

PHOSPHITE INDUCING RESISTANCE ON SWEET CHESTNUT AGAINST *PHYTOPHTHORA* INFECTION

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Ink disease caused by *Phytophthora* spp. still represents a serious threat to sweet chestnut throughout its distribution area [1]. Amongst control strategies, new perspectives have been offered by the use of potassium phosphite, a fertilizer that indirectly control *Phytophthora* diseases by acting on host physiology and on host-pathogen interactions. In this study, we tested in planta the efficacy of trunk injection with potassium phosphite against seven different *Phytophthora* species previously associated with ink disease. For two of the seven species, *P. cinnamomi* and *P. × cambivora*, the treatments were repeated at two different environmental conditions (mean temperature 15°C vs 25°C) and tree phenology. The results obtained demonstrated that potassium phosphite was overall able to contain the development of *Phytophthora* infections in phloem tissues, however its efficacy varied based on the concentration applied and the *Phytophthora* species tested. The concentration of 280 g/l of potassium phosphite (40% of the commercial product Kalex) was the most effective and in some cases, callus formation around the necrotic lesion was detected. Overall, this study broaden the knowledge on endotherapeutic treatments as an effective measure for the management of chestnut ink disease. Interestingly, at higher temperature the ability of *P. cinnamomi* to colonize the phloem tissues increased significantly in non-treated controls, highlighting the potential for *P. cinnamomi*, under current climate change projections, to invade and cause huge damage to sweet chestnut ecosystems on a large scale.