

## Ten polymorphic microsatellite loci in the giant scallop (*Mizuhopecten yessoensis*)

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### Introduction

Giant scallops (*Mizuhopecten yessoensis*) are a commercially important marine seafood in Eastern Asia. In order to enhance production, artificial cultivation methods have been developed. Wild spat collected on artificial collectors or cultivated spat obtained in onshore hatchery and nursery facilities are being used for subsequent grow-out or restocking of wild beds. In recent years, however, the high commercial demand for cultured Giant scallops has faced several problems derived from the decline in production due to the periodical mortalities. It has led to a concurrent increase in the need for genetic information. In addition, adequate management of genetic resources of wild and cultivated stocks needs knowledge of the population genetics. Microsatellite loci are highly informative genetic markers useful for population genetic studies because of their codominant and high mutation rates. There are no reports concerning microsatellites in the Giant scallop. We report here on the development of species-specific microsatellite primers for the *Mizuhopecten yessoensis* and present estimates of genetic variability at these loci.

## Material and Method

We constructed a partial genomic library enriched for CA repeats using a enrichment procedure described elsewhere with a slight modification. Genomic DNA was isolated from mantle musculature of the Giant scallops cultured in a eastern coast hatchery of Korea using TNES-Urea buffer method. DNA was digested with restriction enzymes AluI, RsaI, NheI and HhaI. DNA fragments ranging from 300-800bp were isolated and ligated to adaptor (SNX/SNX rev linker sequences). Linker-ligated DNA was amplified using SNX as polymerase chain reaction primer. Biotin-labeled di-nucleotide repeat sequences ((CA)<sub>10</sub>) were hybridized to the PCR products and the hybridization complex was lifted out with streptavidin-coated magnetic spheres(Promega). After washing, the bound enriched DNA was eluted from the magnetic spheres and re-amplified.

## Results and Discussion

Ten novel microsatellite loci were isolated from Giant scallop *Mizuhopecten yessoensis*, and the polymorphisms were examined to estimate genetic variability. The genetic variabilities varied depending on the locus. The number of alleles ranged from 2 to 17, and the observed and expected heterozygosity ranged from 0.17 to 0.99 and 0.33 to 0.90, respectively. Six loci showed significant Hardi Weinberg disequilibrium. The high variabilities revealed in this study suggest that microsatellites should prove useful for various genetic investigations.

## References

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