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Tissue-specific Isozymes in Fishes of the Subfamily Sparinae (Perciformes: Sparidae) from the Coastal Waters of Taiwan

Chuen-Tan Jean[1], Sin-Che Lee[2,*], Cho-Fat Hui[2] and Che-Tsung Chen[3]

[1]*Department of Fishery Biology, Taiwan Fisheries Research Institute, Keelung, Taiwan 202, R.O.C.*
[2]*Institute of Zoology, Academia Sinica, Taipei, Taiwan 115, R.O.C.*
[3]*Department of Fishery Science, College of Fisheries, National Taiwan Ocean University, Keelung, Taiwan 202, R.O.C.*

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Chuen-Tan Jean, Sin-Che Lee, Cho-Fat Hui and Che-Tsung Chen (1995) Tissue-specific isozymes in fishes of the subfamily Sparinae (Perciformes: Sparidae) from the coastal waters of Taiwan. *Zoological Studies* **34**(3): 164-169. A total of forty-five isozymes scored from twenty-five enzyme systems in five species of the subfamily Sparinae were detected. Their distribution in twelve tissues was also delineated. The results of the present study show that there are no differences in tissue distribution among these five species, and the patterns of tissue distribution of most isozymes are similar to those of most bony fishes. From the results of the present study, the most appropriate isozymes, tissues, and buffer systems for electrophoretic analysis in future studies of interspecific phylogenetic relationships and intraspecific population genetics of fishes within the subfamily Sparinae will be determined.

Key words: Subfamily Sparinae, Isozymes, Tissue distribution.

In Taiwan, the subfamily Sparinae contains two genera and five species. The genus *Acanthopagrus* includes four nominal species, *Acanthopagrus schlegeli, A. latus, A. berda,* and *A. australis*. These species are also called the *Acanthopagrus schlegeli* complex because of their morphological similarities. The other genus *Sparus* includes only one species, *Sparus sarba* (Lee 1983, Jean and Lee 1992). Fishes of the subfamily Sparinae, commonly known as porgies, are important commercial species for food consumption and recreational fisheries in estuarine and coastal waters of Taiwan. Since 1980, they have become a valuable pond-cultivated species after the successful artificial mass propagation of fingerlings (Lin and Yen 1980, Lin et al. 1988, Leu et al. 1991).

In recent years, natural stocks of porgies have decreased drastically due to overfishing, pollution, and illegal fishing practices such as poisoning and electric shock. Thus, there is an urgent need to find ways to recover the original stocks such as conservation, management, and mariculture.

Knowledge of taxonomic status and population structure of a species is a basic prerequisite for making rational decisions about their exploitation and management, as well as for correct interpretation of ecological investigations (Ferguson and Mason 1981). Electrophoretic analyses of isozymes can provide criteria to clarify taxonomic status of species and evolutionary relationships of populations, species, and higher taxa (Shaklee et al. 1982). However, electrophoretic analyses of isozymes require the examination of a large number of loci in species in order to provide accurate estimates of the amount of divergence between populations or species.

On the other hand, the functions of enzymes probably diverged very early in the phyletic history of teleosts (Avise and Kitto 1973). The specific pattern of tissue expression is, therefore, indirect evidence of functional divergence. Hence, comparative studies of tissue-specific distribution of protein loci among taxa can provide valuable insights into the evolution of genomes and evolu-

*To whom all correspondence and reprint requests should be addressed.