

Restriction polymorphism in *DRB1* gene (MHC class II) and resistance to natural infection with gastrointestinal nematodes in Polish Heath Sheep

S u m m a r y

Restriction polymorphism in exon 2 of *DRB1* gene was identified in the population of 374 Polish Heath Sheep (135 ewes and 239 lambs) from the Experimental Flock, Żelazna, belonging to the Sheep and Goat Production Unit of the Warsaw Agricultural University. Genomic DNA was isolated using the phenol-chlorophorm extraction from the whole blood. Exon 2 of *DRB1* gene was amplified using the polymerase chain reaction (PCR) followed by digestion with the chosen restriction enzymes: *RsaI*, *BsuRI* i *BstYI*. After electrophoresis of the PCR product in 12% polyacrylamide gel the silver staining was applied to visualize DNA fragments. The length of the restriction fragments was determined with the help of ScanPack 3.0 program (Biometra). The level of sheep infestation was determined on the basis of the number of gastrointestinal nematode eggs in the faeces (EPG – eggs per gram) estimated in the years 1995-1998. The analysis of restriction polymorphism showed the presence of 2 restriction patterns after digestion of amplified exon 2 of *DRB1* gene with the *BstYI* enzyme, 10 patterns after digestion with *BsuRI* and 8 *RsaI* enzymes. Frequency of identified patterns in both group -ewes and lambs was on the similar level. Observed heterosigosity in locus *DRB1* was slightly higher (0.45-0.88) then expected heterosigosity (0.41-0.78), with the exception of restriction patterns obtained after digestion of exon 2 with *BsuRI* enzyme in lambs. The conducted analysis with the use of SAS 8.01 program showed statistically significant effect of the genotype in locus *DRB1* on the gastrointestinal nematode infection level of ewes. The presence of BSTY_2, BSU_1, BSU_6, RSA_5 and RSA_8 restriction patterns showed statistically highly significant ($P \leq 0.01$) effect, while the presence of BSU_4, BSU_8 and BSU_10 patterns - significant ($P \leq 0.05$) effect. In case of lambs there was no association between genotype in locus *DRB1* and parasite infection.
