

— Evolutionary and population genetics of Siluroidei —



The genetic characterization of catfishes by means of phenotypic markers, karyotyping, protein and DNA polymorphisms contributes to or forms an integral part of the disciplines of systematics, population genetics, quantitative genetics, biochemistry, molecular biology and aquaculture. Judged from the literature, the general approach to research is pragmatic; the Siluroidei do not include model species for fundamental genetic research. The Clariidae and the Ictaluridae represent the best studied families. The systematic status of a number of species and families has been either elucidated or confirmed by genetic approaches. Duplication of ancestral genes occurred in catfishes just as in other vertebrates. The genetic structure of and gene flow among natural populations have been documented in relatively few cases, while the evaluation of strains for aquaculture (especially Ictaluridae and Clariidae) is in progress. The mapping of genetic markers has started in Ictalurus. It appears that a more detailed knowledge of catfish populations is required from two perspectives. First, natural populations which are threatened by habitat loss and interfluvial or intercontinental transfers are poorly characterized at the genetic level. Secondly, the selection of suitable strains for aquaculture should be encouraged. Implementation should pose no problems given the present powerful means, such as DNA characterization combined with protein polymorphisms and phenotyping, to solve the above-mentioned issues.

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