Korean Journal of Malacology, Vol. 20(2): 135-140, December, 2004

Report of Twenty Five Additional Molluscan Species from Rocky Inter- and Subtidal Area of Dokdo Island, Korea

Min Ho Son, Byung Kyu Hong[1], Sung Yun Hong[2], Kyeong Am Jeon[1] and Chang Ho Moon[3]

Korea Inter-University Institute of Ocean Science, Pukyong National University, Busan 608-737, Korea
[1]Deep-sea Fisheries Resources Research Center, National Fisheries Research and Development Institute, 15 Bangeori Cheonghamyeon, Pohang, 791-802,Korea
[2]Department of Marine Biology, Pukyong National University, Busan 608-737, Korea
[3]Department of Oceanography, Pukyong National University, Busan 608-737, Korea

ABSTRACT

Twenty five marine molluscan species were added to the malacofauna of Dokdo Island, Korea based on the samples collected from inter- and subtidal rocky shore of the island on April and November 2004. As a result, seventy five marine molluscan species were recorded from Dokdo Island hitherto.

Keywords: Malacofauna, Dokdo Island, Intertidal, subtidal.

INTRODUCTION

Hitherto, forty five marine molluscan species were reported from inter- and subtidal rocky shore of Dokdo Island by Kim (1978, 7 spp.), Kim and Choe (1981, 18 spp.), Hong (1982, 14 spp.), Son and Hong (1992, 22 spp.) and Choe and Lee (1994, 11 spp.). In the present study, total 58 molluscan species, which were sampled from Dokdo Island on April and November 2004 with skin and SCUBA diving, were identified. Of the identified species, 33 species were rediscovered and 25 species were new to malacofauna of Dokdo Island including a species new to that of Korea. As a result, 75 species in 4 classes were found on Dokdo Island (Appendix-1).

Received October 21, 2004; Accepted December 8, 2004
Corresponding author: Son, Min Ho
Tel: (82) 51-620-6296 e-mail: mhson@kios.pknu.ac.kr
1225-3480/20206

MATERIALS AND METHODS

The specimens were sampled from the 8 sites of Dokdo Island (37°14′ 18″ N, 131°52′ 33″ E) (Fig. 1) with SCUBA diving on April 4-6 and November 2-3, 2004. Sampling from the subtidal area was made with SCUBA diving up to approximately 20 m in depth. Body size of the opisthobranchs was described approximately because measuring of the size for an alive animal was made with a scale in the underwater before sampling.

SYSTEMATIC DESCRIPTIONS

Abbreviations used in the descriptions: n = number

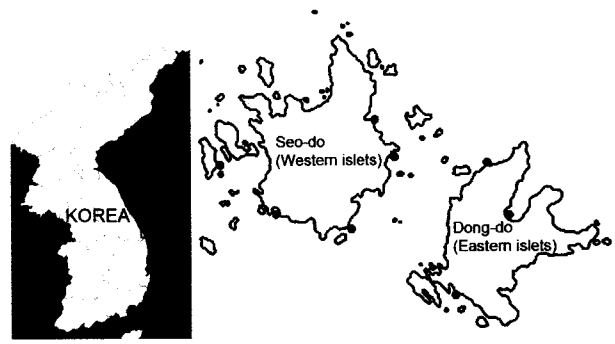

Fig. 1. Map showing the eight sampling sites of Dokdo Island, Korea on April 4-6 and November 2-3, 2004.

of specimens examined, max. = maximum, BL = body length, SH = shell height, SL = shell length, ML = mantle length in octopod sp., D = depth, int. = intertidal area. *indicates the species new to the Korean malacofauna.

Class Polyplacophora
Order Neoloricata
Family Ischinochitonidae
Ischnochiton boninensis Bergenhayn, 1933
Material examined: n = 4, max. BL = 27.4 mm, under the small rock (about 30 cm in diameter), D = 3-7 m, November 2, 2004.

Family Chitonidae
Onithochiton hirasei Pilsbry, 1901
Material examined: n = 11, max. BL = 60.2 mm, rock surface, D = 1-10 m, November 2, 2004.

Chiton kurodai Is. Taki & Iw. Taki, 1929
Material examined: n = 1, BL = 20.6 mm, under the small rock (about 30 cm in diameter), D = 3-7 m, November 3, 2004.

Family Acnathochitonidae
Acanthochiton defilippi (Tapparone-Canefri, 1874)
Material examined: n = 7, max. BL = 51.9 mm, under the small rock (from 20 to 50 cm in diameter) and rock surface, D = int.-3 m, November 2, 2004.

Family Cryptoplacidae
Cryptoplax japonica Pilsbry, 1901
Material examined: n = 3, max. BL = 50.6 mm, under the small rock (from 10 to 30 cm in diameter), D = 3-10 m, April 6, 2004.

Class Gastropoda
Subclass Orthogastropoda
Superorder Vetigastropoda
Family Turbinidae
Pomaulax japonicus (Dunker, 1844)
Material examined: n = 1, SH = 84.1 mm, boulder bottom, D = 16 m, November 2, 2004.

Superorder Caenogastropoda
Order Sorbeoconcha
Family Hipponicidae
Amalthea conica Schumacher, 1817
Material examined: n = 7, max. SH = 5.7 mm, outer surface of *Nordotis discus discus* (Reeve) and *Turbo cornutus* (Lightfoot), D = 9-15 m, April 5 and November 2, 2004.

Family Calyptraeidae
Bostrycapulus gravispinosus (Kuroda & Habe, 1950)
Material examined: n = 16, max. SL = 44.6 mm, rock surface, D = 2-10 m, November 2, 2004.

Family Vermetidae
Serpulorbis imbricatus (Dunker, 1860)
Material examined: n = 3, max. diameter of the shell coil = 79.3 mm, rock surface, D = int.-8 m, November 2, 2004.

Family Ovulidae
Primovula triticea (Lamarck, 1810)
Material examined: n = 1, SL = 11.8 mm, on the *Melithaea* sp., D = 7 m, April 4, 2004.

Family Ranellidae
Fusitriton galea Kuroda & Habe, 1961
Material examined: n = 2, max. SH = 83.1 mm, boulder bottom, D = 21 m, April 4, 2004.

Family Epitoniidae
Gyroscala perplexa (Pease, 1867)
Material examined: n = 1, SH = 6.1 mm, muddy sand bottom, D = 13 m, April 5, 2004.

Family Muricidae
Ergalatax contracta contracta (Reeve, 1846)
Material examined: n = 19, max. SH = 22.5 mm, rock surface, D = 1-10 m, April 4 and November 2, 2004.

Family Buccinidae
Kelletia lischkei Kuroda, 1938
Material examined: n = 8, max. SH = 88.3 mm, sand bottom and rock crevice, D = 5-15 m, April 2-4 and

November 2, 2004.

Superorder Opisthobranchia
Order Sacoglossa
Family Elysiidae
Elysia abei (Baba, 1955)
Material examined: n = 1, BL = ca. 20 mm, rock surface, D = 2.5 m, April 5, 2004.

Order Notaspidea
Family Pleurobranchidae
Pleurobranchaea japonica Thiele, 1925
Material examined: n = 2, max. BL = ca. 50 mm, rock surface, D = 7 m, November 3, 2004.

Order Nudibranchia
Family Goniodorididae
Hopkinsia hiroi (Baba, 1938)
Material examined: n = 2, max. BL = ca. 20 mm, rock surface, D = 4 m, April 4, 2004.

Family Arminidae
Dermatobranchus otome (Baba, 1992)
Material examined: n = 1, BL = ca. 40 mm, on *Aglaophenia* sp., D = 3.5 m, November 3, 2004.

Family Glaucidae
* ***Phyllodesmium serratum*** (Baba, 1949) (Fig. 2)
톱니하늘소갯민숭이 (신칭)
Hervia serrata Baba, 1949, p. 105-106, 179, pl. 46, figs. 156-157, text-figs. 142-143.
Cratena serrata Baba, 1955, p. 36.
Babaiella serrata Risso-Dominguez, 1964, p. 223.
Phyllodesmium serrata Rudman, 1981, p. 260.
Phylludesmium serratum Baba, 1990, p. 202.
Phyllodesmium serratum Okutani, 2000, p. 809, pl. 402, fig. 1.
Material examined: n = 2, max. BL = ca. 30 mm, on *Cornularia komaii* Utinomi, D = 4.5 m, April 4, 2004.
Description: Body reddish white, pale yellow or pink. Middorsal white longitudinal line absent in one specimen. Nine branchial papillae long, smooth, cylindrical.
Remarks: Presence of the middorsal white longitudinal line varies from individual to individual: present in Baba (1949), Okutani (2000) and the one specimen of the present study; absent in the other specimen of the present study. The number of branchial papillae varies from 6 (Baba, 1949; Debelius, 2001), 9 (the present study) to 16 (Okutani, 2000). Uncommon.
Distribution: Korea, Japan, Australia, South Africa.

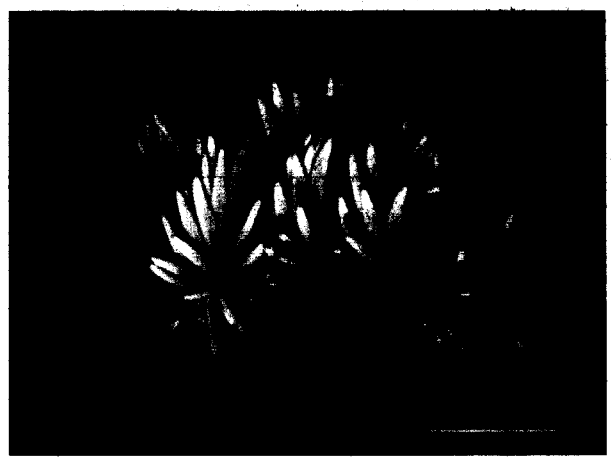

Fig. 2. Dorsal view of *Phyllodesmium serratum* (Baba, 1949) from Dokdo Island, Korea in November 2, 2004.

Class Bivalvia
Subclass Pteriomorphia
Order Mytiloida
Family Mytilidae
Lithophaga curta (Lischke, 1874)
Material examined: n = 7, max. SL = 21.3 mm, in the shell of *Crassostrea nipponica* (Seki) and *Serpulorbis imbricatus* (Dunker), D = 2-10 m, April 6 and November 3, 2004.

Order Ostreoida
Family Ostreidae
Crassostrea nipponica (Seki, 1934)
Material examined: n = 9, max. SL = 162.8 mm, rock surface, D = 5-15 m, April 6 and November 3, 2004.

Ostrea circumpicta Pilsbry, 1904
Material examined: n = 12, max. SL = 100.6 mm, rock surface, D = 3-12 m, April 6, and November 3, 2004.

Family Spondylidae

Spondylus butleri Reeve, 1819

Material examined: n = 7, max. SL = 88.1 mm, rock surface, D = 5-13 m, November 2, 2004.

Subclass Heterodonta

Order Veneroida

Family Chamidae

Chama limbula Lamarck, 1819

Material examined: n = 2, max. SL = 37.5 mm, rock surface, D = 6 m, November 3, 2004.

Class Cephalopoda

Order Octopoda

Family Octopodidae

Octopus dofleini (Wülker, 1910)

Material examined: n = 1, max. ML = 354 mm, in rock crevice, D = 11 m, April 4, 2004.

REFERENCES

Baba, K. (1949) Opisthobranchia of Sagami Bay, Collected by His Majesty the Emperor of Japan. 194 pp., Iwanami Shoten, Tokyo.

Baba, K. (1955) Opisthobranchia of Sagami Bay Supplement, Collected by His Majesty the Emperor of Japan. 59 pp., Iwanami Shoten, Tokyo.

Baba, K. (1990) Nomenclatural review of the species treated in "Opisthobranchia of Sagami Bay" (1949). *In*: Opisthobranchia of Sagami Bay collected by his Majesty the Emperor of Japan. Second Edition. 211 + 13 pp., 50 pls. Iwanami Shoten, Tokyo.

Choe, B.L. and Lee, J.R. (1994) Opisthobranchs (Mollusca: Gastropoda) from Ullung and Dog-do Island, Korea. *Korean Journal of Zoology*, 37: 352-276.

Debelius, H. (2001) Nudibranchs and Sea Snails. 320 pp., IKAN-Unterwasserarchiv.

Hong, J.S. (1982) Underwater observation on the distribution pattern of marine benthos in the shallow water of Dogdo islets. *Special Report, The Conservation of Nature and Natural Resources*, 19: 229-236.

Kim, H.S. (1978) Report on the collection of coastal marine invertebrates. *The Conservation of Nature and Natural Resources*, 23: 13-15.

Kim, H.S. and Choe, B.L. (1981) The fauna of marine invertebrate in Ulreung Is. and Dogdo Is. *Special Report, The Conservation of Nature and Natural Resources*, 19: 193-200.

Okutani, T. (ed.) (2000) Marine Mollusks in Japan. 1173 pp., Tokai University Press, Tokyo.

Risso-Dominguez, C.J. (1964) Notes on the Facelinacea. II. On the systematic position of *Hervia serrata* Baba, 1949 and *Favorinus horridus* Macnae, 1954. *Beaufortia*, 10: 222-238.

Rudman, W.B. (1981) The anatomy and biology of alcyonarian-feeding aeolid opisthobranch molluscs and their development of symbiosis with zooxanthellae. *Zoological Journal of Linnean Society*, 72: 219-262.

Son, M.H. and Hong, S.Y. (1992) A catalogue of marine molluscs of Dokdo Island. *Publication of Island Research Society of Korea*, 1: 71-87.

Appendix-1. List of marine molluscan species reported from Dokdo Island so far.

Species	Kim (1978)	Kim & Choe (1981)	Hong (1982)	Son & Hong (1992)	Choe & Lee (1994)	The present study
Acanthochiton achates	●					
Acanthochiton defilippi						●
Amalthea conica						●
Aplysia kurodai		●			●	
Aplysia parvula					●	
Batillus cornutus		●	●	●		
Bethellina citrina					●	
Bostrycapulus gravispinosus						●
Cantharidus callichroa callichroa				●		
Cantharidus jessoensis		●				
Cellana grata				●		
Cellana nigrolineata				●		
Cellana toreuma		●		●		
Chama limbula						●
Chiton kurodai						●
Chlorostoma argyrostoma lischkei	●		●			
Chromodoris orientalis					●	
Chromodoris tinctoria					●	
Collisella dorsuosa			●	●		
Crassostrea gigas			●			
Crassostrea nipponica						●
Crenomytilus grayanus			●			
Crepidula onyx				●		
Cryptoplax japonica						●
Dendrodoris denisoni					●	
Dermatobranchus otome						●
Elysia abei						●
Ergalatax contractus contractus						●
Fusitriton galea						●
Granulilittorina exigua	●	●	●	●		
Gyroscala perplexa						●
Hermissenda crassicornis					●	
Hopkinsia hiroi						●
Hypselodoris festiva					●	
Ischnochiton boninensis						●
Ischnochiton computus	●					
Kelletia lischkei						●
Lasaea undulata			●			
Lepidozona coreanica		●				

Appendix-1. continued.

Species	Kim (1978)	Kim & Choe (1981)	Hong (1982)	Son & Hong (1992)	Choe & Lee (1994)	The present study
Liolophura japonica				●		
Lithophaga curta						●
Modiolus modiolus difficilis		●				
Monodonta neritoides		●	●			
Monodonta perplexa				●		
Mytilus corsucus		●		●		
Mytilus edulis		●				
Nordotis discus		●	●	●		
Notobryon wardi					●	
Octopus dofleini						●
Octopus vulgaris				●		
Omphalius pfeifferi carpenteri				●		
Omphalius pfeifferi		●				
Omphalius rusticus	●	●	●			
Onithochiton hirasei						●
Ostrea circumpicta						●
Patelloida saccharina lanx				●		
Patelloida saccharina			●			
Phyllodesmium serratum						●
Placiphorella stimpsoni				●		
Pleurobranchaea japonica						●
Pomaulax japonicus						●
Primovula triticea						●
Saccostrea kegaki				●		
Sakuraeolis modesta					●	
Septifer bilocularis		●				
Septifer virgatus		●				
Serpulorbis imbricatus						●
Siphonaria japonica	●		●	●		
Siphonaria sirius				●		
Spondylus butleri						●
Thais bronni		●	●	●		
Thais clavigera	●	●	●	●		
Tristichotrochus haliarchus				●		
Tristichotrochus unicus		●				
Tritonia festiva					●	
Total number of species	7	18	14	22	11	25