Abstract

One of the main problems in forest seedlings production is an adequate availability of substrate to guarantee the production of good quality plants; the use of certain types of substrates is not legally permitted or even generates undesirable environmental impacts. The aim of this study was to evaluate the feasibility of using composted biosolids + pumicite (1:1) as an alternative substrate for the production of containerized seedlings of Nothofagus alpina under fertigation. To obtain better seedlings quality for transplanting, a dose with a concentration of potassium higher than that included in the standard dose commonly used in our region was applied at the last stage of the fertigation cycle. Morphological, physiological and chemical (leaf nutrients) variables and quality indexes were registered in plants. Prior to hardening, plants produced in biosolids compost had higher values of total height and diameter at the base of the stem compared to plants in traditional substrate; at the end of the production, plants produced with biosolids showed higher total plant height and higher root biomass values than those shown by plants under traditional substrate. The extra dose of potassium generated greater growth in plant height compared to plants under the standard dose. Quality index values, as well as stomatal conductance values, were similar among treatments (substrate types and fertilization doses). Plants growing under the different substrates and nutritional doses had similar values in the chemical variables. The results indicate that the biosolids compost would be a feasible alternative for production of seedlings of this species. More detailed studies on the use of plus fertilizer doses should be conducted in the future combined with the use of different types of substrates, due to the improvement observed in total seedling height and some biomass components.

Keywords

Forest seedling production, fertigation, plant quality, raulí, alternative substrates.