

THE USE OF INFERTILE INTERSPECIFIC HYBRIDS FOR A NOVEL MODEL OF PGC REINTRODUCTION APPLICABLE IN GENE PRESERVATION FOR POULTRY

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Related to the gene preservation activities of our Institute, the aim of our research was to produce an infertile interspecific hybrid (recipient) which is able to receive primordial germ cells (PGCs) from native poultry breed (donor) and according to our expectations; this genotype may appear in the offsprings of hybrids.

To achieve our goals, the first step was crossing female Hungarian guineafowls with Hungarian yellow roosters by artificial insemination. The following year we reversed the crossing procedure with Hungarian yellow hens and guineafowl males. During the research we were investigating the hatching time, fertility, the phenotype of dead embryos and the incidence of chromosomal abnormalities. Development of the gonads of hybrids was being observed during the incubation and the hatched hybrids were raised until maturity. We described the phenotype of the hybrids and 6 hybrids were sacrificed every two weeks between the 16th and 30th week of growth in order to document the development of their gonads. We sampled the gonads for histological and genetic examination in order to prove that the individuals are hybrids and infertile.

In the first year the hybrids hatched between the 21st and 27th day of incubation. 31.7% of the eggs were infertile; the ratio of early embryonic death was 29.58% and 13.3% of the embryos died between the 1st and the 5th day of incubation. The ratio of hatched hybrids was **6.65%** and 10% of the embryos was viable, but could not break the eggshell of guineafowl.

During the investigation of chromosomes 2.7% of the samples showed abnormalities (mosaicism or aneuploidy), but this ratio is average compared to previous literary data. As the result of the investigation of chromosomes, 56.76% of the embryos was male, 43.24% was female. Three kinds of phenotype were observed on the hatched hybrids.

In the second year, the reversed crossing procedure (Hungarian yellow hens with Hungarian guineafowl males) was unsuccessful due to the high rate of infertile eggs (98.4%). From 701 incubated eggs only one hatched (0.14%).

Based on our results, the conclusion is that these interspecific hybrids (female Hungarian guineafowls with Hungarian yellow roosters) may be suitable to receive primordial germ cells (PGCs). According to our plans, in the next steps of this research, first we will inject fluorescent labeled cells, then primordial germ cells of a native chicken breed into 3 days old hybrid embryos.

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