

GENETICAL MARKERS IN STUDYING DIFFERENTIATION AMONG DOMESTIC GEESE

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Summary. Most common features that are applied in the studies of biodiversity of wild and domestic birds (including Anseriformes) are morphophysiological and productivity traits. Biodiversity can be described at several levels. Protein polymorphism is also applied as a marker system to estimate interspecies and intraspecies genetic variation, genetic differentiation and phylogenetic relationships within and between wild and domesticated populations. Several papers dealing with genetic diversity of wild species of geese are available (1989 Sruoga et al., 1995, 1997, 2000, Kuznetsov, 1995). The aim of this work was to investigate the genetic diversity of four domestic geese breeds and hybrids using polymorphic blood sera proteins. Tulusa-Land, Rein-white, Italian, native Vistines and hybrid geese populations were screened electrophoretically for PreAl-1, PreAl-2, Al, PostAl, PreTf, PostTf, Mc and Tf loci. The data obtained were analysed by the help of Biosys-2 computer program (Swoffard, Selander, 1997). All the loci investigated were polymorphic. Differences in the allele frequency of five loci (Al, PostAl, PreTf, Mc, Tf) between native Vistines geese and Tulusa-Land population were detected. The frequency of allele PostTfA and PostTfB was 0.577 and 0.423 for Vistines population and 0.400 and 0.600 for Tulusa-Land population, respectively. The highest deficiency of heterozygotes was detected in PostTf locus (-0.742) among Rein, in PreAl-1 locus (-0.707) among Italic, in Mc locus (-0.606) among Tulusa-Land and in PreAl-1 locus (-0.471) among Vistines geese. The highest genetic identity and the lowest genetic distance were calculated for Vistines and Italic geese (0.984 and 0.016 respectively). These two breeds formed a common branch, whereas the Tulusa-Land breed constituted a most separate branch in the dendrogram. The genetic distance between Tulusa-Land and Rein breeds was as high as 0.086 and the genetic identity equalled 0.918.

Keywords: geese, electrophoresis, polymorphism, alleles.