



## Somatic embryogenesis in maritime pine

Jean-François Trontin, Isabelle Reymond, Séverine Quoniou, Francis Canlet, Sandrine Debille, Gilles Bruneau, Karine Durandeau, Luc Harvengt, Claire C. Le Mette, Michel Vallance, et al.

### ► To cite this version:

Jean-François Trontin, Isabelle Reymond, Séverine Quoniou, Francis Canlet, Sandrine Debille, et al.. Somatic embryogenesis in maritime pine. 19. Biennial Meeting of The New Zealand Branch of the International Association for Plant Biotechnology, Feb 2011, Hanmer Springs, New Zealand. hal-02750364

**HAL Id: hal-02750364**

**<https://hal.inrae.fr/hal-02750364>**

Submitted on 3 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

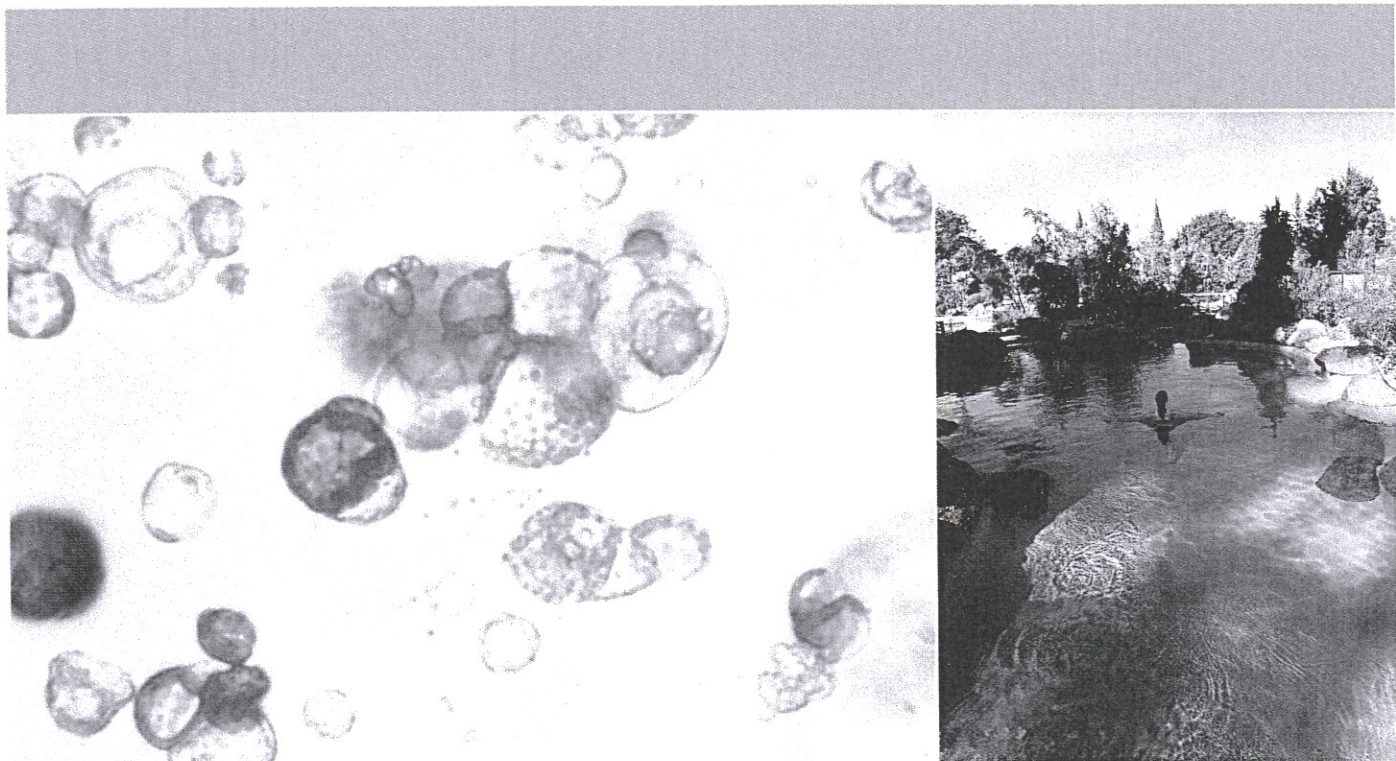
L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



IAPB 2011



8-11 February 2011  
Heritage Hotel  
Hanmer Springs  
New Zealand



**19<sup>TH</sup> BIENNIAL MEETING OF  
THE NEW ZEALAND BRANCH OF  
THE INTERNATIONAL ASSOCIATION  
FOR PLANT BIOTECHNOLOGY**

**ABSTRACT AND PROGRAMME BOOK**



Plant & Food  
**RESEARCH**  
RANGAHAU AHUMĀRA KAI





## Somatic embryogenesis in maritime pine

Jean-François Trontin

FCBA Technological Institute

jean-francois.trontin@fcba.fr

J-F. Trontin<sup>(1)</sup>, I. Reymond<sup>(1)</sup>, S. Quoniou<sup>(1)</sup>, F. Canlet<sup>(1)</sup>, S. Debille<sup>(1)</sup>, G. Bruneau<sup>(1)</sup>, K. Durandeau<sup>(1)</sup>, L. Harvengt<sup>(1)</sup>, C. Le Metté<sup>(2)</sup>, M. Vallance<sup>(2)</sup>, C. Teyssier<sup>(2)</sup>, P. Label<sup>(2)</sup>, M-A. Lelu-Walter<sup>(2)</sup>

<sup>(1)</sup>FCBA Technological Institute, Biotechnology and Advanced Forestry Department, Biotechnology Lab, Domaine de l'Étançon, F-77370 Nangis, France

<sup>(2)</sup>INRA, UR 588, Research Unit in Forest Tree Breeding, Genetics and Physiology, 2163 Avenue de la Pomme de Pin, CS 4001 Ardon, F-45075 Orléans Cedex 2, France

Maritime pine contributes for a leading part in socio-economic development of the French Aquitania region. Sudden and drastic changes in market value and environmental constraints in recent years would need a significant paradigm shift in current breeding technology to deliver suitable varieties. Field comparison of vegetative propagules is a key towards individual selection and efficient capture of the best genetic stocks. Clonal propagation is also required for scaling up production of improved varieties. Somatic embryogenesis is considered as the key technology to fulfil such requirements in maritime pine. Significant progress has been made during the last 2 decades using immature zygotic embryos as explants. High genotype capture within family at the initiation step is now a reality (77%). Embryogenic cultures also became an essential support for cryocollection of genetic resources and genetic engineering. Genotype capture at the maturation step calculated as the frequency of lines producing workable yield in cotyledonary somatic embryos is however less than 45%. In addition, maturation yield and embryo quality are rapidly decreasing in the process of subculturing embryogenic tissue. Field tests established since 1999 revealed that emblings are phenotypically normal plants compared to control seedlings. Initial growth rate is usually lower but can be probably compensated for by selecting in each family the top elite clones. It is our main challenge to improve somatic embryo quality through a number of comprehensive studies of embryo development such as proteomic analysis. Cytological data suggesting that embryogenicity could also be expressed from mature trees will be presented.