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GENETIC POLYMORPHISM IN B-LACTOGLOBOULIN LOCUS IN KALEHKOOHI SHEEP BREED BY PCR-RFLP METHOD

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INTRODUCTION: β-lactoglobulin is one of the major protein in whey, making up about 50 to 60% of the total protein in the mammals' milk which appears to bind retinol and is found in the milk of animals including bovine species, sheep, deer, dogs, and pigs but not in humans, synthesized by the epithelial cells of the mammary glands and affects the quality and coagulation of the milk. It plays a crucial role in milk quality. The *β-Lg* encoding gene has been sequenced in sheep and assigned to chromosome three.

MATERIALS AND METHODS: To analyze the genotype distribution of *β-Lg* gene in Kalehkoohi sheep breed reared in Central region of Iran, ninety- two animals belonging to three different herd, were utilized. The polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) test was performed and genetic polymorphism was detected by the digestion of a 452 bp PCR fragment of exon II of *β-Lg* gene with the endonuclease *Rsa*I. The digested products were separated by electrophoresis on 2.5% agarose gel and visualized after staining with Supper Red Gel on UV translumination.

RESULTS AND DISCUSSION: PCRs of *β-Lg* gene produced a fragment of 452 bp, which was based on the used primers. Digestion of the PCRs products with *Rsa*I restriction endonuclease resulted in three patterns. The genotype frequencies of AA, AB, and BB were 0.38, 0.185, and 0.435 respectively. Allele B of β-Lactoglobulin occurred at a higher frequency than the allele A in Kalehkoohi sheep. The population was not found to follow Hardy-Weinberg equilibrium. In most cases the sheep doesn't milk for milk production. However, milk production and milk quality are important to increase mothering ability in order to gain more lambs especially in breeds that have high litter size. So that using marker assistant selection (MAS) for simultaneous improvement in litter size and other maternal traits in ewes such as milk production and milk compositions would be useful

Keywords: Polymorphism, β-lactoglobulin, PCR-RFLP, Kalehkoohi sheep

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