

Integrated Control of *Phytophthora* Root Rot using Strain TW of *Myrothecium roridum*

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Abstract. Potential antagonists of *Phytophthora cinnamomi* were evaluated from among 36 fungi and 100 bacteria isolated from the rhizosphere of avocado roots growing in a soil suppressive to *Phytophthora* where *P. cinnamomi* had been present for 40 to 50 years. Strain TW of *Myrothecium roridum* proved to be the most active antagonist in controlling *P. cinnamomi* in repeated greenhouse pot tests with highly susceptible seedlings of *Persea indica* inoculated with *P. cinnamomi*. *M. roridum* was grown on a wheat-bran medium and introduced into a peat-perlite mixture at 2.5% (w/v) 2 weeks before inoculation with *P. cinnamomi*. In a UC mixture with *P. indica* inoculated with zoospores of *P. cinnamomi*, *M. roridum* suppressed root infection by 50 to 94% compared with uninoculated controls. In the same experiments there was no significant difference in the level of control achieved by either *M. roridum* or the fungicide potassium phosphonate (2.5 mg/pot). In three naturally-infested field soils, root infection ranged from 12 to 54% in the presence of *M. roridum* compared with 58 to 93% for controls over the same 4-wk period. On a selective medium containing carbendazim a fungicide-resistant mutant of strain TW, TWm14, was isolated consistently from the root tips of *P. indica* growing in infested soil 4 weeks after transfer, demonstrating the apparent rhizosphere competence of this strain in the three soils. Preliminary work using bran-alginate formulations of these biocontrol fungi indicate that they have a good shelf life comparable to some fungicides. In combination with suitable organic amendments, such formulated biocontrol agents may possibly permit a significant reduction in fungicide usage. However, this has yet to be tested in actual field practice in a Californian avocado grove.