Agrociencia Uruguay 2023 | Volume 27 | Number NE2 | Article e1248
DOI: 10.31285/AGRO.27.1248
ISSN 2730-5066

IUFRO Conference 2023

Effect of different cytokinin sources on *in vitro*/*ex vitro* multiplication and rooting rate in *Eucalyptus spp*.

Esquivel, F.[1]; Bentacor, M.[1]; Bonilla, B.[1]; Ceppa, M.[1]; Rogel, L.[1]; Balmelli, G.[2]; Dalla-Rizza, M.[1]

[1] *Instituto Nacional de Investigación Agropecuaria (INIA), Canelones, Uruguay*
[2] *Instituto Nacional de Investigación Agropecuaria (INIA), Tacuarembó, Uruguay*

Received *28 Jul 2023*
Accepted *01 Sep 2023*
Published *20 Nov 2023*

Correspondence
Facundo Esquivel,
facundoesquivelmn@gmail.com

Eucalyptus globulus Labill. is of great interest to the pulp industry. However, the species is highly susceptible to leaf spot caused by *Teratosphaeria nubilosa* and has a low rooting capacity. In order to overcome these limitations, INIA has been implementing a genetic improvement program for this species and the generation of interspecific hybrids. The strategy is based on the selection of *E. globulus* clones with high precocity or foliage turnover, since the adult foliage is more tolerant to *T. nubilosa*. In addition, controlled crosses of *E. globulus* and *E. maidenii* with *E. grandis* are carried out to incorporate disease resistance and ease of rooting. The multiplication of the selected materials is carried out by micropropagation, but the low rooting capacity is a trait that needs improvement. The cytokines necessary for *in vitro* proliferation can have a negative effect on the rooting process. Benzyladenine is the most commonly used cytokine because of its low cost and easy availability, with some negative effects on rooting, while meta-topolin is a cytokine of lesser impact. The objective of this study was to evaluate the effect of benzyladenine and meta-topolin on the multiplication rate, rooting percentage and plantlets survival of *E. globulus*, *E. grandis* × *E. globulus*, and *E. grandis* × *E. maidenii*. In multiplication media, benzyladenine was supplied at 0.4 µM, while two concentrations of meta-topolin (0.4 and 2 µM) were used. Preliminary results indicated a higher multiplication rate with the inclusion of meta-topolin in both concentrations. The *in vitro* rooting percentage of explants treated with meta-topolin was 51% and 44%, at 0.4 and 2 µM, respectively, while with benzyladenine was lesser (37%). After 28 days post-transplanting, survival was higher in meta-topolin-derived plants. Meta-topolin improved multiplication, *in vitro* rooting and acclimation of plants. The use of this hormone could improve micropropagation protocols, facilitating rooting and multiplication of valuable genotypes.

Keywords: Eucalyptus globulus, interspecific hybrids, recalcitrant rooting

Esquivel F, Bentacor M, Bonilla B, Ceppa M, Rogel L, Balmelli G, Dalla-Rizza M. Effect of different cytokinin sources on in vitro/ex vitro multiplication and rooting rate in *Eucalyptus spp*. Agrociencia Uruguay [Internet]. 2023 [cited dd mmm yyyy];27(NE2):e1248. Doi: 10.31285/AGRO.27.1248.