

Identification of polymorphism of LALBA locus in Sarda breed goat

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1. Introduction

As other milk proteins, α -lactalbumin is considered as a “major gene” for milk yield, since it plays an essential role in the biosynthesis of lactose. Studies carried out on different ruminant species revealed that this protein is, anyway, rather monomorphic.

2. Message

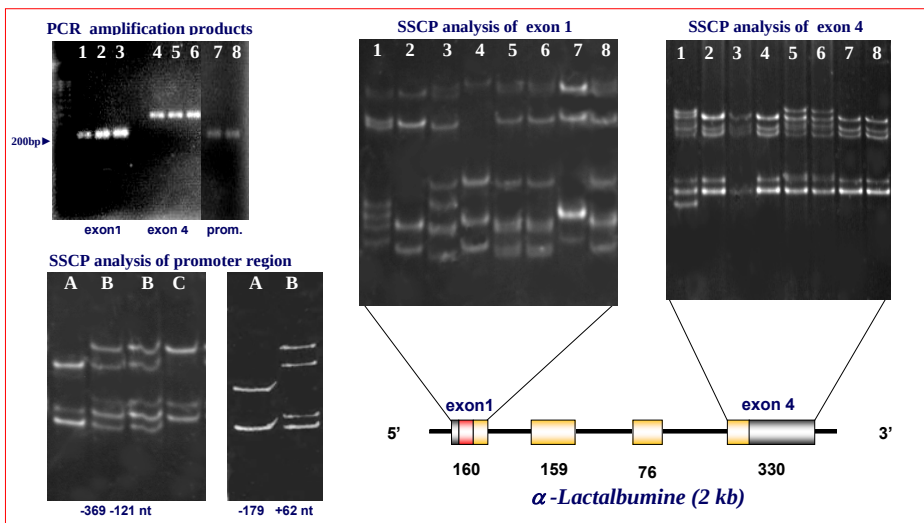
The aim is to detect polymorphisms at the goat LALBA gene, and to assess their possible correlations with milk yield and chemical composition in Sarda goats.

3. Methods

This research was carried out on 50 Sarda breed goats. Milk and blood samples were collected from each animal in the middle of lactation and, at the same time, milk yield was registered. Percentage values of fat, protein and lactose were determined on milk samples by infrared method. DNA was analysed by PCR-SSCP of the promoter and coding region at LALBA locus. Several primer pairs were designed on the basis of the available nucleotide sequence, which allowed amplification of two fragments from the promoter region, one from the first and one from the fourth exon.



4. Results



Mean values of production traits in Sarda goat

n = 50	Mean	s.d.
Milk yield (g/day)	633	± 274.0
Fat (%)	5.54	± 1.15
Total protein (%)	4.37	± 0.42
Lactose (%)	4.63	± 0.37
SCC (n ³ /ml)	1,163	± 991.1
Cryoscopic index (°H)	0.567	± 0.007
TMC (UFC ³ /ml)	60.71	± 51.32
pH	6.62	± 0.08

5. Conclusions

SSCP analysis revealed the occurrence of six polymorphic patterns for the PCR-amplified fragments corresponding to the first exon. The fourth exon showed three different patterns, as well as the promoter region spanning from nucleotide -121 to -369. Four different DNA conformation patterns were identified in the -179 +62 5' flanking region. ANOVA did not identify any association between the polymorphic patterns and milk yield and composition.