measures in 2008  
**Date:** PRA report prepared by the EPPO Secretariat  
Interception PRA 2007-01-17  
PRM 2008-02

#### STAGE 1: INITIATION

**Reason for doing PRA:** Outbreaks occurred in Germany and Italy. The pathogen has been intercepted six times in the UK since July 2006.  
**Taxonomic position of pest:** Bacteria, Proteobacteria, Gammaproteobacteria, Xanthomonadales, Xanthomonadaceae

#### STAGE 2: PEST RISK ASSESSMENT

##### Probability of introduction

###### *Entry*

Geographical distribution: **EPPO region:** under eradication in Germany (found in one pot plant in September 2003 in Hessen), and in Italy (first found in 2003 in Lazio, in Lombardia in 2007).  
**Asia:** China, Cocos islands, India, Philippines (first reported in 1974), Taiwan (first reported in 2005).  
**North America:** USA (at least Florida).  
**South America:** Venezuela (first reported in 1996).  
**Oceania:** Australia (Queensland), New Zealand.

##### Major host plants :

Major host plants are Poinsettias (*Euphorbia pulcherrima*) but *E. heterophylla*, *E. milii*, *Codiaeum variegatum* are also reported as hosts (Bradbury, 1986; Chase, 1985; CABI, 2006). Susceptibility of *Manihot esculenta* was tested under experimental conditions by Patel et al. (1951) no infection and disease development was noted. Sabet et al. (1969) tested the same isolate on *M. esculenta* and found it susceptible to infection. The reason for the different results is not clear. It is not grown as a food crop in Europe or the EPPO region (CABI, 2006). This host is not considered further in the PRA.

##### Which pathway(s) is the pest likely to be introduced on:

The major pathway is plants for planting of *E. pulcherrima* (cuttings and pot plants), except seeds.  
The pest has frequently been intercepted in GB on *E. pulcherrima*. Seeds are pathways but they have not been considered as *E. pulcherrima* is vegetatively propagated.  
Minor pathways are plants for planting (cuttings and pot plants) of

*E. mii* and *C. variegatum*

## Establishment

### Plants at risk in the PRA area:

Poinsettia (*E. pulcherrima*) is the main plant at risk in the region. It is a popular pot plant for Christmas in Europe.

Few data is available on production of *E. pulcherrima*. The following figures are given by the International Association of Horticultural Producers (AIPH/Union Fleurs, 2005) (*NB: absence of data does not mean absence of production*):

- Production (million plants):

Germany (2004): 26.6 for finished products, 27.3 for half-finished products and young plants; Finland (2000): 12.6; Italy (1994): 14.9; Norway: 5.2; Sweden (2002): 4.8; UK: 4.8.

Hungary (1998): 1100 ha

### Climatic similarity of present distribution with PRA area (or parts thereof):

*E. pulcherrima*, *E. mii* and *C. variegatum* are usually cultivated under protected conditions worldwide. Conditions are similar under glasshouse, therefore the pathogen can be considered capable of establishing under protected environments in the EPPO region.

The pathogen has previously been reported causing disease outdoors. The only currently known host that usually grows outdoors is *E. heterophylla*. In Europe, it is only reported to be present in Italy (CABI, 2006, Flora European, undated), where it is a weed in crop fields.

### Characteristics (other than climatic) of the PRA area that would favour establishment:

- Although specific data is not available, there is a trade of propagating material (e.g. rooted cuttings)
- it has already been introduced in Germany and in Italy
- control of *X. axonopodis* pv. *poinsettiicola* is very difficult in practice, and is almost entirely based on the elimination of all infected plants

### Which part of the PRA area is the endangered area:

Whole EPPO region (indoors)

## POTENTIAL ECONOMIC CONSEQUENCES

**How much economic impact does the pest have in its present distribution:** No specific data is available for losses associated with specific outbreaks or from trials but unspecified commercial losses were reported from a 1960s Florida outbreak (Benson *et al.*, 2001). McFadden & Morey (1962) reported that the severity of leaf loss resulted in almost complete defoliation at the time of flowering in highly susceptible cultivars.

*Information from the outbreaks detected in the EPPO region:*

Leaf spotting of *E. pulcherrima* was observed in an outbreak in Italy (Stravato *et al.*, 2004), whilst leaf spotting and the abscission of severely infected leaves were observed in a German outbreak (Wohanka, 2004). In the UK interceptions, leaf spotting on *E. pulcherrima* was observed. Infection ranged from an incidence of 0.5% up to 30%. Plants were destroyed under statutory action, but the severity of the leaf spotting in some instances was such that the plants would have had little retail value and would most likely have been destroyed by the grower.

**Describe damage to potential hosts in PRA area:**

On *E. pulcherrima*, spots are at first visible on the underside of the leaf as grey to brown, water-soaked lesions. As they enlarge to 2-3 mm, they become visible on the upper side of the leaf. Spots may coalesce in some cases to form large areas of blighted tissues. Severe infections can cause distortion of new leaves as well as complete yellowing and finally abscission of older leaves (Daughtrey *et al.*, 1995).

On *E. milii* Infection results in brown leaf spots with yellow halos and abscission of severely infected leaves is common (Chase, 1987).

On *Codiaeum variegatum* leaf lesions are typically 1 – 10 mm in diameter and are frequently dryish, tan in colour and with an irregular margin. Abscission of severely infected leaves is common (Chase, 1987).

**How much economic impact would the pest have in the PRA area:**

As poinsettia is an ornamental plant, the leaf spotting and leaf loss caused by this disease would affect its retail value and possibly saleability.

*E. milii* and *C.variegatum* are also used as ornamental plants although they are of less commercial importance than *E. pulcherrima*. Although no specific data are available for percentage losses, the decrease in foliage quality would also affect their retail value.

## CONCLUSIONS OF PEST RISK ASSESSMENT

**Summarize the major factors that influence the acceptability of the risk from this pest:**

- it has already been introduced in Germany and in Italy
- *E. pulcherrima* is an important pot plant in the EPPO region.

**Estimate the probability of entry:**

The pathogen has already entered the EPPO region. The probability of entry is high.

**Estimate the probability of establishment:**

The pathogen is considered capable of establishing under protected environments in the EPPO region, particularly as there have already been instances of the pathogen causing disease on *E. pulcherrima* in Europe on protected crops.

Probability of establishment outdoor is unknown but possible.

**Estimate the potential economic impact:**

Poinsettia is a seasonal but important plant production in many EPPO countries (see section *Plants at risk in the PRA area*)  
*E. milii* and *C. variegatum* are of less importance.  
Commercial losses are likely to result from the loss of quality due to the leaf spotting and leaf loss caused by the pathogen.

**Degree of uncertainty**

Medium (little is known about the epidemiology of the pathogen, few data on commercial losses)

**OVERALL CONCLUSIONS**

The pest should be considered for Risk Management.  
*X. axonopodis* pv. *poinsettiicola* is proposed for the EPPO A1 list.

**STAGE 3: PEST RISK MANAGEMENT**

**IDENTIFICATION OF THE PATHWAYS**

**Pathways studied in the pest risk management**

The major pathway is Plants for planting of *E. pulcherrima* (cuttings and pot plants)  
Other pathways are plants for planting (cuttings and pot plants) of *E. milii* and *C. variegatum*.

**In the absence of host tests in *Euphorbia* sp., the EPPO Secretariat suggests that measures should be recommended for *Euphorbia* sp. and *Codiaeum variegatum*.**

**Other pathways identified but not studied**

**IDENTIFICATION OF POSSIBLE MEASURES**

**Possible measures for pathways**

*Measures related to consignments:*

No measures identified. Inspection is not considered as an option as symptoms may not always be easy to detect depending on the imported material (the disease can only be detected on leaves).

*Measures related to the crop or to places of production:*

Growing resistant cultivars is not an option for now. When the disease was discovered on poinsettia in Florida in the 1960s, it was found that many, if not all, popular cultivars were highly susceptible to the disease, but since then no new work has been conducted to evaluate cultivar resistance. More research into cultivar susceptibility and resistance is required.

Few options are available to control this disease other than those based upon hygiene/cultural control. Affected plants should be discarded and no cuttings taken from plants with leaf spots. Strict hygiene and manipulation of the glasshouse conditions to lower the humidity would be required. The disease is impossible to control unless plants are produced without overhead irrigation (or rain if grown outdoors) to avoid the spread of infection by water splash. These requirements were included in the statutory action required in the UK outbreaks and resulted in no further findings. The crop break at the end of the season allows for effective hygiene measures and clean-up to be carried-out in the glasshouse.

Pest-free place of production is a possible option.

*Other possible measures*

Pest-free area.

**EVALUATION OF THE MEASURES IDENTIFIED IN RELATION TO THE RISKS  
PRESENTED BY THE PATHWAYS**

**Degree of uncertainty**

**Medium (absence of host tests)**

**CONCLUSION:**

**Recommendation for possible measures:**

**PC= Phytosanitary certificate, RC=Phytosanitary certificate of re-export**

Plants for planting and pot plants of <i>Euphorbia</i> sp. and <i>Codiaeum variegatum</i> originating in countries where <i>X. axonopodis</i> pv. <i>poinsettiicola</i> occurs	PC and, if appropriate, RC Pest-free place of production for <i>X. axonopodis</i> pv. <i>poinsettiicola</i> <u>Or</u> Pest-free area for <i>X. axonopodis</i> pv. <i>poinsettiicola</i>
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