RESEARCH PAPER

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Tissue esterase patterns of muscle and brain of channiformes and perciformes fishes

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Tissue and species specific distribution of esterases were studied in eight fishes of two tissue were *viz.,* brain and muscle of channiformes and perciformes. Variation was noticed in muscle and brain. Muscle exhibited fast moving zones in both channiformes and perciformes while in brain exhibited slow moving zones and ArE esterase were dominant in perciformes fishes. ArE esterases were absent in channiformes fishes. Esdp esterases were noticed in muscle of channiformes fishes.

Key words : Electrophoresis, Esterases, Brain, Muscle, Perciformes, Channiformes fishes

INTRODUCTION

Heterogencity and multiplicity of esterases are probably more extensive and diverse than that observed for any other enzymes. A single tissue in some cases exhibits the presence of 30 or more heteromorphy. One important characteristic of these enzymes is that the homologous tissue of different species exhibit wide divergence in the extent of their heterogenecity and the characteristics of multiple enzyme forms even in closely related species. (Master and Holmes, 1975). Electrophoretic patterns of esterase's are increasingly used in identifying the species from microbial fauna to plant and animal species. The tissue specific proteins and enzymes in recognizing species and establishing their taxonomic relationship in number of animal group (Whitt, 1987). Inter specific patterns in several organisms within these compare studies on tissue esterase's patterns were confined only to compare the tissue specific and species specific differences existing in different animal group. (Master and Holmes, 1974). Besides, the enzymes are used in recognizing the stages of differentiation of specific tissue during the development of the organism (Holmes and Whitt, 1970; Lakshmipathi and Sujatha, 1991). In this report eight fishes belonging to two different orders (Jayram, 1981) are observed for their esterase patterns and comparison were made between channiformes and perciformes fishes.

MATERIALS AND METHODS

Adult fishes were caught from fresh water tanks (ponds) located with in a radius of 25 km. from the Laboratory. They were immediately brought to the laboratory contains water in plastic buckets and acclimatized to laboratory condition for about a week in aquaria. They were fed in natural habitats. Fishes were immobilized by hitting them on the head and the tissue were dissected out from the animals, four tissues were selected for the study. They were muscle and brain. The tissue extracts were centrifuged at 2000 rpm for 10 minutes. The supernatants were mixed with equal volumes of 20% sucrose solutions containing 0.05% bromophenol blue as the tracking dye in aliquot of 0.1 ml of this mixture was used for loading the sample for separation of esterase patterns. Esterase patterns were separated on thin layer (1.5 mm thick) polyacrylamide gel. The gel mixture was prepared according to the procedure of clarke (1974). Gelling was allowed for 45 minutes and sample was loaded directly on to the gel, constant current of 20 mA for the first 15 minutes followed by 40 mA for the test of run. After terminating the current supply, the plate were removed from the chamber. The gel was removed from the glass moulds and the stain solution was poured directly on the gel so as to immerse it completely, the patterns of esterases appeared within 10 minutes. Type of esterase's were identified by using the inhibitors like paraxon esterine, and physostgmine. Esterases were classified in according with the procedure of (Holmes and Masters 1976). Hart and Cook (1976) on the basis of their sensitivity of specific inhibitors, phyostigimine (corbomate) PcMB (thiol active compound) and paraxon (op compounds) were used for

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