

## Express – PRA<sup>1)</sup> for *Curtobacterium flaccumfaciens* pv. *poinsettiae*

### – Occurrence -

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**Initiation:** Occurrence in production sites for young plants, respectively for ornamentals in North Rhine-Westphalia

| Express - PRA                             | <i>Curtobacterium flaccumfaciens</i> pv. <i>poinsettiae</i><br>(Starr & Pirone 1942) Collins & Jones 1983                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                            |                                         |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-----------------------------------------|
| Phytosanitary Risk for Germany            | high <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | medium <input checked="" type="checkbox"/> | low <input type="checkbox"/>            |
| Phytosanitary risk for EU-MS              | high <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | medium <input checked="" type="checkbox"/> | low <input type="checkbox"/>            |
| Certainty of Assessment                   | high <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | medium <input type="checkbox"/>            | low <input checked="" type="checkbox"/> |
| <b>Conclusion</b>                         | <p>In 1941, the bacterium was described for the first time. It does not yet occur in Germany and neither is listed in the Annexes of Directive 2000/29/EC nor at the EPPO.</p> <p><i>Curtobacterium flaccumfaciens</i> pv. <i>poinsettiae</i> infests Poinsettias (<i>Euphorbia pulcherrima</i>).</p> <p>Due to unsuitable climate conditions for the host plants it can be assumed that <i>C. flaccumfaciens</i> pv. <i>poinsettiae</i> would not be able to establish outdoors in Germany. However, an establishment in Southern European MS cannot be excluded (e.g. Canary Islands). In contrast, a high damage potential for the culture in protected cultivation is probable in case of an introduction into the nursery via latently infested young plants.</p> <p>Due to its high damage potential for Poinsettias the bacterium represents a phytosanitary risk for the cultivation of Poinsettia in Germany and other EU-Member States.</p> <p>Based on this risk analysis it can be assumed that the pest is able to cause considerable damage in Germany or another Member State. Hence, measures on the control and prevention of the introduction and further spread of this potential quarantine pest should be taken according to § 4a of the German Plant Inspection Order (PBVO).</p> <p>The infested plants should be destroyed and comprehensive cleaning and disinfection measures of contaminated surfaces, equipment etc. should be carried out.</p> |                                            |                                         |
| <b>Taxonomy<sup>2)</sup></b>              | Bacteria, Actinobacteria, Actinobacteridae, Actinomycetales, Microbacteriaceae, Curtobacterium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                            |                                         |
| <b>Trivial names</b>                      | Bacterial Blight of Poinsettia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                            |                                         |
| <b>Synonyms</b>                           | <i>Phytomonas poinsettiae</i> , <i>Corynebacterium poinsettiae</i> , <i>Corynebacterium flaccumfaciens</i> pv. <i>poinsettiae</i> , <i>Corynebacterium michiganense</i> pv. <i>poinsettiae</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                            |                                         |
| <b>Does a relevant earlier PRA exist?</b> | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                            |                                         |
| <b>Biology</b>                            | Gram-positive bacterium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                            |                                         |

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| <b>Express - PRA</b>                                                   | <b><i>Curtobacterium flaccumfaciens</i> pv. <i>poinsettiae</i><br/>(Starr &amp; Pirone 1942) Collins &amp; Jones 1983</b>                                                                                                                                                                                                                 |
| <b>Is the pest a vector?<sup>3)</sup></b>                              | no                                                                                                                                                                                                                                                                                                                                        |
| <b>Is a vector needed?<sup>4)</sup></b>                                | no                                                                                                                                                                                                                                                                                                                                        |
| <b>Host plants</b>                                                     | Poinsettias ( <i>Euphorbia pulcherrima</i> )                                                                                                                                                                                                                                                                                              |
| <b>Symptoms<sup>5)</sup></b>                                           | Early symptoms are water soaked stripes on green stems which can spread to leaf-stalks and leaves. Leaf spots, defoliation, browning on the bark and of the vascular bundle tissue. Golden brown liquid may drip from broken stems and leaf lesions. Severe infestations lead to longitudinal fissures in the leaf-stalks.                |
| <b>Presence of host plants in Germany<sup>6)</sup></b>                 | Poinsettias belong to the main crops in cultivation of ornamentals (under glass)                                                                                                                                                                                                                                                          |
| <b>Presence of host plants in MS<sup>7)</sup></b>                      | Cultivation of ornamentals, in warmer areas (e.g.. on the Canary Islands) also in outdoor areas                                                                                                                                                                                                                                           |
| <b>Known infested areas<sup>8)</sup></b>                               | USA, New Zealand, Romania                                                                                                                                                                                                                                                                                                                 |
| <b>Pathways<sup>9)</sup></b>                                           | Latently infested cuttings and plants for planting ( <i>E. pulcherrima</i> ). Contaminated equipment used for taking cuttings from infested mother plants, transmission from infested plants with symptoms to healthy plants via splash water in the case of overhead irrigation.                                                         |
| <b>Natural spread<sup>10)</sup></b>                                    | Not to be expected in Germany and temperate climates, as only in glasshouses. Possibly in subtropical areas (via splash water in the rain) where Poinsettias are present outdoors.                                                                                                                                                        |
| <b>Expected establishment and spread in Germany<sup>11)</sup></b>      | Rather low, since other host plants will be placed in the glasshouses after the cultivation period of Poinsettias – provided that appropriate sanitary measures are carried out (fresh substrate, cleaning and disinfection measures for tables and equipment).                                                                           |
| <b>Expected establishment and spread in the MS<sup>12)</sup></b>       | See above, if so, in areas where Poinsettias are present in outdoor areas.                                                                                                                                                                                                                                                                |
| <b>Known damage in infested areas<sup>13)</sup></b>                    | Causes Bacterial Canker of Poinsettia. Systemic infestation, cuttings from infested plants develop poorly or not at all. Up to now the environmental conditions for the infestation have not been investigated. However, it is reported that the severity of the disease can be favoured by warm temperatures and high nitrogen dosage. . |
| <b>Limitation of the endangered area in Germany</b>                    | Glasshouse cultivation of ornamentals ( <i>E. pulcherrima</i> )                                                                                                                                                                                                                                                                           |
| <b>Expected damage in the endangered area in Germany<sup>14)</sup></b> | Damaging effect for the production of Poinsettias, in case of a further spread the damage could be severe. According to the Chamber of Agriculture North Rhine-Westphalia the sales volume in Germany amounts to app. 40 Mio. pieces, value app. 100 Mio. € per year.                                                                     |
| <b>Expected damage in the endangered area in MS<sup>15)</sup></b>      | See above, furthermore when indicated damage on Poinsettias in outdoor areas.                                                                                                                                                                                                                                                             |
| <b>Control feasibility and measures<sup>16)</sup></b>                  | Removal of all infested plants and neighbouring plants in the case of using overhead irrigation. Cleaning and disinfection of the tables and the equipment. No cuttings from plants with                                                                                                                                                  |

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|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Express - PRA</b>                         | <b><i>Curtobacterium flaccumfaciens</i> pv. <i>poinsettiae</i><br/>(Starr &amp; Pirone 1942) Collins &amp; Jones 1983</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                              | symptoms. Sanitary measures for the taking of cuttings. Mother plants must be free from infection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Detection and diagnosis<sup>17)</sup></b> | 16S rDNA Analysis; RAPD fingerprinting. Great similarity to <i>C. flaccumfaciens</i> pv. <i>beticola</i> .<br>Isolation from symptomatic plant material via nutrient agar (preferably Nutrient-broth yeast extract Agar/NBY). Colonies are smooth, round, similar to butter, salmon pink or flesh coloured and reach a diameter of 2-4 mm at 24-28°C in 72 hours.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Remarks</b>                               | The evaluation is very unsecure since only sparse literature is available, even though the bacterium had already been described in 1941.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Literature</b>                            | <p>Bradbury, J. F. (1991): <i>Curtobacterium flaccumfaciens</i> pv. <i>poinsettiae</i>. IMI Descriptions of Fungi and Bacteria No. 1045. Mycopathologia 115: 53 – 54.</p> <p>CABI (2014): Basic datasheet <i>Curtobacterium flaccumfaciens</i> pv. <i>poinsettiae</i>. <a href="http://www.cabi.org/cpc/datasheet/15341">http://www.cabi.org/cpc/datasheet/15341</a> (website accessed on 17-09-2014).</p> <p>Chen, Y.-F., Yin, Y.-N., Zhang, X.-M., and Guo, J.-H. 2007. <i>Curtobacterium flaccumfaciens</i> pv. <i>beticola</i>, a new pathovar of pathogens in sugar beet. Plant Dis. 91:677-684.</p> <p>Pirone, P. P., and Bender, T. R. (1941). A new bacterial disease of poinsettiae. N.J. Agric. Exp. Stn. Nursery Dis. Notes 14:13-16.</p> <p>Behrendt, U., Ulrich, A., Schumann, P., Naumann, D., Suzuki, K. (2002): Diversity of grass-associated Microbacteriaceae isolated from the phyllosphere and litter layer after mulching the sward; polyphasic characterization of <i>Subtercola pratensis</i> sp. nov., <i>Curtobacterium herbarum</i> sp. nov. and <i>Plantibacter flavus</i> gen. nov., sp. nov." International Journal of Systematic and Evolutionary Microbiology 52, 1441–1454.</p> <p>Daughthrey, M.L, Wick, R.L., Peterson, J.L. (1995): Compendium of Flowering Potted Plant Diseases. ed. The American Phytopathological Society. 48-49</p> <p>Davis, M.J., Vidaver, A.K. (2001): Coryneform Plant Pathogens. Laboratory Guide for Identification of Plant Pathogenic Bacteria. 3<sup>rd</sup> ed. N.W. Schaad, J.B. Jones, W. Chun. ed. The American Phytopathological Society, St. Paul, MN. 218-235</p> |

## Explanation

- 1) Compilation of the most important directly available information allowing a first preliminary estimation of the phytosanitary risk. This short assessment is necessary for the decision on a notification to EU and EPPO as well as the preparation of a complete risk analysis, for the information of the countries and as a basis for the possible initiation of eradication measures. Regarding the phytosanitary risk especially the possibility of the introduction to and spread in Germany and the Member States as well as possible damage are taken into account.
- 2) Taxonomic classification – also subspecies – in the case that the taxonomical classification is uncertain the JKI-scientist initiates the taxonomic classification as far as possible.
- 3) If so, which organism (which organisms) is (are) transmitted and does it (do they) occur in Germany / the MS?
- 4) If so, which organism serves as a vector and does it occur in Germany / the MS?
- 5) Description of the pattern of damage and the severity of the symptoms/damage on the different host plants
- 6) Presence of host plants in protected cultivation, open field, amenity plantings, forest.....; where, in which regions are the host plants present and to which extent?  
How important are the host plants (economical, ecological, ...)?
- 7) Presence of the host plants in protected cultivation, open field, amenity plantings, forest ....; where, in which regions are the host plants present and to which extent?  
How important are the host plants (economical, ecological, ...)?, possible origin
- 8) f.e. acc. to CABI, EPPO, PQR, EPPO Datasheets
- 9) Which pathways are known for the pest and of which relevance are they in respect to the probability of the spread? Primarily the transport over long distances is meant, normally with infested traded plants, plant products or other contaminated articles. This does not comprise the natural spread resulting from introduction.
- 10) Which pathways are known for the pest and of which relevance are they in respect of the probability of the spread? In this case the natural spread resulting from introduction is meant.
- 11) under the given prevalent environmental conditions
- 12) under the given prevalent environmental conditions (native areas and areas of introduction)
- 13) Description of the economic, ecological/environmental and social damage in the area of origin resp. areas of occurrence up to now
- 14) Description of the economic, ecological/environmental relevant and social damage to be expected in Germany, as far as possible and required, differentiated between regions
- 15) Description of economic, ecological/environmental and social damage to be expected in the EU /other Member States, as far as possible and required, differentiated between regions
- 16) Can the pest be controlled? Which possibilities of control are given? Are plant health measures conducted in respect to this pest (in the areas of current distribution resp. by third countries)?
- 17) Description of possibilities and methods for detection. Detection by visual inspections? Latency? Uneven distribution in the plant (sampling)?