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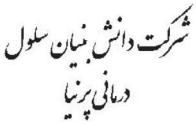
شرکت دانش بنیان سلول
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Detection of polymorphism in Booroola gene (FecB) in sheep breed in Iran by HRM

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Background and Objective: Fertility trait has an important economic values in small ruminant breeding**.** High prolificacy in Booroola-Merino sheep is due to the existence of FecB mutation in an autosomal gene, bone morphogenetic protein receptor (BMPR-1B), located on chromosome 6. Booroola-Merino is an Australian commercial fine wool Merino flock and has been used in crossing experiments for introgression of FecB into many breeds around the world to improve the fecundity trait. Also recently semen of Booroola-Merino was used in some domestic breeds of sheep in Iran, e.g. Afshari and Kurdi. It was shown that crossbred ewes carrying one copy of FecB (B+) had +0.7 (range +0.4 to +1.3) for litter size. The effect of the second allele will be additive for ovulation rate, with a small or no increase in litter size. The objective of this study was to detect the FecB prolific mutation with a high accuracy and time efficient manner.

Materials and Methods: Genomic DNA was extracted from blood samples of 30 sheep including: 5 Kurdi, 5 Baluchi, 7 Kurdi-Afshari-Booroola, 5 Arman, 5 Karakul and 3 Iran-Black. Specific primers flanking the mutation was designed to amplify a fragment with length of 82b. PCR reactions in a volume of 15 µl were performed followed by a HRM program including melting curve and difference graph analysis.

Findings: Results showed that heterozygote samples have a different melt curve as well as distinctive difference graph in compare to homozygote individuals. There was no FecB homozygote within samples of this study.

Conclusion: By using high resolution melt method, genotyping of FecB gene in sheep was optimized. This was a rapid and precise approach to detect Fecundity gene in sheep.

Keywords: Fecundity, DNA marker, economic trait