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Genetic diversity of *Dimorphandra wilsonii* (faveiro de Wilson), a critically endangered tree species: implications for conservation

André Carneiro Muniz¹; Renata Santiago Buzzati¹, Priciane Cristina Correa Ribeiro², Fernando Moreira Fernandes³, José Pires de Lemos-Filho¹, Maria Bernadete Lovato¹

1. Universidade Federal de Minas Gerais, 2. Universidade Federal do Tocantins, Campus universitário Araguaína, 3. Fundação Zoo-Botânica de Belo Horizonte-PBH.

E-mail: andrecaarneimuniz@yahoo.com.br

Dimorphandra wilsonii (Rizzini) is a tree legume critically endangered, with only 250 known adults in the nature, which occupy a restrict area of approximately 12 Km² highly anthropized and fragmented in the central region of Minas Gerais, Brazil. Our study aimed to answer the following questions: 1) is the species genetically depauperate? 2) what is the degree of genetic divergence among its populations? We sampled 157 individuals of nine populations and used a set of 11 microsatellite loci to estimate the number of alleles per locus (N_A), expected (H_E) and observed (H_O) heterozygosity and endogamy indexes (F_{IS}). These parameters were estimated in FSTAT 2.3 and ARLEQUIN3.5.2.2. The mean H_O was higher than mean H_E (0.705 and 0.564, respectively) and significantly excess of heterozygotes was observed in five populations, with negative F_{IS} ranging from -0.545 in Lagoa Santa to -0.105 in Esmeraldas ($P < 0.05$). The most diverse populations were Esmeraldas ($H_E = 0.651$, $N_A = 4.917$), Florestal ($H_E = 0.620$, $N_A = 3.333$) and Pequi ($H_E = 0.613$, $N_A = 4.917$). Lagoa Santa showed the lowest genetic diversity ($H_E = 0.470$, $N_A = 2.64$). Analysis of molecular variance (AMOVA) estimated a F_{ST} of 0.083 ($P = 0.000$) and the pairwise comparison showed Lagoa Santa as the most divergent population ($F_{ST} = 0.229 - 0.118$). These data indicate that *D. wilsonii* has with moderate level of genetic diversity, even though some populations are genetically depauperate. The populations with low diversity need reintroduction of selected individuals from other populations to increase population sizes and genetic diversity. Furthermore, the species need to be reintroduced in other locations to increase its occurrence area. The most diverse populations as Esmeraldas, Florestal, Pequi, Maravilhas and Fortuna de Minas could be used for the collection of seeds to produce saplings for reintroduction aiming to maintain the genetic diversity of the species.

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