

Title Control of *Verticillium dahliae* on artichoke stumps using hot-water treatment
Authors B. Márquez, J. Armengol, A. Vicent, R. Sales and J. García-Jiménez
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Abstract

Verticillium wilt, caused by *Verticillium dahliae* Kleb. is a limiting factor in artichoke (*Cynara scolymus* L.) production in eastern Spain. In Spain artichoke is propagated commercially mainly via stumps, this being an important way for the dissemination of the pathogen. The purpose of this research was to evaluate conditions suitable for hot-water treatment (HWT) of artichoke stumps. In a first experiment, healthy latent artichoke stumps (cv. Blanca de Tudela) were treated at 40, 43, 46, 49, 52, 55 and 58 °C for two periods of time, 20 and 30 min. Plants died at 55 °C and 58 °C, and the plants treated at 52 °C had irregular sprouting. The rest of temperatures showed normal development in comparison with controls. There were no statistical differences on yield between controls and 40, 43 and 46 °C. Treatments of 49 and 52 °C resulted in lower plant production. In a second experiment, healthy latent artichoke stumps were treated at 40 °C 60 min, 42 °C 45 min, 42 °C 60 min, 44 °C 30 min, 44 °C 45 min, 44 °C 60 min, 46 °C 30 min, 46 °C 45 min and 48 °C 30 min. Stumps showed a high percentage of sprouting with adequate plant production. Additionally, infected artichoke stumps were exposed to HWT at 46 °C 45 min. After the treatment recovery of *V. dahliae* from internal fragments was greatly reduced. These results support the aim of developing a HWT leading to an effective control of *V. dahliae* from artichoke propagating material.