Extract from report: Invasive alien species in Switzerland. Factsheets, Federal Office for the Environment FOEN, Series: Environmental studies, p.120-121, 2006

Phytophthora quercina

Taxonomic status

Scientific name	Phytophthora quercina Jung et al.
Synonyms	
Taxonomic position	Oomycota: Peronosporales
English name	
German name	
French name	
Italian name	

Description and identification

Description	Many *Phytophthora* spp. occur in Europe, including on oak. Characterizing different *Phytophthora* spp. is difficult. Identifications can be performed by traditional isolation and culturing of the pathogen on standard, selective media, but are best carried out by specialists. Identification can be confirmed by molecular analyses (Cooke et al., 1999).
Similar species	The other *Phytophthora* spp. on oak in Europe do not seem to be pathogenic. In the USA, *P. ramorum* Werres, de Cock & Man in't Veld is a new, serious pathogen of oak species (see Fact Sheet on *P. ramorum*).

Biology and Ecology

Life cycle	*P. quercina* is a recently described species. Its biology is still unknown.
Host plant	To date, *P. quercina* has been found associated only with various oak species in Europe and Asia Minor: *Q. robur* L., *Q. petraea* (Mattuschka), *Q. cerris* L., *Q. pubescens* (Willd.), *Q. ilex* L., *Q. hartwissiana* Stev., *Q. frainetto* Ten. and *Q. vulcanica* Boiss. & Heldr.
Habitat	Probably oak habitats.
Origin	Unknown, perhaps native to Europe, although its newly discovered pathogenicity, and the fact that it is not present in all European countries, suggest an exotic origin.

Introduction and dispersal

History of introduction	Unknown
Pathways of introduction	Probably through movements of nursery stock and forestry seedlings.
Dispersal	Unknown. More data are needed on the biology of the fungus.

Current status

Actual and potential distribution in CH	Not yet found in Switzerland, but since it is present in all neighbouring countries, it may also be present in Switzerland. Its potential distribution is probably limited to the distribution of *Quercus* spp.
Distribution in Europe	Austria, France, Germany, Hungary, Italy and Turkey.

Impacts

Damage on plant	*P. quercina* has been recently associated with oak decline in Europe (Vettraino et al., 2002). In some cases, however, a relationship was not clearly established (e.g. Hartmann and Blank, 2002). *P. quercina* is perhaps detrimental only in combination with other biotic or abiotic factors. For example, Jung et al. (2000) found that *P. quercina* is strongly involved in oak decline syndrome on sandy-loamy to clayey soils with pH values above 3.5. In pathogenicity tests *Q. robur* seedlings showed severe dieback, root necrosis and leaf chlorosis (EPPO, 2003).
Environmental impact	If the relationship with oak decline, a serious threat to oak ecosystems in Europe, is confirmed, *P. quercina* can be considered an important environmental pest.
Economic impact	Oak is an important amenity and forest tree in Europe. Oak decline is considered a serious problem in European forestry.
Management options	No management option is available at present.
Information gaps	Little is known about *P. quercina*. More data are needed on its taxonomic identity, biology, host range, geographic distribution, epidemiology, pathogenicity and role in oak decline.

References

Literature

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