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Induction of a New Hybrid between *Haliotis gigantea* (♀) and *H. discus* (♂)

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Introduction

The production of interspecies hybrid abalone has the potential to provide production gains through faster growth, adaptation to particular environmental conditions and desired market qualities (Elliott 2000).

The subject of this paper is the exploitation of the biological potential of the abalone species through the establishment of a genetic improvement programme. The goal of this programme is to provide production gains for the abalone industry.

Materials and Methods

In this study, hybridization between female *H. gigantea* and male *H. discus* was artificially induced. The induced hybrid was genetically confirmed by chromosome study, DNA content analysis, and a comparison of some of the characteristics (early survival, early growth, and sterility) of hybrids and parental species under artificial conditions.

Results and Conclusions

The female *Haliotis gigantea* and male *H. discus* were bred, the resultof which was a new hybrid. The rate of fertilization was lower in the hybrid compared with the parental

species, whereas hatchability was similar to that of the maternal species, *H. discus* ($P<0.05$). The early survival rate of the hybrid was lower than those of the parents ($P<0.05$). There were no significant differences in mean shell length or mean body weight between the two parental pure crosses by 10 and 13 months post-hatch. However, the shell growth rate and body weight of the hybrid were significantly higher than those of the parental genotype by post-hatch 10 and 13 months ($P<0.05$).

The induced abalone hybrid had a chromosome number of 2n=36 and its idiogram was composed similarly to those of the parental species. The cellular DNA contents of the hybrid, *H. gigantea*, and *H. discus*were similar. The hybrid showed gonadic fertility when the hybrid gonad was examined histologically at 4 years, the spawning time of the parents.

References

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