MICROSATELLITE POLYMORPHISM IN THE STUDY OF GENETIC DIVERSITY OF AN EXPERIMENTAL FLOCK OF AYAM CEMANI HENS

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Microsatellite sequences are short tandem repeats (STRs), consisting of two-, three-, or four-nucleotide motifs are commonly used in molecular analysis of animal origins, as genetic markers in research on genome scanning, QTL detection and estimation of genetic diversity of populations.

We used blood samples from the pterygoidal vein of 53 birds (29 cocks and 23 hens) from an experimental flock of Ayam Cemani hens. Genomic DNA was extracted by phenol-chloroform extraction. Five microsatellite sequences were selected for genotyping: MCW0210, MCW0184, LEI0071, MCW0145 and ADL0306. For their amplification, the conditions of the polymerase chain reaction (PCR), as earlier established by Gruszczyńska and Michalska (2005) and Gruszczyńska et al., (2007), were employed. The birds were genotyped using an automatic sequencer (ALF Express, Pharmacia LKB). The frequency of alleles and genotypes was calculated. The coefficients of the observed (Ho) and the expected (He) heterozygosity as well as polymorphism information content (PIC) were calculated by Cervus 3.03. Programme (Kalinowski et al., 2007).

Different numbers of alleles were observed in MCW0184 (2 alleles), MCW0210, LEI0071, and ADL0306 (3 alleles each) and MCW0145 (4 alleles) in the flock. The results were different from those obtained by the above mentioned authors who found more alleles at these loci in their experimental flocks of *Gallus gallus*. The lengths of analysed microsatellite sequences were: 156-168bp for MCW0210; 240 and 260 bp for MCW0184; 280-300 bp for LEI0071; 206-218 bp for MCW0145 and 119-125 bp for ADL0306. The highest allele frequency was as follows: MCW0210 – 166 bp (0.660); MCW0184 – 240 bp (0.717); LEI0071 – 300 bp (0.519); MCW0145 – 206 bp (0.547); ADL0306 – 121 bp (0.472). The highest level of homozygosity was found in MCW0184 (about 81%), the lowest in ADL0306 (4%). The Ho (0.19 – 0.96), He (0.41 – 0.64) and PIC (0.32 – 0.56) were not as high as in reports by other authors.

Keywords: Ayam Cemani hens, microsatellite, diversity

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