**Abstract**

The effects of arbuscular mycorrhizal (AM) fungal species and strains on seedling growth and uptake of nutrients were determined for *Casuarina equisetifolia* under nursery conditions. Seedlings of C. equisetifolia were inoculated individually with four strains each of Acaulospora scrobiculata and Glomus aggregatum in two soil types (alfisol and vertisol). Seedling height, root collar diameter, nodulation, dry weights, nutrient contents, nutrient uptake efficiencies, mycorrhizal inoculation effect (MIE), and seedling quality were determined at harvest. Seedlings inoculated with different AM fungal strains invariably had significantly higher plant growth, and nutrient parameters measured. Nevertheless, the response was higher for seedlings inoculated with strains of G. aggregatum compared to those inoculated with strains of A. scrobiculata. The mycorrhizal response as measured by MIE was significantly affected by soil types. These results suggest the importance of selecting a specific AM fungal strain suited for a soil type in forest nurseries for the production of high-quality seedlings.