

ASSESSMENT OF KAPPA-CASEIN GENE POLYMORPHISM IN ROMANIAN PINZGAU CATTLE: IMPLICATIONS FOR MILK PRODUCTION TRAITS

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Abstract

The study of milk polymorphism, focusing on k-casein is vital for improving milk quality and dairy production. K-casein is a key protein that influences milk's physical and chemical properties, including its ability to coagulate. The objective of this study was to investigate the genotype profile of the kappa-casein gene in Romanian Pinzgau cattle, specifically the Black and Red varieties. A total of 24 cows were genotyped for the kappa-casein gene using the PCR-RFLP (Polymerase Chain Reaction-Restriction Fragment Length Polymorphism) method. Three genotypes (AA, AB, and BB) were identified within the studied population. The frequency of the A allele was 0.681 in Black Pinzgau and 0.563 in Red Pinzgau, while the B allele exhibited frequencies of 0.319 in Black Pinzgau and 0.437 in Red Pinzgau. The higher frequency of the A allele in both Black and Red Pinzgau suggests a potential for greater milk volume but with potentially lower protein content and cheese-making efficiency. On the other hand, the presence of the B allele, especially in the Red variety, indicates a favorable genotype for dairy producers focusing on milk quality, particularly for cheese production.

Key words: cattle, genotype frequency, k-casein, milk polymorphism