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Comparison Between *Bos Taurus* and *Bos Indicus* by Microsatellites and Casein Haplotypes

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Abstract

The analysis of casein haplotypes as well as private microsatellite alleles, provides an efficient tool for a discrimination between *Bos indicus* and *Bos taurus* populations. We analysed the genetic diversity of 22 taurine and indicine cattle breeds at three zebu- and African taurine-diagnostic microsatellite loci and three casein genes, and we studied possible indicine and African taurine introgressions into Southern European cattle breeds. Consideration of recently described genetic variants of the casein genes, to date not subject of diversity studies, allowed the identification of still undescribed haplotypes mainly in *Bos indicus* breeds. This study adds another point of view on the phylogeny of cattle. Results prove a genetic introgression of *Bos indicus* into South Eastern European cattle. Genetic relationships of South Western European breeds with African taurine breeds, may be assessed as the result of selection effects rather than gene flow. The occurrence of a taurine-indicine hybridisation zone contributes an alternative explanation of the high variability of breeds near the alleged centre of origin.

Keywords: *Bos indicus*, *Bos taurus*, casein haplotypes, genetic diversity, microsatellites