

Brazilian Nelore cattle: a melting pot unfolded by molecular genetics

M.A.C. Dani¹, M.B. Heinneman² and S.U. Dani¹

¹Excegen Genetica S.A., Acangaú Valley, Paracatu, MG, Brasil

²Departamento de Medicina Veterinária Preventiva,
Escola de Veterinária, Universidade Federal de Minas Gerais,
Belo Horizonte, MG, Brasil

Corresponding author: M.A.C. Dani

E-mail: macdani@hotmail.com

Genet. Mol. Res. 7 (4): 1127-1137 (2008)

Received July 22, 2008

Accepted August 16, 2008

Published October 21, 2008

ABSTRACT. The aim of the present article was to study the population structure and genetic diversity of Nelore cattle and genetic relationships between Nelore and different taurine and zebu breeds raised in Brazil. DNA polymorphism analysis was carried out with 1976 animals of 16 zebu, taurine and synthetic breeds raised in Brazil. A higher genetic differentiation was observed in taurine than in zebu cattle. Gene flow was intense between the different zebu populations. Genetic affinity analysis within the most conspicuous Brazilian zebu beef cattle, the Nelore, was carried out in a group of 615 animals from 15 representative herds. This analysis revealed at least two major Nelore subtypes, named after some genotype-phenotype associations such as the “thrifty type” and the “demanding type”. This study provides molecular genetic evidence that, despite selection based on the phenotype, gene flow and gene segregation still play a major role in maintaining genetic variability within the Nelore and zebu population as a whole in Brazil.

Key words: *Bos indicus*; *Bos taurus*; DNA marker; Microsatellite; Marker-assisted selection; Nelore