

GENETIC RELATIONSHIPS OF THE PORTUGUESE LIDIA CATTLE POPULATIONS

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Introduction

In Portugal the origin of specific Lidia Cattle breeders started at XIX century, with the crossbreed from Spanish Lidia Cattle animals and the aggressive Portuguese native cattle.

The purpose of this work was, with DNA information provided by autosomal microsatellites amplification and genealogic information, to correlate and identify the relationships of the different Spanish lineages within the two Portuguese Lidia Cattle populations (the Brava dos Açores and Casta Portuguesa).

Materials and Methods

Blood samples were collected with Magic Buffer[®] (Biogen Diagnóstica, Madrid, Spain), from 120 animals dispersed in two specific Portuguese Lidia cattle lineages described in Table 1.

Table 1: Specific Portuguese herds in the study.

Lineage	Herd
Brava dos Açores ¹	Rego Botelho (RB)
	José Albino Fernandes (JAF)
	Eliseu Gomes (EG)
Casta Portuguesa ²	Irmãos Dias (ID)

Location: ¹Azorean islands; ²Portuguese mainland.

The Autosomal Information from Spanish Lidia cattle lineages was used from Gene bank from the Laboratory of Genetics at the College of Veterinary Medicine at the Complutense University of Madrid. A total of 24 ISAG-FAO microsatellites was selected and distributed among the various chromosomes according to their distances and polymorphic content

Wright's Statistics parameters were analysed according to Nei (1987), as well the, F_{ST} distances. The null distributions of F_{IT} and F_{IS} were approximated by permutating alleles 1000 times within each lineage using FSTAT (<http://www2.unil.ch/popgen/softwares/fstat.htm>) and sequential Bonferroni (Rice 1989) was applied for multiple test correction. The PHYLIP software (<http://evolution.genetics.washington.edu/phylip.html>) was used to perform genetic relationships between lineages using pairwise Reynolds distances (Reynolds et al. 1983) and used to construct a Neighbour-joining (NJ) tree with 1000 bootstrap resamplings to assess their consistency.

Results and Discussion

In the Azorean herds, the values of F_{ST} were 4.90% between RB and EG, 6.00% for RB and JAF, and 7.10% with respect to JAF and EG. The mutual origin of the Azorean herds or a possible genetic drift in a recent past between the Azorean herds in this study can explain the reduced values of F_{ST} distances when compared with typical Lidia Cattle as cited by Cañón et al. (2008). When a comparison was carried out in the Neighbor-Joining Tree (Figure 1), the Azorean herds were closer to the Saltillo, Santa Coloma and Gamero Cívico lineages. This information can explain the influences from the Portuguese herd Pinto Barreiros

in all Portuguese Lidia Cattle breeders described by Lucas (2006). In the other hand the herd from Casta Portuguesa (ID), was located in the same node of Miura lineage. Only in XIX century occurs genetics drift between Miura lineage and Portugal to the famous Portuguese herd of Palha Blanco (Lucas, 2006).

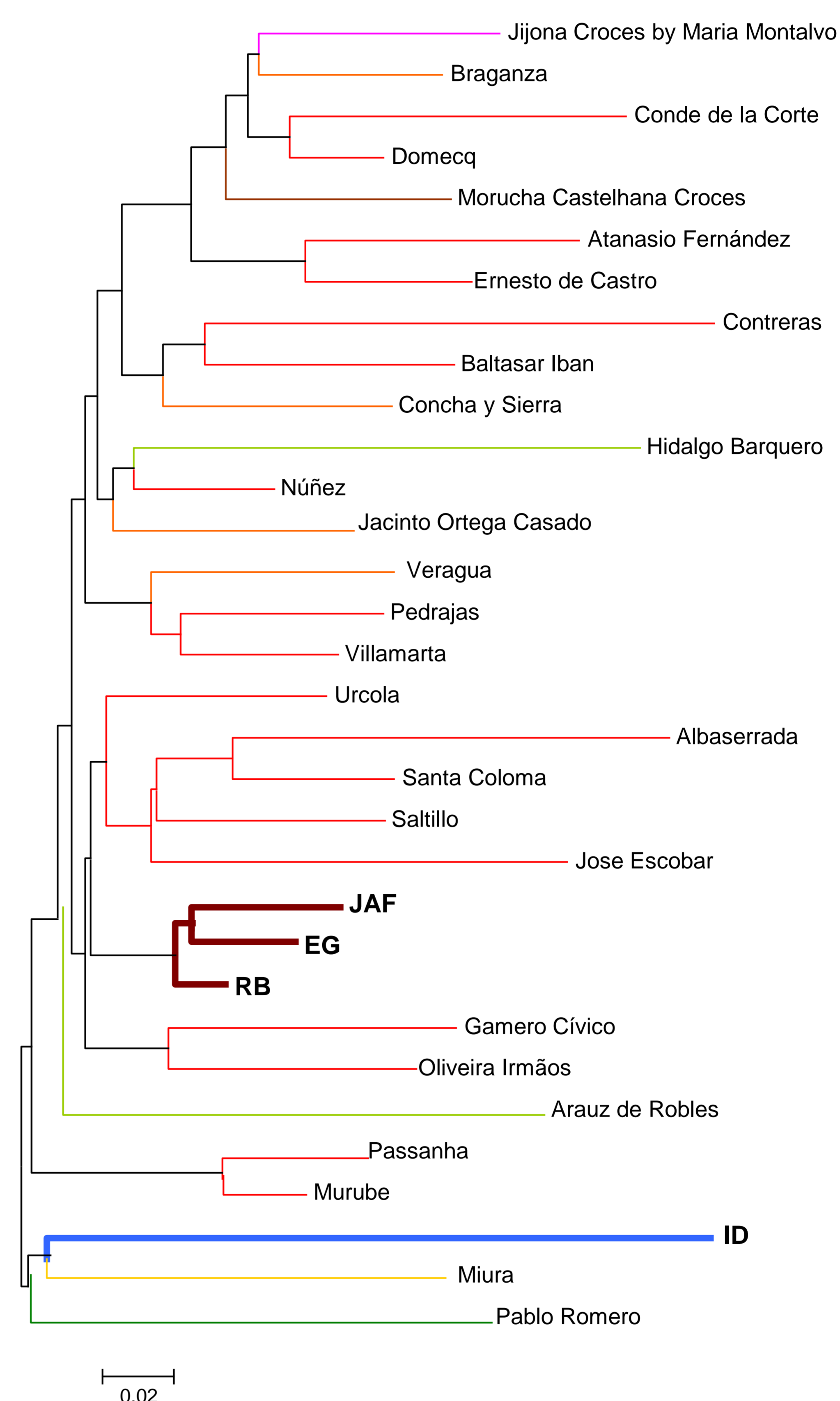


Figure 1—Neighbor joining tree with Portuguese and Spanish Lidia cattle lineages.

Conclusions

Results of the present study allow concluding that, especially the Portuguese and Spanish Lidia Cattle lineages, are directly associated to all genealogical history of Azoreans and mainland Portuguese breeders.

References

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