

***Phaeomoniella chlamydospora* as causal agent of Esca: occurrence and detection in grapevine nurseries**

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Esca is a grapevine trunk disease that can be found worldwide. In Europe two mitosporic fungi, *Phaeomoniella chlamydospora* (*Pch*) and *Phaeoacremonium aleophilum* (*Pal*), as well as the basidiomycete *Fomitiporia mediterranea* (*Fmed*) are considered to be the main causal agents of the disease. Esca not only occurs in older vineyards, but also young vineyards and even planting material may be affected by the associated fungi. In the last years this situation led to considerable economic losses which are steadily increasing. Due to the lack of sufficient information on biology, occurrence, paths of infection and spreading behavior of the pathogens, a direct control measure is not available to date. As basis for development of effective control strategies the acquisition of information on the occurrence and epidemiological aspects of *Pch*, which is supposed to be the most relevant causal agent in plant material production, is of great importance.

In the present study, the occurrence of *Pch* is to be investigated over a period of three years. Various substrates, such as grapevine wood, callusing media and water in three different grapevine nurseries in Rhineland-Palatinate and Baden-Wuerttemberg are considered. The acquired information is expected to give some indication of potential inoculum sources, infection pathways and spreading behavior.

At the beginning of 2014, various wood samples of different rootstock and scion cultivars and water samples from hydration tanks were collected and investigated with respect to the presence of *Pch*. Furthermore wood samples of rooted grafts and samples from callusing media were taken prior to planting in the nursery. In the first place, wood samples were investigated visually regarding *Pch*-characteristic wood symptoms. Suspicious wood samples were additionally checked for the presence of *Pch* by cultivation on potato dextrose agar (PDA) medium and through nested polymerase chain reaction (nested PCR). Likewise water samples and callusing media were investigated by cultivation measures and nested PCR.

For the most part, wood samples of rootstock and scion cuttings as well as rooted grafts were inconspicuous in terms of *Pch*-associated symptoms or showed diffuse browning.

To date, *Pch* could be identified sporadically in wood samples from rootstock cuttings, water samples from hydration tanks as well as callusing medium. In addition, several fungi isolated from rootstock cuttings and plant residues on grafting tools could be assigned to the genus *Cadophora*, which contains fungal species suspected to play a role in trunk disease development.