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Zoology**NEW SPECIES OF OSTRACODS OF THE GENUS *LEPTOCYTHERE* (CRUSTACEA, OSTRACODA) FROM CASPIAN SEA****G.S.Mirzoyev**

(Presented by Academician of ANAS S.V.Aliyev)

*The paper devoted on results of researches carried out during 1995 – 2002 in the Middle and South Caspian Sea. Information about species composition of ostracod fauna of the Middle and South Caspian Sea is given. Analyses of collected material allow giving the current picture of distribution of fossil ostracods in the different depths and soils.*

*The paper contains the morphological description of 3 ostracod species of as new to science and 2 species of fossil testate crayfish.*

**Keywords:** ostracods, carapace, antenna, mandible, flap, colliculus

**Introduction**

Among aquatic organisms of the Caspian Sea the ostracods are widespread organisms of microbenthos. They play quite an important role in ecosystems of marine waters. Many species of these crustaceans are the objects of food for benthos eating fish. Currently there are found more than 90 species of ostracods in the Caspian Sea. From them 30 species are described by the authors working with the recent species of ostracods of the Caspian Sea [2, 4, 5, 6, 7, 8, 9, 10]. Ostracods from the Pliocene and Postpliocene deposits of Azerbaijan are also well studied by paleontologists [1, 3, 5]. Ostracods, both fossil and living today, recently used successfully for strategic correlation of oil deposits. Unfortunately, the species composition and ecology of these crustaceans, particularly the fossil ostracods in the Caspian Sea have been studied very little.

**Material and methods**

Altogether 450 benthic samples collected on 5 sections and 60 Biological Station in the North-Western part of the South Caspian in 1995 – 2002 served as a material for presented work. Samples were collected using the bottom grabs "Ocean" and "Van Veen" with an area of capture, respectively, 0.1 and 0.025 m<sup>2</sup>.

Three-five samples per station were taken as a rule. Samples were thoroughly washed in a basin, and then filtered through a net made from gas N 24 for releasing of the fauna from

silt. The residue of the fauna was washed second time through soil sieve. Carapaces and living specimens were collected in the lowest sieve of 0.25 mm in diameter, then washed from the soil samples and were labeled. Materials were preserved in 4% - 75% formalin or alcohol. Then fixed samples were washed under weak flow of water. Then, all samples were checked under a binocular microscope carefully for taxonomic identification; all species were counted and weighed on an analytical balance.

Ostracods were identified according to keys «Fauna of the USSR» [3] and «Atlas for invertebrates of the Caspian Sea » [5].

**Results and discussion**

***Leptocythere bronsteini* Mirzoyev** (fig. 1)

*Material.* Type locality: Southern Caspian Sea, square 103. Holotype № 242.

*Description.* Male. Carapace is wrong rectangular, its height is almost equal to ½ of length. Dorsal margin straight, with distinct hinges. The anterior margin is slightly drawn down, posterior one - rounded. Ventral margin is slightly concaved. Valves are with a net-shaped sculpture. Two cross flaps extend along the posterior margin, of which an outer flap is distinct and inner one is slightly folded. In front of the valves there are two parallel flaps going down starting from posterior margin.

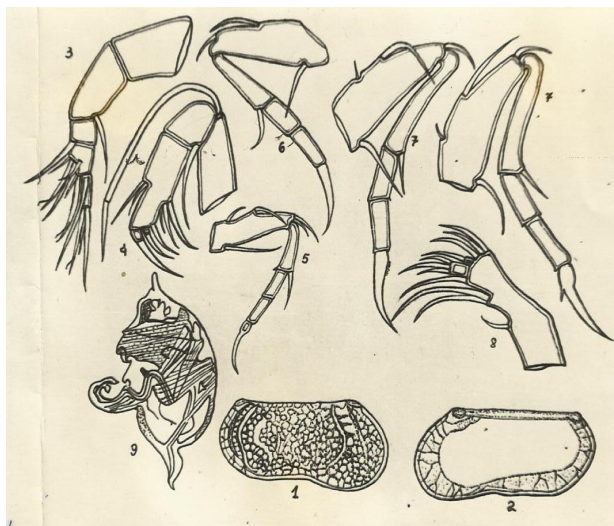


**Fig. 1.** *Leptocythere bronsteini* Mirzoyev

1 – right valve, external view; 2 - the same valve, internal view; 4 - the second antenna; 5, 6, 7 - the legs of the I, II and III pairs; 8 - tentacle of mandibles; 9 - copulatory organ

Outer flap is direct and near the hinge obliquely lowered to the ventral margin and in the center it makes a bend to the posterior-ventral side and disappears. Clearly visible pit formed between the flaps. Pore-canal area is wide with straight and mostly branched pore canals. Carapace color is light brown.

*Carapace sizes (in mm).* Length – 0,57, the height of the anterior margin - 0.27, posterior margin - 0.26, width - 0.26.

The first antenna 5-segmented, 3 - 5 segments of the first antenna are provided with clawlike setae branching at the end.

The second antenna is massive and 4-segmented (fig. 1). The third segment – endopodite is very short. The inner half (part) of the third segment is shorter than the outer half.

Sensitive setae of the second segment of endopodite are paired.

*Systematic position.* The described species is somewhat looks like *L.bosqueti* (Liv.). It differs from *L.bosqueti* with following features: more extended, location of flaps, branching pore canals and branching 1 - 3 dorsal setae of the first antenna and other parts of the limbs.

*Ecology.* It lives at a depth of 3 - 50 m in the slightly silty and clean shelly ground. Free-living form floating bad.

*Etymology.* The species is named in honor of Z.S.Bronshteyn, an expert on freshwater ostracods of the USSR.

***Leptocythere martha* Liv. (fig 2.)**

*Material.* Type locality. Found in the Southern Caspian at a depth of 50 m and in the shelly ground and in thickets of algae. It is known from Absheron tier of Azerbaijan, Caucasus, Turkmenistan.

*Description.* Female. Carapace is elongated, transversely concave and thick-shelled. The anterior end is arc-shaped, slightly slanted from the dorsal margin and smoothly connects to the ventral margin. Dorsal margin is straight and bears the hinges at the ends. Ventral margin is concaved in the center and raised to the posterior end.

The surface of the valves is evenly covered with pentahedral – hexahedral cells: the verge of cells fusing together create the appearance of fine margins in the ventral side of the carapace.

Pore-canal area is wide with rare straight pore canals.

*Carapace size (in mm).* Length is 0 – 52, the height of the anterior margin is 0 - 35, the height of the posterior margin is 0 - 22.

The first antenna is five segmented, 3 last segments are twice shorter than the latter ones. Last segment is thin and provided with a pair of clawlike setae. The second segment is closer to the 3rd segment bears short, jagged ridges (fig. 2).

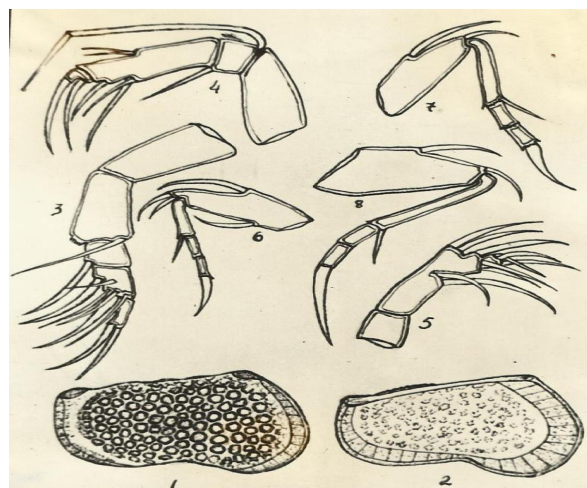


**Fig. 2.** *Leptocythere martha* Liv.

1 - right valve, external view; 2 - left valve, internal view; 3 - the first antenna; 4 - the second antenna; 5 - tentacle of mandibles; 6, 7, 8 – legs of the I, II and III pairs

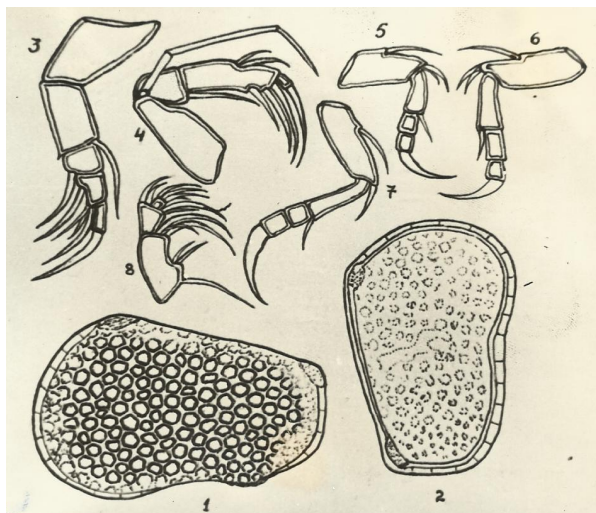


**Fig. 3.** *Leptocythere kasmovi* (Mirzoyev)

1 – left valve, external view; 2 – the same valve, internal view; 3 – first antenna; 4 – second antenna; 5, 6, 7 – legs of the I, II and III pairs; 8 – tentacle of mandibles

The second antenna is four segmented. The dorsal part of the 1<sup>st</sup> segment of endopodite bears thin, short hairs. Sensitive setae of the second segment of endopodite are paired.

**Ecology.** It lives at a depth of 5 - 100 m in a solid, hard-soft ground. Occurs in single copy. Free - living form.

***Leptocythere kasmovi* (Mirzoyev) (fig. 3)**

**Material.** Type locality: Mid Caspian. It lives at a depth of 5-50 m in a slightly silty and clean shelly ground. The holotype p/p № 16.

**Description.** Female. Carapace is almost rectangular, the anterior margin is higher than posterior margin and smoothly and bowingly goes down to a little pendent ventral margin. Dorsal margin is straight and starting from the anterior side goes down inclined towards the posterior margin. The posterior margin is almost straight and ventrally rounded. Ventral margin is slightly concave in the middle. The surface of the valves is covered with well-defined irregular pentahedral – hexahedral cells. On the posterior margin the cell sharply lowered down and become invisible.

The pore canal area is narrow and with rare straight pore canals.

**Carapace size (in mm).** Length is 0,37, the height of the anterior margin is 0,22, the height of the posterior margin is 0,17.

The first antenna is five segmented. 1 – 3-terminal segments are twice shorter than 4 – 5. The fifth, last segment is thin and provided with single and relatively long clawlike seta (fig. 3).

The second antenna is four segmented. Exopodite bears long setae, divided into three parts. The second segment of endopodite bears a pair of sensitive setae starting from dorsal part. The last segment of endopodite is almost five times shorter than the penultimate one, and is equipped with long claws.

**Differential diagnosis.** This species is similar to *Leptocythere gracilloides*, but differs from it with some features: smaller size, narrow pore canals, cell shape, higher anterior margin, as well as in some details of the soft body.

**Ecology.** The species inhabits biotopes with slightly silted ground. Occurs at a depth of 50 m. Free-living form.

**Etymology.** The species is named in honor of professor A.G.Kasymov, the known hydrobiologist, corr.memb. of the National Academy of Sciences of the Azerbaijan Republic.

***Leptocythere volgensis* Mirzoyev (fig. 4)**

**Material.** Type locality: North Caspian. Holotype p/p № 17.

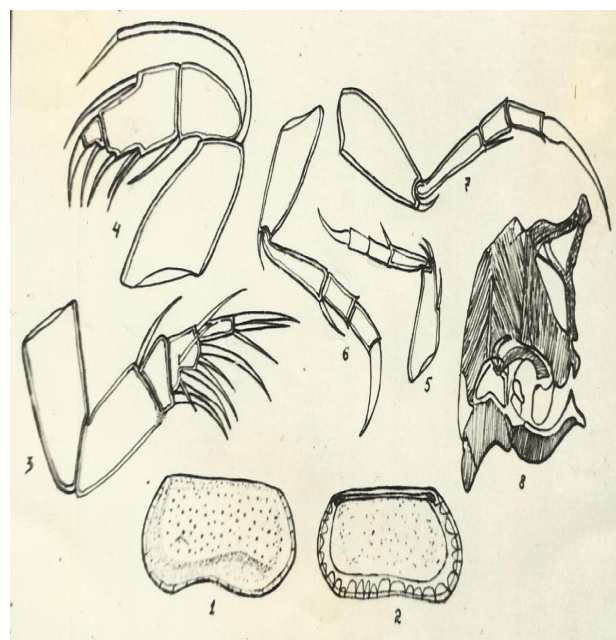


**Fig. 4.** *Leptocythere volgensis* Mirzoyev

1 – left valve, external view; 2 – the same valve, internal view; 3 – first antenna; 4 – second antenna; 5, 6, 7 – legs of the I, II and III pairs; 8 – copulative organ

*Description.* Male. Carapace is thin-shelled, oval, wrong rectangular. Height of anterior and posterior ends is same. The anterior end is convex, slightly oblique at the top. The posterior end is also smoothly connected to the arch-shaped dorsal and ventral margins. Dorsal margin is straight, ventral one is markedly concave. Valves are convex, especially at the posterior end, glassy, transparent. The surface of the valve is covered with illegible, hardly noticeable sculptures in the form of small dotted lines.

Pore-canal area is relatively broad. Pore-canals are straight.

*Carapace size* (in mm). Length is 0,5, the height of the anterior margin is 0,22, the height of the posterior margin is 0,21.

The first antenna is five segmented. The last 3-terminal segments are twice shorter than others. The front segment is thin and provided with 3 and relatively long clawlike setae (fig. 3).

The second antenna is four segmented. The length of exopodite setae reaches the last segment. The last segment of endopodite is double-stage and each stage bears a clawlike seta (fig.4).

*Differential diagnosis.* Carapace of this species looks like the carapace of *Leptocythere lulrica stepanaitys*, but differs from it with mild cells and the lack of branching pore canals.

*Ecology.* Lives at the depth of 4 m, in the fine shelly ground, sand or in algae.

*Etymology.* The species was named after the river Volga.

## REFERENCES

1. Agalarova D.A., Kadyrova Z.K., Kuliyeva S.A. 1961. Ostracods from Pliocene and Postpliocene deposits of Azerbaijan: Azerneshr, Baku, 420 p. (in Russian)
2. Hoffman E.A. Ecology of modern and novocaspian ostracods of the Caspian Sea. M.: Nauka, 1966, 181 p. (in Russian)
3. Bronstain Z.S. 1947. Fauna of the USSR. Crustacea. V. II, iss. I. Fresh water ostracods. M.-L., Publ. AS USSR, 339 p. (in Russian)
4. Kasymov A.G., Mirzoyev G.S. Deepwater ostracods of the South Caspian // Pr. Institute of Zoology, v.XXVIII. Baku: Elm, 2006, pp. 377 – 385. (in azerbaijani)
5. Livental B.E. 1929. Ostracoda of akrakyl and apsheon layers along Babazan section. News. Azerb. Polytechn.Institute. Baku, 58 p. (in Russian)
6. Naydina N.N. Order. *Ostracoda*. Atlas for invertebrates of the Caspian Sea. M.: Pishevaya promyshlennost. Moscow, 1968, p. 187 – 213. (in Russian)
7. Shornikov E.I. Suborder *Ostracoda*. Atlas for invertebrates of the Aral Sea. M.: Pishevaya promyshlennost., Moscow, 1974, p. 180 – 199. (in Russian)
8. Faradjev G.R. New species of ostracods from the western coasts of the Middle and South Caspian Sea// Reports of the AS of Azerb.SSR. , 1966, v. XXII, iss. 7, p. 70 – 73. (in Russian)
9. Mirzoyev G.S. Species composition and distribution of benthic organisms and ostracods of the coastal waters of the Absheron peninsular // Pr. Institute of Zoology, v.XXVIII. Baku: Elm, 2006, pp. 551 – 559. (in azerbaijani)
10. Mirzoyev G.S. Micro - and macrozoobentos (species composition and distribution) from coastal waters of Azerbaijan sector of the South Caspian Sea. // Pr. Of the Society of Azerbaijan Zoologists, v I. Baku: Elm, 2008, p. 524 – 528. (in azerbaijani)

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## XƏZƏR DƏNİZİNİN *LEPTOCY THERE* (CRUSTACEA, OSTRACODA) CİNSİNİN YENİ NÖVLƏRİ

G.S.Mirzəyev

Məqalə 1995 – 2002-ci illərdə Orta və Cənubi Xəzərdə aparılan elmi tədqiqatlar zamanı toplanılan nümunələr əsasında tərtib edilmişdir. Məqalə Orta və Cənubi Xəzərdə yaşayan ostrakod faunasının növ tərkibinin öyrənilməsinə həsr edilmişdir. Toplanılan nümunələrin araşdırılması bizə ədəbiyyat məlumatları əsasında qazıntı halında məlum olan bəzi ostrakodların hal-hazırda müxtəlif quntlarda, dərinliklərdə yaşamalarını və yayılmalarını müəyyənləşdirməyə imkan vermişdir.

Məqalədə qazıntı halında məlum olan 2 növ çanaqlı xərçənglərin və elm üçün yeni olan 3 növün morfoloji təsviri verilir.

*Açar sözlər:* çanaqlı xərçənglər, çanaq, antena, mandibula, tay, qabarıq

**НОВЫЕ ВИДЫ ОСТРАКОД РОДА *LEPTOCYTHERE* (CRUSTACEA, OSTRACODA)  
ИЗ КАСПИЙСКОГО МОРЯ**

**Г.С.МИРЗОЕВ**

В статье приведены описания трех новых и двух известных из плиоценовых и постплиоценовых обложений Азербайджана видов рецетных остракод, принадлежащих роду *Leptocythere* (Crustacea, Ostracoda) Каспийского моря

**Ключевые слова:** остракоды, раковина, антенна, мандибула, створка, бугорок