

Characterization of Ectomycorrhizal Fungi in Association with *Eucalyptus pellita* F. Muell Seedlings

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This study aimed to determine the effectiveness of 14 ectomycorrhizal (ECM) fungi namely, *Amanita pantherina*, *Hebeloma cylindrosporum*, *Leccinum* sp., *Ramaria botrytis*, *Tuber puberulum*, *Lyophyllum shimeji*, *L. fumosum*, *L. decastes*, *Tricholoma porderosum*, *T. portentosum*, *T. matsutake*, *T. robustum*, and two isolates of *Pisolithus tinctorius* in promoting growth and nutrient content of *Eucalyptus pellita* under glasshouse conditions. One month old *E. pellita* seedlings were inoculated with ECM mycelia during transplanting into pots filled with autoclaved peat perlite vermiculite medium. All ECM fungi studied colonized 40-65% root tips of 4 month old *E. pellita* seedlings while roots of control plants were not colonized. Mycorrhizal plants grew better than the control counterpart. Height increased from 20-24% by six ECM while nine ECM increased total plant dry weight from 42 to 75% relative to the control. *Amanita* and *Ramaria* promoted higher leaf P content. *Lyophyllum decastes* promoted the highest root N, K, Mg, and Ca contents whereas PtMKACC promoted the highest root K, and leaf Mg and Ca content. *Tricholoma portentosum* was ineffective in promoting growth and nutrient content as exhibited by the lower growth and nutrient content of plants. Chlorophylls a, b and a+b were highest in plants inoculated with *Amanita* but comparable with the control. *Pisolithus* PtMKACC inoculated plants differed from the control plants and produced the highest carotenoid content. Transpiration rates and stomatal conductance were highest in the control plants. The results indicate that pine tree ECM fungi *Amanita pantherina*, *Ramaria botrytis*, *Lyophyllum fumosum*, *L. decastes* and *Pisolithus* MKACC can effectively promote growth of *E. pellita* seedlings under glasshouse conditions.

Keywords: *Amanita*, *Hebeloma*, *Lyophyllum*, *Pisolithus*, *Ramaria*, *Tricholoma*, *Tuber*