

Research note

The effect of seaweed concentrate on the growth of *Pinus pinea* seedlings

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Application. The use of seaweed concentrate (SWC) to accelerate root growth of *Pinus pinea* seedlings is described. This renewable natural product might be used to improve the root and shoot growth of forest seedlings. Foliar spraying or root drenching seedlings with SWC dilutions before transplanting in the field may reduce transplant shock.

Abstract. Seedlings of *Pinus pinea* L. growing in plastic containers were treated with seaweed concentrate (SWC). Different concentrations of SWC were applied, 0 to 3 times, to the roots or shoots of the seedlings. Shoot application increased plant weight mainly by increasing shoot growth. This was manifested as increased shoot length and weight and a decrease in the root/shoot ratio. Root drenches did not change the total plant weight but it accelerated root growth and increased lateral root dry weight. Root growth capacity (RGC) tests for both shoot and root applications indicated an increase in root length and some increases in root number when applied as a root drench. This study indicates that root application of SWC improved seedling quality and increased the ability of seedlings to survive transplanting into pots.

Abbreviations: GC-MS — Gas Chromatography-Mass Spectrometry; RGC — root growth capacity; SWC — seaweed concentrate

Introduction

The application of commercial seaweed preparation has many beneficial effects on plants (Metting et al. 1990). Among the effects reported is improved rooting of cuttings of several ornamentals and a significant increase in root initiation and growth (Featonby-Smith and Van Staden 1984b; Beckett and Van Staden 1989; Crouch and Van Staden 1991). Some of these effects have been attributed to the presence of growth substances such as cytokinins, which are known to occur at relatively high