

# **M.S.98. PHILIP SAMUEL, P.—Biochemical Genetics of selected commercially important penaeid prawns—1988**

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In order to increase productivity of economically important animals, genic manipulation techniques like selective breeding, preservation of genic variation, inbreeding and crossbreeding, hybridization and genetic engineering are followed.

Genetic characteristics of following species were studied. *Penaeus indicus* from Cochin, Tuticorin, Madras and Waltair, *Parapenaeopsis styliifera* from Bombay and Cochin, *Penaeus japonicus*, *P. canaliculatus* and *P. latisulcatus* from Madras, *P. penicillatus* and *P. merguensis* from Puri and *Metapenaeus affinis*, *M. kutchensis*, *M. monoceros*, *M. brevicornis*, *Parapenaeopsis sculptillis*, and *P. hardwickii* from various locations in Bombay.

Eleven morphometric variables in 2 species *P. indicus* and *P. styliifera* were measured. Zone electrophoresis method using polyacrylamide gel was employed for separating various enzymatic proteins. Staining of different enzymes was

done by histochemical staining methods.

Electrophoretic separation of following enzymes were done:— Acid phosphatase, Alcohol dehydrogenase, Aldehyde oxidase, Aldolase, Alkaline phosphatase, Esterase, General Protease,  $\alpha$ -Glycerophosphate dehydrogenase, Lactate dehydrogenase, Malate dehydrogenase, Octanol dehydrogenase, 6 Phosphogluconate dehydrogenase, Pyrroline dehydrogenase, Sorbitol dehydrogenase and Tetrazolium oxidase.

In *P. indicus* allele frequency for different enzymes were found out for the samples collected from Cochin, Tuticorin, Madras and Waltair.

For *P. stylifera* gene frequency of different enzymes were also found out.

Tissue expression of different enzymes of 3 different organs namely Eye, Hepatopancreas, and Muscle were found out. After the allele frequency, estimation of heterozygosity of observed and expected was found out. Genetic identity and distance of the two species was also calculated.

In order to study the ontogeny in the species *P. indicus* some of the larval stages namely protozoa, mysis and postlarva were studied for electrophoresis. Enzymes like Acid phosphatase and Aldehyde oxidase were separated from these samples.

The juvenile stage of *P. indicus* of different size range of 30 mm, 80 mm, and 100 mm were tried for enzymes like Acid phosphatase, Aldehyde oxidase, Octanol dehydrogenase, Esterase, Alcohol dehydrogenase and Malate dehydrogenase. The patterns found in each stages were compared and discussed.

Closely aligned species like *P. japonicus*, *P. canaliculatus* and *P. latisulcatus* were analysed for general protein variation in different tissues. The difference in protein pattern was found out between *P. penicillatus* and *P. merguensis*. Electrophoretic protein separation was carried out in species like *Metapenaeus affinis*, *M. Kutchensis*, *M. monoceros* and *M. bervicornis* to demarcate their identity. Besides these protein pattern variation of *Parapenaeopsis stylifera*, *P. hardwickii* and *P. sculptilis* was also done.