

## **P54 – Investigations on hot water treatment for the production of high-quality grapevine propagation material**

Simon, Dorottya<sup>1, 2\*</sup>; Winterhagen, Patrick<sup>1</sup>; Walter, Ruth<sup>1</sup>; Wetzels, Thierry<sup>1</sup>; Kortekamp, Andreas<sup>1</sup>; Von Tiedemann, Andreas<sup>2</sup>; Eder, Joachim<sup>1</sup>

<sup>1</sup>Dienstleistungszentrum Ländlicher Raum (DLR) Rheinpfalz, Institute of Plant Protection, Neustadt/Weinstraße, Germany

<sup>2</sup>Georg-August University of Göttingen, Plant Pathology and Crop Protection Division, Göttingen, Germany

\*DorottyaAgnes.Simon@dlr.rlp.de

### **Abstract**

Hot water treatment (HWT) applied on dormant woody plant material to control Grapevine Trunk Diseases (GTD) showed variable results in previous studies. In this project, a field experiment was carried out to investigate the effect of HWT on GTD pathogens (*Phaeoconiella chlamydospora* (Pch), *Phaeoacremonium minimum* (Pmi), *Botryosphaeriaceae* (BOT) species). Inoculated wood cuttings were treated in a hot water tank under practical conditions, grafted onto healthy rootstocks and planted in nurseries. Pathogen development was analysed in wood samples at distinct time points after treatment. Pch and BOT could be successfully eliminated through HWT. However, only a reduced infection by Pmi was observed in the treated samples. To determine the influence of HWT on the growth of *Trichoderma* and its long-term antagonistic effect following HWT on GTD pathogens, a commercially available biocontrol agent product, Vintec<sup>®</sup>, [*Trichoderma atroviride* strain SC1 (TASC1), Belchim Crop Protection Deutschland GmbH] was tested. No negative impact of HWT could be detected on the growth of TASC1, and thus its antagonistic ability against the GTD pathogens was also not affected. Heat tolerance of the distinct developmental stages of each GTD pathogen was assessed at different temperature-time combinations under laboratory conditions. In general, Pch and BOT were more sensitive to HWT than Pmi at both tested developmental stages. Pmi showed reduced sensitivity to HWT at the ungerminated spore stage. Conidial germination was not inhibited following an incubation of the spore suspension for 45 minutes at 50°C, whereas no survival of treated mycelia of Pmi could be detected. These results suggest that HWT can be a useful tool to reduce infections with GTD pathogens in propagation material without affecting the antagonistic effects of TASC1.

**Keywords:** Grapevine trunk diseases, hot water treatment, *Trichoderma atroviride*