

Effect of Starvation on Morphometric Changes in *Rhynchocypris oxycephalus* (Sauvage and Dabry)

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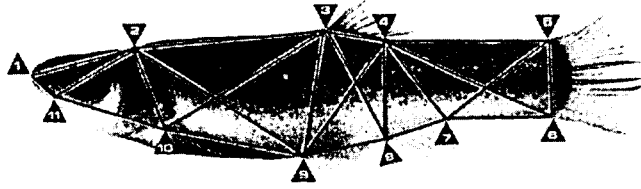
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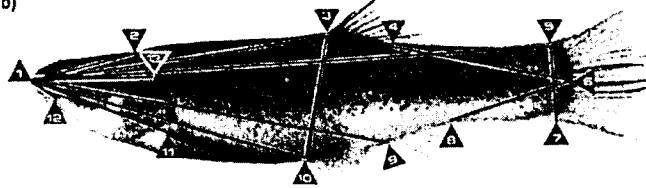
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A 75-day study was conducted to determine the effect of starvation on classical and truss parameters in *Rhynchocypris oxycephalus* (Sauvage and Dabry). Truss dimensions of almost the entire head and trunk region as well as the abdomen were increased significantly through feeding or starvation ($P < 0.05$). Truss dimensions of the caudal region generally dimensions at the hind part of the trunk. There were some significant decreases in classical dimensions of the head region during feeding, in relation to body depth characteristics in the trunk and caudal region during starvation, whereas there was only one decreasing classical dimension in the caudal region during feeding. The results of this study indicate that application of the truss network as a character set enforces classical coverage across the body form, discrimination among experimental groups thus being enhanced. Considering that the dimension of the lower part of the head and some truss and classical dimensions were least affected by feeding and starvation, these dimensions may then be useful as a taxonomical indicator to discriminate the species of *Rhynchocypris* sp. The value of trunk region dimensions with a large component of body depth in *R. oxycephalus* is most likely to be compromised by variability related to differences in feeding regimes of fish in different habitats.

(a)



(b)



Truss and classical dimensions of distances measured for the starvation experiment in *Rhynchocypris oxycephalus* (Sauvage and Dabry). Morphological landmarks are numbered and morphometric distances between landmarks are shown. (a) Truss dimension : 1, most anterior extension of the head ; 2, posterior end of supraoccipital ; 3, origin of dorsal fin ; 4, insertion of dorsal fin ; 5, dorsal origin of caudal fin ; 6, ventral origin of caudal fin ; 7, insertion of anal fin ; 8, origin of anal fin ; 9, origin of pelvic fin ; 10, origin of pectoral fin ; 11, posterior end of maxillary. (b) Classical dimension ; 1, most anterior extension of the head ; 2, posterior end of supraoccipital ; 3, origin of dorsal fin ; 4, insertion of dorsal fin ; 5, dorsal origin of caudal fin ; 6, most posterior scale in lateral line ; 7, ventral origin of caudal fin ; 8, insertion of anal fin ; 9, origin of anal fin ; 10, origin of pelvic fin ; 11, origin of pectoral fin ; 12, posterior end of maxillary ; 13, most posterior aspect of operculum.

References

- Chung, M.K. 1977. The Fishes of Korea. Hji-Sa. Seoul. pp. 181-184
- Lee, K.K., Y.H. Kim and I.-S. Park. 1999. Effect of starvation on some nutritional parameters in *Rhynchocypris oxycephalus*. I. Characteristics of the histological and biochemical changes. *Korean J. Ichthyol.*, 11: 33-41.
- Park, I.-S., J.H. Kim, I.C. Bang and D.S. Kim. 1998. Histological study of the early gonadal development and sexual differentiation in *Rhynchocypris oxycephalus*. *Dev. Reprod.*, 2: 69-74.
- Park, I.-S., J.H. Kim and J.H. Im. 1998. Effect of lidocaine as an anaesthetic on *Rhynchocypris oxycephalus* and *R. steindachneri*. *J. Aquaculture*, 11: 59-66.
- Strauss, R.E. and C.E. Bond. 1990. Taxonomic methods. morphology. In : *Methods for Fish Biology*. Eds. by Sehreek C.B. and P.B. Moyle Amer. Fish. Soc. Bethesda. Maryland., pp. 125-130.
- Theilacker, G.H. 1978. Effect of starvation histological and morphological characteristics of jack mackerel, *Trachurus zymmetricus* larvae. *Fish. Bull. U.S.*, 76: 403-414.