

## Antagonism of three naturally occurring fungi against major tea root diseases of Sri Lanka and their sensitivity to recommended systemic fungicides

*Aspergillus niger*, *Penicillium aurantiogriseum* and *Trichoderma pseudokoningii* were tested *in vitro*, for their antagonistic properties against three major root pathogens of tea, namely *Poria hypolateritia* (red root disease) *Rigidoporus microporus* (white root disease) and *Phellinus noxious* (brown root disease). These were tested in dual culture in three different temporal combinations, i.e. antagonist introduced prior to (pre) pathogen, in simultaneous culture (both introduced simultaneously) and the antagonist introduced following (post) pathogen.

*A. niger* and *T. pseudokoningii* could suppress the pathogen completely when they were introduced as 'pre-pathogen'. Both of them exhibited good control over *P. hypolateritia* even when they were inoculated simultaneously. Same antagonists when introduced as 'post-pathogen', only *T. pseudokoningii* was able to smother *P. hypolateritia* completely.

*A. niger* and *T. pseudokoningii* completely suppressed the growth of *P. noxious* in 'pre-pathogen', 'simultaneous' and 'post-pathogen' situations.

*A. niger*, *P.aurantiogriseum* and *T. pseudokoningii* were able to suppress *R. microporus* completely when they were introduced as 'pre-pathogen'. *T. pseudokoningii* was also successful in smothering the pathogen in the simultaneous culture, in two weeks and in post pathogen combinations in three weeks.

A variable reduction of growth was observed when pathogens were bioassayed using growing media, incorporated with culture filtrates of antagonists.

Three concentrations of five systemic fungicides (Bitertanol, Tridemorph, Propiconazole, Hexaconazole, Tebuconazole) were tested *in vitro* against all these microorganisms. Bitertanol was only effective in controlling *P. hypolateritia* while not being effective on the other two pathogens and on any of the antagonists. Hexaconazole was ineffective on the pathogen *P. noxious*. *T. pseudokoningii* was found to be affected only by Tebuconazole.