

Comparison of Morphometric Traits of the Shell and Condition Index in Artificially Induced Hybrids and Their Parental Species, *Haliotis gigantea* (♀) and *H. discus* (♂)

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Introduction

In this study, the hybridization between the two species *Haliotis gigantea* and *H. discus* have (An et al., 2005), was morphometrically confirmed by morphometric measurement, and a comparison of condition indices, cavity volumes, and shell weights was conducted under artificial conditions for juvenile induced hybrids and parental species.

Materials and Methods

In October 2004, at the age of 4 years, 30 abalones of each genotype (*Haliotis gigantea*, *H. discus* and *H. gigantea* (♀) × *H. discus* (♂) hybrid), which had been induced in October, 2000 by An et al. (2005), were subjected to morphometric measurement, and measurement for percent shell weight, percent cavity volume and condition indices.

Results and Conclusions

Haliotis discus had significantly higher scores than *H. gigantea* in four parameters (SB/SL, AH/SH, DAFRP/SB, and DATRP/SB). Morphometric

analyses showed that there was a trend towards being more similar to those of maternal species rather than those of paternal species in three parameters (SB/SL, DAFRP/SB, and DATRP/SB) ($P < 0.001$). Similar to our findings, maternal predominance in fish hybrids has also been reported in hybrids between *Catla catla* (Hamilton) and *Labeo rohita* (Hamilton) (Bhowmick, Jana, Gupta, Kowtal & Rout 1981), *Poecilia shenops* (Cuvier & Valenciennes) and *Poecilia velifera* (Regan) (George & Pandian 1997), and *Pleuronectes ferrugineus* (Storer) and *Pleuronectes americanus* (Park, Nam, Douglas, Johnson & Kim 2003). For two parameters (BIL/SB and DFTRP/SB), induced hybrid abalone exhibited similar values to those of the two parental species. One parameter of AH/SH exhibited intermediate values between those of two parental species.

After 4-years out of growth, the condition index of induced hybrid abalone, with a percentage value of 187, was significantly higher than those of the parental species (166 for *H. gigantea*, 161 for *H. discus*) ($P < 0.01$) (Fig. 2). However, no statistically significant differences were observed in any of the measured characteristics among each genotype at 4 years age (Fig. 2). Induced hybrid abalone displayed an intermediate external morphology that fell between those of the two parental species. Respiratory pores number 4 in *H. gigantea*, 5 in *H. discus*, and 4 in *H. gigantea* (♀) × *H. discus* (♂).

Further research is required to investigate the performance of hybrids relative to their parental species, *H. gigantea* and *H. discus*, during the cooler months of the year, in terms of meat condition and resistance to winter mortality.

References

- An, H.S., Jee Y.-J., Han S.-J., Kim B.L., Kim E.-M. and Park I.-S. 2005. Inductin of hybrid between *Haliotis gigantea* (♀) and *H. discus* (♂). Aquaculture Research (Submitted).

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