



## Genetic diversity and mating system of *Copaifera langsdorffii* (Leguminosae/ Caesalpinioideae)

A. Gonela<sup>1</sup>, A.M. Sebbenn<sup>2</sup>, H.H. Soriani<sup>1,3</sup>, M.A. Mestriner<sup>1</sup>,  
C.A. Martinez<sup>3</sup> and A.L. Alzate-Marin<sup>1,4</sup>

<sup>1</sup>Laboratório de Genética Vegetal, Departamento de Genética,  
Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo,  
Ribeirão Preto, SP, Brasil

<sup>2</sup>Estação Experimental de Tupi, Instituto Florestal de São Paulo,  
Piracicaba, SP, Brasil

<sup>3</sup>Departamento de Biologia,  
Faculdade de Filosofia Ciências e Letras de Ribeirão Preto,  
Universidade de São Paulo, Ribeirão Preto, SP, Brasil

<sup>4</sup>Programa de Pós-Graduação em Genética,  
Departamento de Genética, Universidade de São Paulo,  
Ribeirão Preto, SP, Brasil

Corresponding author: A.L. Alzate-Marin  
E-mail: [anaalzate@fmrp.usp.br](mailto:anaalzate@fmrp.usp.br)

Genet. Mol. Res. 12 (1): 569-580 (2013)

Received June 11, 2012

Accepted October 13, 2012

Published February 27, 2013

DOI <http://dx.doi.org/10.4238/2013.February.27.6>

**ABSTRACT.** *Copaifera langsdorffii*, locally known as copaíba, is a valuable tropical tree with medicinal properties of its oil. We studied the genetic variation, genetic structure, and the mating system of trees in stands of *C. langsdorffii* (Leguminosae/Caesalpinioideae) located in an extensive area between the Pardo and Mogi-Guaçu basins in São Paulo State, Brazil, and their offspring, conserved in an *ex situ* germplasm bank at the University of São Paulo in Ribeirão Preto, SP, Brazil, using six microsatellite loci. Leaves were collected from 80 seed trees and from 259 offspring and their DNA extracted. A total of

140 and 175 alleles were found in the seed trees and their offspring, respectively. Low genetic differentiation was observed between stands, indicating intense gene flow due to efficient pollen dispersion vectors. An estimation of the outcrossing rate showed that these stands are outcrossed ( $t_m = 0.98$ ,  $P > 0.05$ ). The mean variance of the effective population size of each family in two of the stands was 3.69 and 3.43, while the total effective population size retained in the germplasm bank was between 81 and 96. The paternity correlation was low, ranging from 0.052 to 0.148, demonstrating that the families implanted in this germplasm bank are composed predominantly of half-sibs.

**Key words:** Copaiba; Tropical tree species; Conservation; Gene bank