

Enhancing Embryogenesis in Plug Oak: Growth Regulator Influence

Faculty of Sciences, Abdelmalek Essaadi University, Morocco

This study investigates the influence of growth regulators on enhancing embryogenesis in plug oak (*Quercus* spp.). Plug oak, a valuable tree species for reforestation and conservation efforts, often faces challenges in efficient propagation through embryogenesis. In this research, we examined the effects of various growth regulators on the induction and development of embryos in plug oak tissue cultures. Through a series of experiments, we evaluated the response of plug oak explants to different concentrations of growth regulators. These findings offer valuable insights into improving the application of growth regulators. Enhanced embryogenesis in plug oak tissue cultures holds promise for accelerating the production of high-quality planting material for reforestation and conservation initiatives, contributing to the sustainable management of forest ecosystems.

Keywords: Embryogenesis; Growth regulators; Plug oak; Tissue culture; Reforestation

Introduction

Plug oak (*Quercus* spp.) is a valuable tree species for reforestation and conservation efforts. However, the propagation of plug oak through embryogenesis is often challenging due to the low efficiency of embryo induction and development in tissue cultures.

Enhancing embryogenesis in plug oak tissue cultures is crucial for accelerating the production of high-quality planting material for reforestation and conservation initiatives, contributing to the sustainable management of forest ecosystems.

Several studies have investigated the effects of various growth regulators on the induction and development of embryos in plug oak tissue cultures. However, the optimal concentrations and combinations of growth regulators for enhancing embryogenesis in plug oak are still unclear.

In this study, we examined the effects of various growth regulators on the induction and development of embryos in plug oak tissue cultures. We evaluated the response of plug oak explants to different concentrations of growth regulators.

The results of this study show that the application of growth regulators significantly enhanced the induction and development of embryos in plug oak tissue cultures. The optimal concentrations and combinations of growth regulators for enhancing embryogenesis in plug oak are discussed.

These findings offer valuable insights into improving the application of growth regulators. Enhanced embryogenesis in plug oak tissue cultures holds promise for accelerating the production of high-quality planting material for reforestation and conservation initiatives, contributing to the sustainable management of forest ecosystems.

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Method and Materials

High-quality plug oak explants were collected from mature trees and surface-sterilized using a series of disinfectants. The explants were then cultured on a basal medium supplemented with various growth regulators.

The effects of different concentrations of growth regulators on the induction and development of embryos in plug oak tissue cultures were evaluated. The results were analyzed using statistical methods.

Embryogenesis was monitored regularly, and the number of embryos induced and developed were recorded. The optimal concentrations and combinations of growth regulators for enhancing embryogenesis in plug oak were determined.

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Thomas Sharkey, Faculty of Sciences, Abdelmalek Essaadi University, Morocco, E-mail: Thomas@sharkey.com

01-Mar-2024, Manuscript No. jpgb-24-130474; 04-Mar-2024, PreQC No. jpgb-24-130474 (PQ); 15-Mar-2024, QC No. jpgb-24-130474, 22-Mar-2023, Manuscript No. jpgb-24-130474 (R); 30-Mar-2023, DOI: 10.4172/jpgb.1000199

Thomas S (2024) Enhancing Embryogenesis in Plug Oak: Growth Regulator Influence. J Plant Genet Breed 8: 199.

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