



Abstract

Upscaling FRM Production for Future Forests and FGR Conservation: Clonal Propagation of Selected *Taxus baccata* Plus Trees with High Paclitaxel Content [†]

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Abstract: *Taxus baccata* (European yew) is native to Greece, which hosts the most southeastern populations of the species. It is a medically interesting conifer due to its tetracyclic diterpenes, with the anticancer agent paclitaxel (taxol) being the most well-known. Yew trees with a high content of paclitaxel (taxol) have been identified in the natural population of Mt. Cholomon in Greece. The macropropagation of these plus trees is of high importance both for the establishment of future plantations and for the ex situ conservation of this valuable germplasm. A total of 600 cuttings from top and side shoots were taken from 10 highly producing paclitaxel trees and treated with a rooting solution containing the plant hormone indole-3-butyric acid potassium salt (K-IBA) concentrations of 6000 ppm and 12,000 ppm. Cuttings were placed in a greenhouse for rooting using a perlite and peat 2:1 rooting medium, under constant temperature and humidity conditions. After five months, the evaluation of rooting success showed that it varied between different genotypes (40–100%), but was generally considerable (average success of 79.5%). The higher K-IBA concentration resulted in a better rooting success, being only in 50% of the genotypes tested; however, root length was differentially affected, as use of the 12,000 ppm concentration resulted in an average root length on a per genotype basis of 2.76 cm, compared to an average of 2.69 cm when the 6000 ppm concentration was used. Overall, high-yielding paclitaxel (taxol) was successfully macropropagated, and these results can be applied to both ex situ conservation and plantation establishment.

Keywords: *Taxus baccata*; paclitaxel; macropropagation; K-IBA; ex situ conservation



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