

# ***Phaeomoniella chlamydospora* - the Esca pathogen in grapevine nursery production**

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Esca is a grapevine trunk disease (GTD) that can be found in wine-growing regions throughout the world. In Europe the wood-inhabiting fungi *Phaeomoniella chlamydospora* (*Pch*), *Phaeoacremonium aleophilum* (*Pal*) as well as *Fomitiporia mediterranea* (*Fmed*) are considered the main causal agents of this disease. Not only does Esca occur in older vineyards, but also young vineyards and planting material may be affected by the so called Petri disease, a precursor disease of Esca. Considerable economic losses caused by these diseases could be observed over the last two decades. To date only limited data are available about biology, incidence, infection paths and spreading behaviour of the involved fungi. Direct and effective control measures are not available up to now.

Information on occurrence and epidemiological aspects of *Pch*, probably the most important Esca pathogen in plant material production, are required in order to build up the basis for development of effective control strategies in the nurseries. Consequently, this project investigates the occurrence of *Pch* during the grapevine production process of three different grapevine nurseries over a period of three years. The investigated substrates comprise grapevine wood, callusing media, different dipping baths, air and soil.

In 2014 and 2015 wood samples from grafting material (different rootstock and scion cultivars), recently grafted

vines as well as grafted vines in the nursery were collected and investigated for the presence of *Pch*. In addition, samples from dipping baths and callusing media were investigated prior to grafting and planting in the nursery, respectively. During the nursery stage, i.e. between May and November, also soil and air (spore traps) were checked for *Pch*. Wood samples were investigated through visual evaluation of *Pch*-characteristic wood symptoms, cultivation measures on potato dextrose agar (PDA) and a specific nested PCR. Likewise water samples and callusing media were investigated by cultivation measures and nested PCR. Spore traps and soil samples were checked by nested PCR only.

In general an increase of characteristic wood symptoms in the course of the production process was observed. *Pch* was frequently detected in wood samples whereat detection rates were higher after planting of the grafted vines in the fields; it also could be frequently found in dipping baths and spore traps. Sporadic detection exists in callusing media. To date no occurrence in soil was determined. Our findings show the presence of *Pch* in different stages of the plant material production process and that potential infection sources do exist. In order to better estimate the risk of infection emanating from these various substrates further investigations will be conducted in 2015 and 2016.