INTERGENERIC HYBRIDISATION OF CYPRINUS CARPIO AND HYPOPHTHALMYCHTYS MOLITRIX

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Key words: intergeneric hybridisation, Cyprinus carpio, Hypophthalmichthys molitrix, biotechnology

SUMMARY

Improving the genetic inheritance of the culture fish is one of the most important challenges in fish breeding. The common carp and the silver carp are even one of the most breaded fish species in Romania. To improve their productivity there are applied many biotechnological methods. Hybridisation has a theoretical importance in the study of the relationship between species. In practice the goal is to obtain heterosis but also to improve the inheritance of some features that are low in one or both species.

Because intergeneric hybridisation is a frequent phenomena in fish, the goal of this study was to obtain viable offspring by hybridisation of common carp females Ineu breed (Cyprinus carpio L.) with low scale cover and 2n=100 chromosomes and silver carp males (Hypophthalmichthys molitrix) 2n=48 chromosomes. Their origin, on the bases of scale cover pattern and body shape and their survival rate in different ontogenetic stages were analysed (Cssanyi et all. 1984). In some experimental batches there were used by UV irradiation inactivated sperms and temperature shocked eggs (with disturbed extrusion of the second polar body from the egg after fertilisation).

The result of the experimental fertilisation showed that if untreated sperm and eggs were used the offspring had hybrid origin with 2n=60-80 chromosomes (Reddy et all. 1990). Their survival in the yolk sac resorption stage was until 27.12% of the fertilised eggs and they didn’t survive after age of 1 year.

Using UV irradiated sperms the offspring were of gynogenic origin with 2n=75-100 chromosomes and with a body shape similar to the maternal ancestor (common carp shape and low scale cover). The irradiation had a disorganising action upon the chromatin so that the genetically state of most of these offspring was hypodiploid with chromosome polymorphism. Their survival in the yolk sac resorption stage was lower (0.7%).

The offspring obtained fertilising temperature shocked eggs with normal sperms didn’t survive until the fingerling stage. Their scale cover couldn’t be analysed.

The origin of the offspring obtained using both irradiated sperms and temperature shocked eggs were the same (gynogenetic) and the survival rate was increased to 0.14%.