



STUDIES ON OSTRACODA (CRUSTACEA) FROM THE KOREAN COAST

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SYNOPSIS

Key words:

Marine Ostracoda,
Korea,
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Nine species of ostracods viz. *Potamocypris steueri*, *Bairdopillata carinata*, *Leptocythere multipunctata*, *Callistocythere mediterranea*, *Cytheromorpha fuscata*, *Paradoxostoma intermedium*, *Paradoxostoma guttatum*, *Paradoxostoma ezoense* and *Xestolebereis pusilla*, belonging to order Podocopida, were recorded for the first time from the Korean coast.

SINOPSIS

*ISTRAZIVANJE OSTRAKODA (CRUSTACEA) OBALE
KOREJE*

Ključne riječi:

Morske Ostracoda,
Koreja,
novi nalazi,
faunistika.

Devet vrsta ostrakoda: *Potamocypris steueri*, *Bairdopillata carinata*, *Leptocythere multipunctata*, *Callistocythere mediterranea*, *Cytheromorpha fuscata*, *Paradoxostoma intermedium*, *Paradoxostoma guttatum*, *Paradoxostoma ezoense* и *Xestolebereis pusilla*, koje pripadaju redu Podocopida, registrovane su po prvi put za Koreju.

INTRODUCTION

Ostracods have not received as much attention as the other co-inhabiting group such as nematodes, copepods etc. did in spite of their importance in the trophic relations and stratigraphic studies in the vibrant coastal ecosystems. There were no

comprehensive works either on taxonomy or ecology of phytobenthic marine ostracods from Korean waters although several publications were available on the ecology and systematics of marine benthic ostracods from nearby countries like China, Japan and Russian coast (Schornikov, 1975; Hiruta, 1975, 1991; Okubo 1977, 1978, 1979a, b, 1980; Zhao et al., 1985, 2000; Zhao and Whatley, 1997; Schornikov and Tsareva, 2002) For the Korean waters context the systematic works on benthic ostracods were carried out by Yabe (1908) and Chavtur et al. (2007). In this paper, nine species of ostracods belonging to 6 genera and 3 families were recorded for the first time from the south-eastern coast of South Korea.

MATERIAL AND METHODS

Specimens have been collected among the sediment associated with coralline algae, submerged macro algae like *Ulva*, *Caulerpa*, *Sargassum*, and mixed algae on shallow sub littoral rocks of less than 1 m in depth of Masan-ri (35°41'30"N 135°20'30"E), Youngil Bay, near Pohang city, South Korea. The mean sea water temperature was 11.8 °C and Salinity was 34.2 PSU. The algae was combed and sediment was sieved through 63µm mesh and collected sample was transferred into polythene vials containing 5% formalin as preservative. Samples were taken in small quantities in petridishes and carefully surveyed under binocular microscope for ostracoda. The specimens were dissected for accurate identification and studied under compound microscope. Specimens were deposited in the Department of Zoology, Andhra University, Visakhapatnam, India.

RESULTS AND DISCUSSION

Systematic Part

Order: Podocopida
Suborder: Podocopa
Family: Cyprididae
Subfamily: Cyprideinae

1. *Potamocypris steueri* Klie, 1935

Material examined. South Korea, Masan-ri, Youngil Bay, 2 females

Distribution. Egypt, Algeria, Italy, Yugoslavia, Bulgaria, and the environs of the Caspian Sea and Turkey (MEISCH, 1985; BRONSTEIN, 1988; KILIC, 2001).

Morphology. Carapace laterally compressed, reniform carapace. Greatest height usually anterior. Valves pronouncedly unequal, right one higher, left one sometimes

longer anteriorly. Ventral margin concave. Ornamentation lightly punctuate, valves in living forms usually covered with numerous rather coarse hairs. Inner lamella with small anterior and posterior vestibula. Marginal pore canals numerous, straight simple and very short. Antenna five jointed. Second antenna strong 4- jointed. Third endopodite bristled with setae. Maxilla prolonged and composed of three distinct segments. Thoracic legs 4 segmented, apical claws curved rectangular.

Remarks. First record from the Korean waters.

Family: **Cytheridae**

Subfamily: **Bairdiinae**

2. *Bairdopillata carinata* Kornicker, 1961

Material examined. South Korea, Masan-ri, Youngil Bay, 1 female.

Distribution. Bahamas bank (KORNICKER, 1961)

Morphology. Shell in lateral view rhomboid oval in outline, greatest height slightly posterior to the middle. Anterior margin broadly rounded; anterodorsal angle above mid height of valve; posterior beak bluntly acuminate and slightly below mid height. In dorsal view broadly ovate; greatest width about in the middle; both ends pointed. Valves unequal, the left overlapping the right. Surface smooth; small pits visible under high magnification. Profuse long black hairs projecting from carapace. Body of animal brown, with appendages bearing black setae. Furca with seven setae; two proximal setae are of about the same length and smaller than remaining setae; third seta somewhat longer than fifth seta; fourth seta about three – fourths as long as the sixth seta; fifth seta of approximately the same length as seventh seta.

Remarks. First record from the Korean waters.

Family: **Cytheridae**

Subfamily: **Cytherinae**

3. *Leptocythere multipunctata* (Seguenza, 1883)

Material examined. South Korea, Masan-ri, Youngil Bay, 2 females.

Distribution. Black Sea, Mediterranean Sea, Azov Sea (CARAION, 1967; WAACK, 1981; KILIC, 2001)

Morphology. Carapace oblong elongate, moderately compressed laterally. Anterior end broadly rounded, posterior end posteroventrally rounded. Ornamentation finely punctuate or weakly pitted. Marginal pore canals comparatively few, typically branching. Normal pores moderately numerous, rather small. Antennule 4 jointed first podomere broad and more elongated than remaining. Second podomere bears single seta and ultimate podomere bears long and narrow and bears two setae. Antenna 3 jointed, spinneret seta jointed reaching the distal ends of claws; each podomere bears

single seta and ultimate podomere long and narrow and bears two claws like setae. Thoracic legs 4 segmented and ends with curved claws.

Remarks. First record from the Korean waters.

Family: **Cytheridae**

Subfamily: **Cytherinae**

4. *Callistocythere mediterranea* (Muller, 1894)

Material examined. South Korea, Masan-ri, Youngil Bay, 2 males

Distribution. Black Sea, Mediterranean Sea, Azov Sea (SCHORNIKOV, 1969; WAACK, 1981; KILIC, 2001)

Morphology. Carapace elongate to sub quadrangular, compressed laterally. Maximum height, generally equal to half the length, in anterior end. Dorsal margin nearly straight, posterodorsal cardinal angle prominent. Anterior mend more broadly rounded than posterior. Ornamentation more strongly reticulate. Normal pore moderate in number. Hinge amphidont type. Antenna four jointed first podomere broad and more elongated than remaining ones and bears bristles. Second podomere bears two elongated seta, third podomere bears two elongated and single short seta, penultimate podomere short single elongated and short seta. Antenna three jointed, spinneret seta jointed and reaching the distal ends of claws each podomere bears seta and ultimate podomere long and narrow bears two claws like setae. Thoracic legs 4 segmented and ends with elongated claws.

Remarks. First record from the Korean waters.

Subfamily: **Loxoconchinae**

5. *Cytheromorpha fuscata* Hirschmann, 1909

Material. South Korea, Masan-ri, Youngil Bay, 1 male.

Distribution. Patuxent River, Solomons Island (TRESSLER and SMITH, 1948)

Morphology (the species identified on the basis of one undissected specimen). In lateral view the valves have an elongate; sureniform outline, resembling that of *Leptocythere*. Anterior end evenly rounded, dorsal margin straight, ventral margin slightly sinuous. Posterior end rounded and turned upwards. Valves closely punctuate or faintly reticulate. Inner lamella anteriorly, narrower ventrally and posteriorly. Marginal pore canals short thin, straight, simple. Hinge with small anterior tooth surrounded dorsally by a crescent shaped socket. Normal pores numerous, small, sieve type, central muscle scars, the fulcra point is generally quite well visible and crescent shaped.

Remarks. First record from the Korean waters.

Subfamily: **Paradoxostominae**

6. *Paradoxostoma intermedium* Muller, 1894

Material. South Korea, Masan-ri, Youngil Bay, 2 males.

Distribution. The Black Sea, the Mediterranean Sea and the Azov Sea (CARAION, 1967; WAACK, 1981; KILIC, 2001).

Morphology. Valves are elongate – ovate, in dorsal view they are compressed laterally. Greatest height behind the middle. Valves thinly calcified, fragile, transparent in well preserved specimens, smooth. Inner lamella moderately wide at both ends and narrower in the middle. Hinge merodont type. Normal pores few widely scattered, small, open. Marginal pore canals very few, short, simple, more or less evenly spaced, often not entirely reaching the outer margin. Antennules 3 jointed and end with claw like structures. Antennae long and slender composed of five poolers spinning sets well developed reaching almost two terminal claws.

Remarks. First record from the Korean waters.

7. *Paradoxostoma guttatum* Schornikov, 1965

Material. South Korea, Masan-ri, Youngil Bay, 6 males.

Distribution. Azov Sea, Black sea (SCHORNIKOV, 1969; WAACK, 1981)

Morphology. Valves are elongate – ovate, in dorsal view they are compressed laterally. Greatest height behind the middle. Valves thinly calcified. fragile, transparent in well preserved specimens, smooth. Inner lamella moderately wide anteriorly, narrower elsewhere. Hinge merodont type. Normal pores few widely scattered, small, open. Antennule 3 jointed and ends with claw like structures. First podomere bears with bristles and remaining podomeres bears with spines. Antennae long and slender composed of five podomeres, spinning sets well developed reaching almost two terminal claws.

Remarks. First record from the Korean waters.

8. *Paradoxostoma ezoense* Hiruta, 1975

Material. South Korea, Masan-ri, Youngil Bay, 2 males.

Distribution. Hokkaido, Japan (HIRUTA, 1975).

Morphology. Male carapace elliptical in outline in lateral view, greatest height slightly posterior to the middle and a little less than half the length; dorsal margin very slightly arched, rounded anterior and joining anterior margin smoothly, slightly down curved posteriorly and meeting posterior margin in a slight angle; ventral margin somewhat sinuate anterior to the middle and evenly curving into the posterior margin; anterior extremity rounded, posterior one much broader than anterior one; carapace oblong oval in dorsal view, with greatest width slightly anterior to the middle and about 2/7th of the length. Inner lamella wide. Marginal zone in front narrow, middle and

behind broad. Radial pore canals sparse. Surface smooth, polished. Adductor muscle scar located slightly anterior to center, four scars in a vertical row. A single eye present. Coloration of the body forming a distinctive pattern, black patches covering anterior, middle and posterior parts.

Antenna: First segment longer than second one. And $2/3^{\text{rd}}$ the length of fourth one with hairs on the middle portion of the posterior margin. Second antenna five segmented; first segment stout more than twice as long as second one, second segment $2/3^{\text{rd}}$ the length of third one with a distal seta on posterior distal edge about $2/3^{\text{rd}}$ length of third segment; middle part of anterior margin of third segment with hairs. Mandible stiliform and slender, palp indistinctly three segmented. First leg, second and thoracic legs first segment longer than second one with a small distal seta. Copulatory appendage: basal portion well arched in dorsal ridge, rounded triangular in outline, and protruded at the anterior ridge with two diverging processes, anterior one narrow and spongiform curving ventrally, posterior one broad and lamellicorn terminating in front in a narrow process and behind in an arcuate corner, two setae, one bare and the other hairy on posteroventral margin.

Remarks. First record from the Korean waters.

Subfamily: **Xestoleberidinae**

9. *Xestolebereis pusilla* Eloffson, 1941

Material. South Korea, Masan-ri, Youngil Bay, 1 male.

Distribution. Mouth of Gullmar fjord and near Koster (E L O F S O N , 1941).

Morphology (the species is identified on the basis of one undissected specimen). Left valve in lateral view roundly triangular and extraordinarily short, almost $3/4$ as high as long. Valve highest in the middle. Dorsal margin strongly arcuate forward and passing gradually into the anterior margin, which curves strongly below the center to meet the ventral margin. Dorsal margin forming a rounded corner forming a rounded corner at the junction with the posterior margin. Posterior lower corner slightly rounded. Ventral margin slightly concave. Anterior angle of right valve more acute, posterior angles less pronounced. Posterior angle rounded. Shell thin, surface polished and with sparse pore canals. Shell margin bearing numerous pore canals and fine hairs, especially at both ventral angles. Line of concrescence and inner margin coincident for short distance just before middle shell. Selvage thin. Four adductor scars in sloped dorsoventral line, 2 scars below the former at the same line, 1 additional anterior scar.

Remarks. First record from the Korean waters.

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