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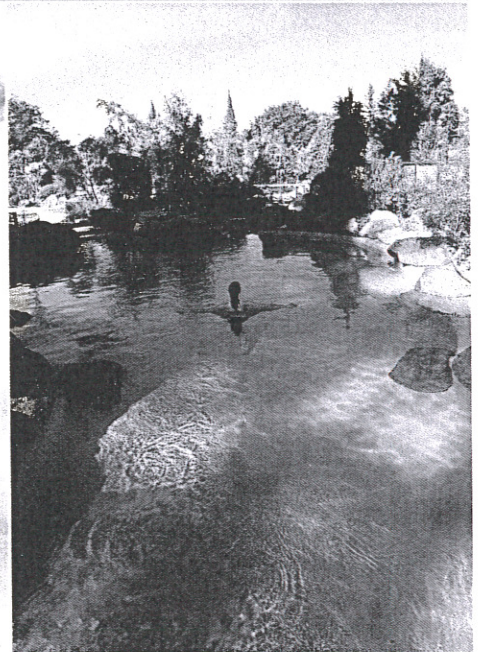
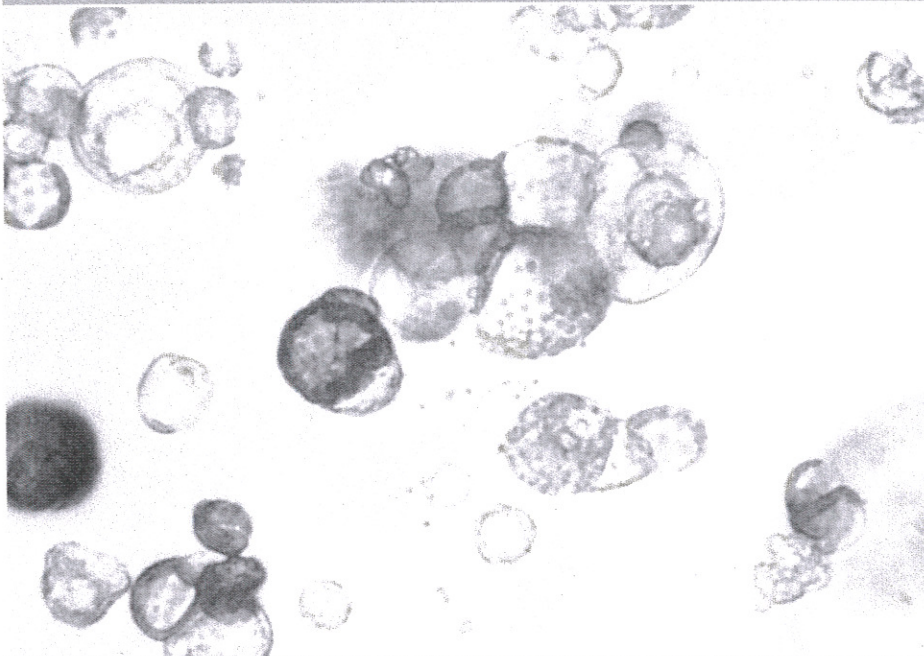
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THE NEW ZEALAND BRANCH OF
THE INTERNATIONAL ASSOCIATION
FOR PLANT BIOTECHNOLOGY

ABSTRACT AND PROGRAMME BOOK



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RESEARCH
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Somatic embryogenesis in maritime pine

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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.