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A PCR-RFLP Test to Detect Allelic Variants of the Bovine Kappa-Casein Gene

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Abstract

Point mutations in exon IV of bovine kappa-casein gene (κCn, CASK, CSN3) determine nine allelic variants (A, B, C, E, F, G, H, I, and A_1) for the gene. These variants are associated with major differences in composition and manufacturing properties of milk (i.e., cheese yield). A PCR-RFLP test was developed in order to distinguish the different alleles. Polymorphisms are detected by digestion with the endonucleases HindIII, HaeIII, and MaeII followed by electrophoresis in agarose gels stained with ethidium bromide. Twenty eight DNA samples from different breeds of Argentina were analyzed for the A, B, and E variants. This simple PCR-RFLP test makes feasible the inclusion of kappa-casein genotypes in breeding plans.

Keywords:

Bovine kappa-casein κCn, CASK, CSN3 PCR-RFLP

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