

## Utility of Molecular and Morphological Markers in Detecting Hybrids Between *Eucalyptus nitens* and *Eucalyptus globulus*

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In the *Eucalyptus* genus, *E. nitens* and *E. globulus* are desirable for pulpwood production due to their fast growth and adaptability in countries such as Australia, Brazil and Chile. Hybrids between this species are used in commercial plantations because of the hybrid vigor or heterosis that is displayed in volume production.

Using a set of selected parents for seed and cutting production, 11 families of *E.nitens* x *E.globulus* and 2 families of *E.globulus* x *E.nitens* were produced. Seedlings were sampled and tested using 5 microsatellites for fingerprinting of individuals within each family and were compared with genotypes of their parents. Also, a set of morphological markers -number of flowers, leaf bud arrangement and leaf glaucousness- was measured to detect the hybrids, where a percentage of suspected hybrid was assigned to each plant and then compared with the molecular data. The results indicated that hybrids resulting of crossing *E.nitens* as the female are easily identified either by the microsatellites, flower and leaf morphology. However, when *E.globulus* is used as the female, the lower percentage of suspected hybrids was obtained and no hybridization was detected by the microsatellites.

The molecular markers were informative in validating the hybridization in *E.nitens* x *E.globulus* controlled crosses. The morphological evaluation resulted in a practical and low-cost protocol to verify the generated hybrids plants in a breeding program.

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