



Genetic variability in local Brazilian horse lines using microsatellite markers

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Genet. Mol. Res. 11 (2): 881-890 (2012)

Received May 11, 2011

Accepted December 26, 2011

Published April 10, 2012

DOI <http://dx.doi.org/10.4238/2012.April.10.4>

ABSTRACT. Genetic variability at 11 microsatellite markers was analyzed in five naturalized/local Brazilian horse breeds or genetic groups. Blood samples were collected from 328 animals of the breeds Campeira (Santa Catarina State), Lavradeira (Roraima State), Pantaneira (Pantanal Mato-Grossense), Mangalarga Marchador (Minas Gerais State), as well as the genetic group Baixadeiro (Maranhão State), and the exotic breeds English Thoroughbred and Arab. We found significant genetic variability within evaluated microsatellite loci, with observed heterozygosity varying between 0.426 and 0.768 and polymorphism information content values of 0.751 to 0.914. All breeds showed high inbreeding coefficients and were not in Hardy-Weinberg equilibrium. The smallest genetic distance was seen between the Pantaneira and Arab breeds. The principal component

analyzes and Bayesian approach demonstrated that the exotic breeds have had a significant influence on the genetic formation of the local breeds, with introgression of English Thoroughbred in Pantaneira and Lavradeira, as well as genetic proximity between the Arab, Pantaneira and Mangalarga Marchador populations. This study shows the need to conserve traits acquired by naturalized horse breeds over centuries of natural selection in Brazil due to the genetic uniqueness of each group, suggesting a reduced gene flow between them. These results reinforce the need to include these herds in animal genetic resource conservation programs to maximize the genetic variability and conserve useful allele combinations.

Key words: Animal genetic resources; Conservation genetics; *Equus caballus*; Livestock; Molecular markers