Abstract

Imprinted genes have an important role in the regulation of growth and development of the fetus. To determine IGF-II and IGF-IIR gene polymorphism and its association with birth weight in Sistani cattle, 80 blood samples have been randomly collected from male and female Sistani cattle which are kept in Zahak research station. The DNA has been extracted using phenol chloroform procedures. Polymerase chain reaction has been performed for amplification of 340 and 360 bp of IGF-II and IGF2R which are a part of exon 10 of IGF-II and intron 2 of IGF-IIR genes, respectively. The PCR-SSCP method has been utilized to detect the nucleotide sequence polymorphism in target sequence using 8% polyacrylamide gel followed by silver staining. The relationship between IGF-II and IGFII-R genes polymorphism and birth weight has been analyzed using the least squares mean procedure (GLM) followed by T- student test by using JMP software (Ver, 8). The results demonstrated three patterns (genotype) for the IGF-II gene named A1, A2 and A3, with frequencies of 0.34, 0.23 and 0.43, respectively; gel analysis data for IGF-IIR gene also demonstrated three banding pattern (genotype) named B1, B2 and B3 symbols with frequencies of 0.23, 0.28 and 0.49, respectively. Significant association has been also observed between the IGF-II and IGF-IIR genes polymorphism and birth weight trait ($P < 0.05$). Finally, the results of this study suggest the potential use of these genes as a molecular marker in selecting the birth weight in Sistani cattle.

Keywords: IGF-II, IGF-IIR, polymorphism, PCR-SSCP, Sistani cattle.

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A Survey on IGF-II and IGF-II-R genes polymorphism and their correlation with Birth Weight in Sistani cattle

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