

Milk Yield and Fingerprinting of Beta-Casein Precursor (CSN2) Gene in Some Saudi Camel Breeds

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Abstract : Camels are substantial providers of transport, milk, sport, meat, shelter, fuel, security and capital in many countries, particularly Saudi Arabia. Identification of animal breeds has progressed rapidly during the last decade. Advanced molecular techniques are playing a significant role in breeding or strain protection laws. On the other hand, fingerprinting of some molecular markers related to some productive traits in farm animals represents most important studies to our knowledge, which aim to conserve these local genetic resources, and to the genetic improvement of such local breeds by selective programs depending on gene markers. Milk records were taken two days in each week from female camels of Majahem, Safara, Wathaha, and Hamara breeds, respectively from different private farms in northern Jeddah, Riyadh and Alwagh governorates and average weekly yields were calculated. DNA sequencing for CSN2 gene was used for evaluating the genetic variations and calculating the genetic distance values among four Saudi camel populations which are Hamra(R), Safra(Y), Wadha(W) and Majaheim(M). In addition, this marker was analyzed for reconstructing the Neighbor joining tree among evaluating camel breeds. In respect to milk yield during winter season, result indicated that average weekly milk yield of Safara camel breed (30.05 Kg/week) is significantly ($p < 0.05$) lower than the other 3 breeds which ranged from 39.68 for Hamara to 42.42 Kg/week for Majahem, while there are not significant differences between these three breeds. The Neighbor Joining analysis that re-constructed based on DNA variations showed that samples are clustered into two unique clades. The first clade includes Y (from Y4 to Y18) and M (from M1, to M9). On the other hand, the second cluster is including all R (from R1 to R6) and W (from W1 to W6). The genetic distance values were equal 0.0068 (between the groups M&Y and R&W) and equal 0 (within each group).

Keywords : milk yield, beta-casein precursor (CSN2), Saudi camel, molecular markers

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