

To develop a rapid plant bioassay assess the pathogenicity of *Agrobacterium* biocontrol strains by leaf disc transformation method

A.R. Ahmadi, N.C. McClure, B.G. Clare and A. Kerr

Dept. of Crop Protection, Waite Agricultural Research Institute, University of Adelaide, Glen Osmond, South Australia.

Crown gall, caused by the soil-borne bacterium (*Agrobacterium spp.*) is a common disease of a wide varieties of dicotyledonous plants such as peaches, grapevines, almond, cherry, *Rubus* species and various nut-bearing trees.

A rapid efficient method for testing pathogenicity and/or the efficacy of biocontrol stains was developed by using a leaf disc tumorigenesis assay. A range of tobacco and tomato cultivars were tested to determine which plant cultivar gave the most rapid and reproducible callus formation with different concentrations of pathogen. The results of these experiments indicated that tobacco cultivars white burley and virgie are the best host plants for plant transformation.

The strain K84, K1143, and K1347 were tested for ability to control crown gall induced by strain K27 on hormone free medium (MSO). Results indicated that all biocontrol strains, K1347 (cured strain), K1143 with PAgK434 and K84 with PAgK84, PAgK434 and PAgK84b significantly reduced gall formation and callus induction by the pathogenic strain K27.