ABSTRACT

Polymorphism Identification of ILSTS028, ILSTS052 and ILSTS056 Microsatellite DNA Loci on Katingan Cattle in Central Kalimantan

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This study aimed to determine the genetic diversity of Katingan cattle population in Central Kalimantan by DNA microsatellite markers ILSTS028, ILSTS052 and ILSTS056 loci. The 70 blood samples used in this study originated from three subpopulation of Pendahara sub populations (26 samples), Buntut Bali (13 samples) and Tumbang Lahang (31 samples), and other samples were Bali cattle (11 samples), Madura cattle (1 sample), Limousin cattle (3 samples) and PO cattle (6 samples). The amplification of microsatellite DNA marker was done by PCR (Polymerase Chain Reaction). The PCR product was then electrophoresed using 6% polyacrilamide gel followed by silver staining. The data was analyzed to get allele frequency, genotype frequency and heterozygosity value. Microsatellite DNA of loci showed high polymorphisms. ILSTS028 locus had 20 alleles in Katingan cattle with the highest allele frequency was allele H (0.1691) in Tumbang Lahang population and the lowest allele C, D, E and K (0.0167) in Tumbang Lahang population. The highest allele frequency of Bali, PO, Limousin and Madura cattle was alleles H and R in Madura cattle (0.5000). The lowest allele frequency was alleles I, K and L (0.0455) in Bali cattle. ILSTS052 locus had 13 alleles in Katingan cattle with the highest allele frequency was allele C (0.5000) in Buntut Bali populations and lowest allele G, H, J, M and N (0.0208) in Pendahara population. Allele B had the highest frequency in Limousin cattle (1.0000) and alleles E and I the lowest frequency in Bali cattle (0.0455). ILSTS056 locus had 19 alleles in Katingan cattle with the highest allele frequency was allele M (0.2692) in Buntut Bali population and the lowest is allele B, O, Q and U (0.0167) in Tumbang Lahang population. Alleles D and I in Limousin cattle and alleles A and D in Madura cattle had the highest frequency (0.5000) and alleles D, L and M the lowest frequency in Bali cattle (0.0455). The heterozygosity value from ILSTS028, ILSTS052 and ILSTS056 locus of Katingan cattle with the others cattle were 0.989, 0.629 and 1.000, respectively.

Keywords: Katingan cattle, microsatellite DNA, genetic diversity