

P12.GENETIC STABILITY ANALYSIS OF CRYOPRESERVED PLANT RESOURCES BY AFLP METHOD

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The world's plant population, especially wild and endemic species of this population, is unfortunately under extinction risk. For threatened population viability, plant cryopreservation has a significant role to conserve genetic resources by in vitro techniques, which involved in tissue culture, pre-growth, cryoprotection, freezing (liquid nitrogen, -196 °C) and regeneration. These steps are required for a successful cryopreservation but genetic changes occur in plant tissue culture (somaclonal variation) and these changes can cause the disruption of the genetic stability. There is an increasing interest in investigation of genetic stability after cryopreservation. In order to determine genetic changes between original species and cryopreserved species, DNA-based techniques such as DNA-DNA hybridisation and PCR techniques (randomly amplified polymorphic DNA (RAPD), amplified fragment length polymorphism (AFLP), simple sequence repeat (SSR) analysis) are useful, because they are simple, rapid and cost-effective, and offer clear information.

AFLP method allows the simultaneous analysis of many loci which widely spread over the entire genome, without prior sequence knowledge of the organisms under study. This is a very sensitive, reliable fingerprinting technique to resolve differences between isolates of the same species in a broad range of taxa including bacteria, animals, plants, and microalgae. For AFLP analysis fluorescent markers, an automated sequencer and dedicated software are required to detect polymorphic DNA fragments after DNA-primer amplification.

The monitoring of genetic stability after cryopreservation has a great importance for plant genetic resources.

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