

Convenient genotyping of nine bovine K-casein variants

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Abstract:

K-casein gene polymorphisms are of major importance in the dairy industry due to their association with different quality and productive traits (i.e., milk protein). Several methods for genotyping this gene have been proposed; however, none are focused on the simultaneous discrimination of nine K-casein variants. A strategy based on PCR-RFLP was designed to characterize nine K-casein variants (A, B, C, E, F2, G, H, I and J) and used to genotype three cattle populations: Gyrholando (3/8 Gyr x 5/8 Holstein), Charolais and Carora. The B variant was the most frequent in the Charolais and Carora breeds, with allelic frequencies of 0.60 and 0.59, respectively. In the Gyrholando breed, four variants were found, with the A variant being the most frequent and E and H the least. The genotyping strategy was effective in detection and differentiation of K-casein variants, and it is proposed for use in laboratories with minimal molecular biology equipment for genotyping and evaluation of the phenotypic effects of nine K-casein variants on milk production and quality.