

## SHORT PAPER

# LOCUS ASSIGNMENTS FOR GENERAL MUSCLE PROTEINS OF TWO SILVERY GRUNTS, *POMADASYS ARGENTEUS* AND *POMADASYS KAAKAN*<sup>1</sup>

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(Accepted October 23, 1986)

Sin-Che Lee, Jung-Ti Chang and Stephen C. M. Tsoi (1987) Locus assignments for general muscle proteins of two silvery grunts, *Pomadasys argenteus* and *P. kaakan*. Bull. Inst. Zool., Academia Sinica 26(2): 187-189. The taxonomic position of two closely resembled silvery grunts are confirmed by comparing their electrophoretic pattern of muscle protein, in which two loci Cbp-1 and Cbp-2 are responsible for the calcium-binding proteins synthesis. Two other loci are designated as Gp-1 and Gp-2 which remain unidentified.

The silvery grunts, *Pomadasys argenteus* and *P. kaakan* are closely similar in appearance with same fin ray counts of 12 spines and 14 soft rays in dorsal fin, and 3 spines and 7 soft rays in anal fin. However, they can be recognized by color patterns which appear with black dots on each scales of upper half of body in *P. argenteus* compared to 7-8 transverse series of brownish spots in *P. kaakan*. Body depth of *P. argenteus* seems to be less deeper than that of *P. kaakan* with the standard length/body depth ratio of 2.97 versus 3.19. Since the body shape in larger adults is probably the result of growth, thus the only consistent feature to distinguish them is the color patterns (Figs. 1-2). In order to identify the species when the distinctive color patterns is faint or even lost, the electrophoresis of muscle protein on 7.5%

of vertical slab polyacrylamide gel could be

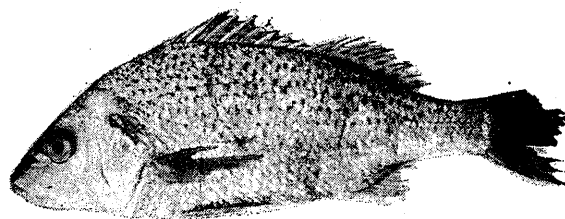


Fig. 1. *Pomadasys argenteus*, 276 mm SL.

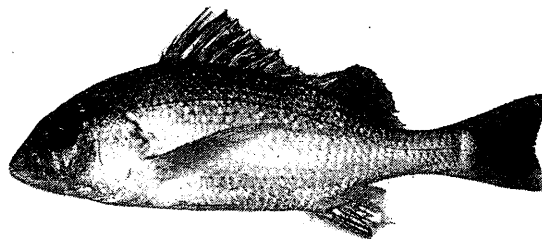


Fig. 2. *Pomadasys kaakan*, 306 mm SL.

1. Paper No. 288 of the Journal Series of the Institute of Zoology, Academia Sinica.  
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practically employed following the same procedures of Lee (1984). The muscle extractions of five *Pomadasys argenteus* (PA) and four *P. kaakan* (PK), collected from Kaohsiung in March and April 1985 respectively, and carried to the laboratory under the temperature at  $-20^{\circ}\text{C}$  until dissection, were run immediately for three and half hours under 60 mA with the voltage 117V. There was no electrophoretic pattern difference between live specimens and dead specimens. The gel was stained with 1% amido black and destained with 7% acetic acid until the striking contrast between protein bands is sharp enough to examine. The protein profile of the gel shown in Fig. 3 displays a total of four major protein zones (I-IV) named from anode to cathode sides. Locus assignments is designated according to

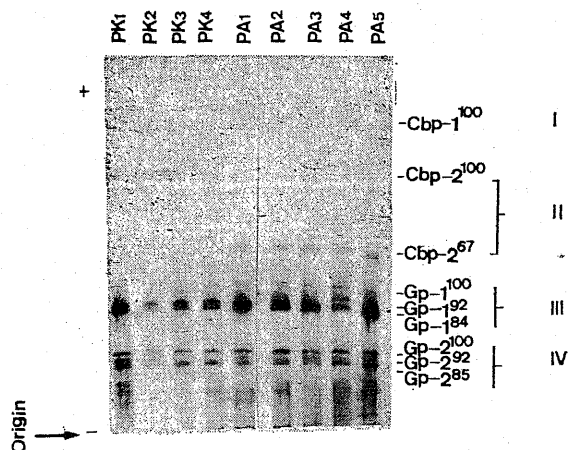


Fig. 3. Electropherogram of soluble muscle proteins of *Pomadasys argenteus* (PA) and *P. kaakan* (PK); PK<sub>1</sub>-PK<sub>2</sub> and PA<sub>1</sub>-PA<sub>3</sub> are live specimens. Most of the specimens are preserved under the temperature at  $-20^{\circ}\text{C}$ . Stained zones indicate gene products of two calcium-binding protein loci (Cbp-1 and Cbp-2), and two unidentified general protein loci (Gp-1 and Gp-2). Allozymes are numbered with increasing proportional anodal mobility relative to the origin.

Buth (1982). A single band was observed both in zone I and zone II (Fig. 3). According to Buth (1982) and Sakaizumi (1985), they are calcium-binding proteins sensu lato or parvalbumin class. Although the specific nature of their calcium-binding properties have not been demonstrated in this report, the diffuse appearance and rapid anodal mobility suggested that these low-molecular weight proteins are actually similar to the four Perciform species studied by Sullivan and his co-workers (1975). In zone III and zone IV contain a group of unidentified water-soluble sarcoplasmic proteins with some degree of intraspecific variability. The allelic products are shown in Fig. 3. It is well demonstrated that the calcium-binding proteins expressed by Cbp-2 locus in *P. argenteus* and *P. kaakan* is different. The former species shows a slow electrophoretic band indicated by Cbp-2<sup>67</sup>. It is concluded that the Cbp-2 locus appears to be conservative in nature with low intraspecific variability (Buth, 1982) and, thus, is useful to fish taxonomy.

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## 二種鷄魚肌肉蛋白基因位點之認定

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分類地位頗為接近之銀鷄魚及星鷄魚等二種魚經比較肌肉蛋白之電泳圖譜，已肯定的發現 Cbp-1 及 Cbp-2 等二種主司縛鈣蛋白質 (calcium-binding protein) 合成之任務，而另外二種見於圖 3 之 Gp-1 及 Gp-2 之基因位點 (loci) 目前尚未能鑑定出來。

