

Data Sheets on Quarantine Pests

Phoma andina**IDENTITY**

Name: *Phoma andina* Turkensteen

Taxonomic position: Fungi: Coelomycetes (probable anamorph of Dothideales, Ascomycetes)

Common names: Black potato blight, Phoma potato leaf spot (English)

Bayer computer code: PHOMAN

EPPO A1 list: No. 141

EU Annex designation: I/A1

HOSTS

The main host is potatoes. *P. andina* also attacks other tuber-bearing *Solanum* spp. (in particular *S. phureja*, *S. goniocalyx*, *S. medians*) and other Solanaceae (including tomatoes and various weeds). Potatoes are the crop of concern in the EPPO region.

GEOGRAPHICAL DISTRIBUTION

EPPO region: Absent.

South America: *P. andina* is confined to Bolivia and Peru, at altitudes between 2000 and 3500 m.

EU: Absent.

BIOLOGY

The fungus survives in the soil as pycnidia on plant debris. No teleomorph has been reported. Potato leaves are infected by pycnidiospores splashed from the soil surface. Infection is favoured by high humidity and rain, which aids spread. It occurs only in cool weather with temperatures below 15°C. Tubers are not infected. In culture, chlamydospores are formed, as well as thick-walled non-ostiolate pycnidia containing conidia, which tend to persist for long periods.

For additional information, see Torres *et al.* (1970), Turkensteen (1978; 1980).

DETECTION AND IDENTIFICATION**Symptoms**

P. andina causes a leaf spot disease superficially similar to that caused by *Alternaria solani*, but the affected tissues are not depressed. Lesions are typically blackish rather than brown (cf. *Septoria lycopersici* var. *malagutii*; EPPO/CABI, 1996). Microscopically, light-coloured pycnidia (diameter 125-200 µm) can be seen embedded in the affected tissue. Only the ostioles emerge through the epidermis. In later stages of infection, numerous small lesions may coalesce, so that leaves turn blackish and appear scorched.

Morphology

The pycnidia release conidia of two different sizes: 14-22 x 5-7 µm and 6-8 x 2.0-2.6 µm. The small conidia are not infective and do not germinate on artificial media. The fungus can be isolated on V8 agar, oatmeal agar or potato-dextrose agar, but grows slowly, especially on acidified media. It turns the medium yellow when grown on oatmeal agar or potato-dextrose agar.

MEANS OF MOVEMENT AND DISPERSAL

Under natural conditions, the fungus is splash-dispersed only over short distances. In international trade, the fungus could be introduced on leaves of living material (e.g. germplasm material imported for breeding purposes), or on dead plant material (e.g. scientific specimens), or on crop residues or soil accompanying tubers.

PEST SIGNIFICANCE

Economic impact

Yield reductions of 20-80% have been reported on some potato cultivars in Peru, so that the fungus can have considerable economic importance. However, cultivars vary from very susceptible to highly resistant.

Control

Fungicides can be used effectively if applied early in the season, before lesions are abundant (Turkensteen, 1980). Resistant cultivars can also be used.

Phytosanitary risk

P. andina is listed by EPPO as an A1 quarantine pest (OEPP/EPPO, 1984). It could certainly survive in temperate zones of the EPPO region, with mild winters. It is thus a potentially dangerous pathogen for many of the potato-growing areas of the region.

PHYTOSANITARY MEASURES

P. andina belongs to the group of South American pests of potato which justifies strict post-entry quarantine procedures in the EPPO region, together with equivalent checks before export. Only material for scientific purposes should normally be imported from South America. EPPO recommends (OEPP/EPPO, 1990) that imports of plants for planting of tuber-forming *Solanum* spp. and seed potatoes from America (except USA and Canada) should be prohibited, and that other imports should be submitted to restrictions.

BIBLIOGRAPHY

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- OEPP/EPPO (1990) Specific quarantine requirements. *EPPO Technical Documents* No. 1008.
- Torres, H.; French, E.R.; Nielsen, L.W. (1970) Potato diseases in Peru 1965-1968. *Plant Disease Reporter* **54**, 315-318.
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