Turkish J. Marine Sciences 9(2):147-162(2003)

Ostracoda (Crustacea) Fauna of the Black Sea Coasts of İstanbul

İstanbul'un Karadeniz Kıyılarının Ostrakod (Krustase) Faunası

Cüneyt Kubanç

İstanbul University, Faculty of Science, Department of Biology, 34459, Vezneciler, İstanbul- Turkey

Abstract

The Black Sea having unique properties is located on the north of the Anatolia mainland. Its brackish water characteristics, combined with the currents from the Bosphorus strait and fresh water flow from various rivers leads to a wide ecologic spectrum. In this research a total of 19 stations were sampled in November 2000 and May 2001. 40 species from 19 genera have been identified, among these species 15 of them Leptocythere macella, L. ramosa, L. lagunae, L. rara, Loxoconcha minima, L. littoralis, Hiltermannicythere rubra, Heterocythereis albomaculata, Cytheroma variabilis, Semicytherura amorpha, Semicytherura rarecostata, Xestoleberis margaritea, Paradoxostoma aff. triste, Argilloecia acuminata and A. minor are new records for recent ostracoda fauna of Turkey.

Key Words: Black Sea, Ostracoda, Crustacea, Systematic.

Introduction

The subclass ostracoda, has a wide ecological distribution in all kinds of water environments. Sampling stations were chosen for their proximity to the Bosphorus and where the probabilty of finding marine ostracoda, which are encountered in Mediterranean Sea, Aegean Sea and the Sea of Marmara were the highest. The Black Sea coasts of Turkey were sampled in previous researches such as (Kılıç, 1992, 1997) and (Tunoğlu, 2002) recording brackish and fresh water ostracoda as well as marine species. As a result of this research, new species were added to the fauna of the Black Sea and also some species from Mediterranean, Marmara and Aegean Seas were encountered showing the wide ecologic spectrum of the Black Sea.

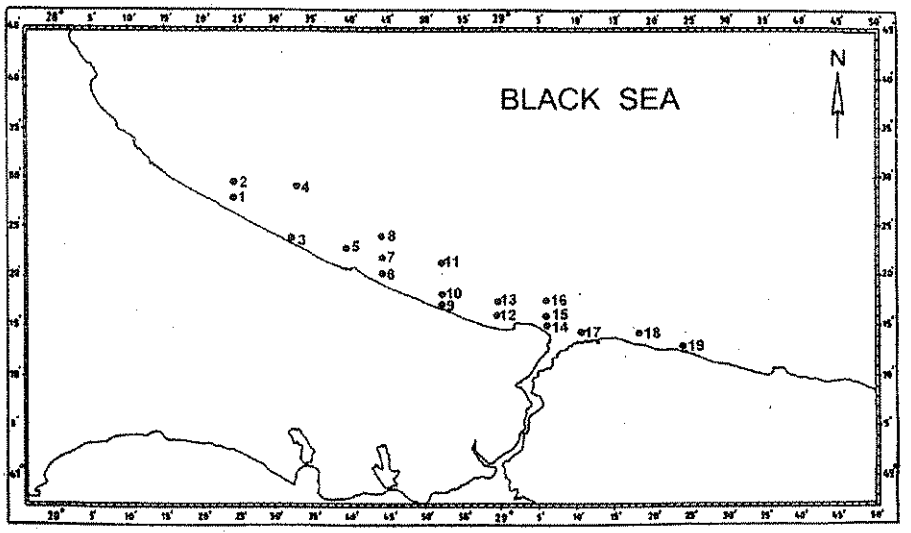


Figure 1. Sampling locations

Materials and Method

19 stations from the coasts of the Black Sea, north of İstanbul were sampled in November 2000 and May 2001. All of these localities were offshore locations of variable depths between 5 m and 65 m, a 25 kg grab was employed for sampling, the resulting material were fixed in 4% formaldehyde and later immersed in 1% hydrogen peroxide for 24 hours. Material separated from mud and detritus were washed through sieves of 2,5; 2; 1; 0.25; 0.16; 0.09 mm of mesh sizes and left to dry, 20 g of dry material per station was investigated for valves or carapaces of ostracoda under a stereo microscope. Dry specimens are preserved in micropaleontological slides in the University of Istanbul Zoological Museum.

Table 1. Sampling locations, coordinates and dates.

Stations	Coordinates	Dates
1	41°28′00″N 28°25′00″E	13 November 2000
2	41°29′30″N 28°25′30″E	13 November 2000
3	41°23′30″N 28°32′00″E	13 November 2000
4	41°29′00″N 28°33′00″E	21 May 2001
5	41°23′00″N 28°39′00″E	13 November 2000
6	41°20′30″N 28°44′00″E	14 November 2000
7	41°22′00″N 28°44′00″E	14 November 2000
8	41°24′00″N 28°45′00″E	14 November 2000
9	41°17′00″N 28°52′00″E	14 November 2000
10	41°18′00″N 28°52′00″E	14 November 2000
11	41°21′15″N 28°52′30″E	22 May 2001
12	41°16′00″N 28°59′30″E	14 November 2000
13	41°17′30″N 29°00′00″E	14 November 2000
14	41°15′00″N 29°06′30″E	14 November 2000
15	41°16′00″N 29°06′30″E	14 November 2000
16	41°17′30″N 29°06′30″E	14 November 2000
17	41°14′30″N 29°11′00″E	14 November 2000
18	41°14′00″N 29°18′30″E	14 November 2000
19	41°13′00″N 29°24′00″E	14 November 2000

Table 2. Distribution of species to sampled localities.

Stations	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Species																			
Leptocythere macella				*				*			*								
Leptocythere ramosa				*				*			*								
Leptocythere lagunae								*											
Leptocythere rara								*											
Callistocythere pallida				*															
Callistocythere littoralis					*								*						
Callistocythere adriatica		*		*				*			*								
Cyprideis torosa					*					*				*					
Pontocythere elongata			*	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*
Pontocythere turbida										*									
Carinocythereis antiquata				*															
Hiltermannicythere rubra				*			*	*		*	*		*		*				
Aurila speyeri							*												
Aurila prasina				*			*	*		*									
Urocythereis britannica		*					*	*		*	*								
Heterocythereis albomaculata				*				*											
Cytheroma variabilis				*				*			*								
Loxoconcha minima															*				
Loxoconcha rhomboidea				*				*			*								
Loxoconcha littoralis											*								
Loxoconcha stellifera										*									
Loxoconcha ovulata							*												
Paracytheridea parallia	*							*			*								
Pseudocytherura calcarata													*		*				
Semicytherura amorpha								*											
Semicytherura rarecostata													*						
Semicytherura ruggieri								*											
Semicytherura rara							*												
Xestoleberis margaritea					*														
Xestoleberis communis				*				*											
Xestoleberis decipiens		*					*	*											
Xestoleberis dispar		*		*			*	*			*								
Xesteloberis plana													*						
Xestoleberis margaritopsis		*																	
Bythocythere turgida				*															
Paradoxostoma aff. triste				*							*								
Paradoxostoma simile			*							*	*								
Sclerochilus concortus				*															
Argilloecia acuminata											*								
Argilloecia minor								*											

Class: CRUSTACEA

Subclass: OSTRACODA Latreille, 1806
Order: PODOCOPIDA Muller, 1894
Suborder: PODOCOPA Sars, 1866
Superfamily: CYTHERACEA Baird, 1850
Family: LEPTOCYTHERIDAE Hanai, 1957
Genus: LEPTOCYTHERE Sars, 1928
Leptocythere macella Ruggieri, 1975
Material: 4. st., 8. st.,11. st.
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975).
Leptocythere ramosa (Rome, 1942) Ruggieri, 1952
Material: 4. st., 8. st.,11. st.
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975); Black Sea, (Mordukhai-Boltovskoi, 1969); Evros Delta North Aegean Sea-Greece, (Stambolidis 1985).
Leptocythere lagunae Hartmann, 1958
Material: 8. st.
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975).
Leptocythere rara (Muller, 1894) Ruggieri, 1953
Material: 8. st.
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975); Bay of Bou-Ismail, Algeria, (Yassini, 1979); Black Sea, (Mordukhai-Boltovskoi, 1969).
Genus: Callistocythere Ruggieri, 1953
Callistocythere pallida (Muller, 1894) Ruggieri, 1962
Material: 4. st.
Old records from Turkey: Gökçeada-Bozcaada-Çanakkale, (Şafak, 1999).
General distribution: Adriatic Sea, (Bonaduce et al., 1975); Bay of Bou-Ismail, Algeria, (Yassini, 1979).
Callistocythere littoralis (Muller, 1894) Hanai, 1957.
Material: 5. st., 13. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975); Gökçeada-Bozcaada-Çanakkale, (Şafak, 1999).
Callistocythere adriatica Masoli, 1968.
Material: 2. st., 4. st., 8. st., 11. st..
Old records from Turkey: Saros Bay, (Kubanç, 1999); Black Sea, (Tunoğlu, 2002).
General distribution: Adriatic Sea, (Bonaduce et al., 1975).
Family: CYTHERIDEIDAE Sars, 1925
Genus: Cyprideis Jones, 1857
Cyprideis torosa (Jones, 1850)

Material: 5. st., 10. st.,14. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999); İzmir, (Gülen, 1985b); Zeytindağ- Bergama, (Altınsaçlı, 1988); Sea of Marmara, (Kubanç, 1989); Ayvalık-Bergama, (Kubanç and Altınsaçlı, 1990); İstanbul, (Kılıç, 1992); Aegean Sea (Kubanç, 1995); Black Sea (Kılıç, 1997); Thrace, (Özuluğ, 2000); Dardanelles, (Kubanç and Kılınçarslan, 2001); Gökçeada-Bozcaada-Çanakkale, (Şafak, 1999).
General distribution: Baltic Sea, Britain, Netherlands, France, Middle Asia, North Africa (Sars, 1928); Europe, Caspian Sea, Rudolf Lake, Equatorial Africa, (Klie, 1938); Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Evros Delta North Aegean Sea-Greece, (Stambolidis, 1985); Adriatic Sea, (Bonaduce et. al., 1975); Bay of Bou-Ismail, Algeria, (Yassini, 1979); Black Sea, (Mordukhai-Boltovskoi, 1969).
Family: CUSHMANIDEIDAE Puri, 1973
Genus: Pontocythere Dubowsky,1939.
Pontocythere elongata (Brady, 1868), Oertli, 1956
Material: 3. st., 4 st., 5. st., 6.st., 7. st., 8. st., 9. st., 10. st., 12. st., 13. st., 14. st., 15. st., 16. st., 17. st., 18. st., 19. st.
Old records from Turkey: Ayvalık-Bergama, (Kubanç and Altınsaçlı, 1990); İstanbul, (Kılıç, 1992); Saros Bay, (Kubanç, 1999); Aegean Sea, (Kubanç, 1995); Thrace, (Özuluğ, 2000).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Evros Delta North Aegean Sea–Greece, (Stambolidis, 1985).
Pontocythere turbida (Muller,1894) Morkhoven 1963
Material: 10. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999); Thrace, (Özuluğ, 2000).
General distribution: Adriatic Sea, (Bonaduce et al., 1975).
Family: TRACHYLEBERIDIDAE Slyvester- Bradley, 1948
Genus: Carinocythereis Ruggieri, 1956
Carinocythereis antiquata (Baird, 1850) Morkhoven, 1963.
Material: 4 st.
Old records from Turkey: Saros Bay, (Kubanç, 1999); Sea of Marmara (Kubanç, 1989); Aegean Sea, (Kubanç, 1995); İzmit Bay (Quaternary), (Gülen et al., 1995); Black Sea, (Tunoğlu, 2002); Dardanelles, (Kubanç and Kılınçarslan, 2001); Gökçeada-Bozcaada-Çanakkale, (Şafak, 1999).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975); Bay of Bou-Ismail, Algeria, (Yassini, 1979).
Genus: Hiltermannicythere Bassiouni, 1970
Hiltermannicythere rubra (Muller, 1894) Bonaduce et al., 1976
Material: 4 st., 7 st., 8. st., 10. st., 11. st.,13. st., 15. st.
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975).
Family:HEMICYTHERIDAE Puri, 1953
Subfamily: HEMICYTHERINAE Puri, 1953
Genus: Aurila Pokorny, 1955

Aurila speyeri (Brady, 1868) Pokorny, 1955
Material: 7. st.
Old records from Turkey: Aegean Sea, (Kubanç, 1995); İstanbul, (Kılıç, 1992); Ayvalık-Bergama, (Kubanç and Altınsaçlı, 1990) ; Gökçeada-Bozcaada-Çanakkale, (Şafak, 1999).
General distribution: Adriatic Sea, (Bonaduce et al., 1975); Evros Delta North Aegean Sea-Greece, (Stambolidis, 1985); Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971).
Aurila prasina Barbeito-Gonzales, 1971
Material: 4 st., 7 st., 8. st., 10. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999); Ayvalık, (Kubanç and Altınsaçlı, 1990); İstanbul, (Kılıç, 1992).
General distribution: Adriatic Sea, (Bonaduce et al., 1975); Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971).
Subfamily: UROCYTHEREIDINAE (Hartmann-Puri,1974)
Genus: Urocythereis Ruggieri, 1950
Urocythereis britannica Athersuch, 1977
Material: 2. st., 7. st., 8. st., 10. st.
Old records from Turkey: Aegean Sea, (Kubanç, 1995); Sea of Marmara, (Kubanç, 1989); Ayvalık, (Kubanç and Altınsaçlı, 1990); İstanbul, (Kılıç, 1992); (Kubanç and Kılınçarslan, 2001).
General distribution: Biskay Bay, S. Wales, South Britain, North Spain, France, Netherlands (Holocene), Aegean Sea (Pliocene), Cyprus (Sub-Recent), (Athersuch, 1977).
Subfamily: HEMİCYTHERINAE Puri, 1953
Genus: Heterocythereis Elefson, 1941
Heterocythereis albomaculata (Baird,1838) Puri, 1953
Material: 4 st., 8. st..
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975); Bay of Bou-Ismail, Algeria, (Yassini, 1979); Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971).
Family: CYTHEROMATIDAE Elefson, 1939
Genus: Cytheroma Muller, 1894
Cytheroma variabilis Muller, 1894
Material: 4 st., 8. st., 11. st.
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975); Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Black Sea, (Mordukhai-Boltovskoi, 1969).
Family: LOXOCONCHIDAE Sars, 1925.
Genus: Loxoconcha Sars, 1866.
Loxoconcha minima Muller 1894
Material: 15. st.
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975).

Loxoconcha rhomboidea (Fischer, 1855) Sars 1866
Material: 4 st., 8. st, 11. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999); Sea of Marmara, (Kubanç, 1989); Aegean Sea, (Kubanç, 1995); İzmit Bay (Qaternary), (Gülen et al., 1995); Black Sea, (Kılıç, 1997); Dardanelles, (Kubanç and Kılınçarslan, 2001); Gökçeada-Bozcaada-Çanakkale, (Şafak, 1999).
General distribution: Britain, France, Norway, North America, (Sars, 1928); Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975); Evros Delta, North Aegean Sea–Greece, (Stambolidis, 1985); Bay of Bou-Ismail, Algeria, (Yassini, 1979); Black Sea, (Mordukhai-Boltovskoi, 1969).
Loxoconcha littoralis Muller 1894
Material: 11. st.
New record for Turkey.
General distribution: Pharos and Naxos islands, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975).
Loxoconcha stellifera Muller,1894.
Material: 10. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999); Çandarlı-Dikili, Ayvalık (Kubanç and Altınsaçlı, 1990).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975); Evros Delta North Aegean Sea-Greece, (Stambolidis, 1985); Bay of Bou-Ismail, Algeria, (Yassini, 1979).
Loxoconcha ovulata (Costa, 1853) Ascoli, 1965
Material: 7. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999); Aegean Sea, (Kubanç, 1995).
General distribution: Pharos and Naxos islands Greece, Aegean Sea (Barbeito-Gonzales, 1971); Evros Delta North Aegean Sea–Greece, (Stambolidis, 1985).
Family: PARACYTHERIDEIDAE Puri, 1957.
Genus: Paracytheridea Muller, 1894.
Paracytheridea parallia Gonzales-Barbeito.J.P., 1971
Material: 1. st., 8. st., 11. st.
Old records from Turkey: Saros Bay, (Kubanç 1999); Sea of Marmara, (Kubanç 1989); Aegean Sea, (Kubanç, 1995); İzmit Bay (Qaternary), (Gülen et al., 1995); Dardanelles, (Kubanç and Kılınçarslan, 2001).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Evros Delta North Aegean Sea–Greece, (Stambolidis, 1985).
Family: CYTHERURIDAE Muller, 1894
Subfamily: CYTHERURINAE Muller, 1894
Genus: Pseudocytherura Dubowsky, 1939
Pseudocytherura calcarata (Seguenza) Morkhoven, 1963
Material: 13. st., 15. st.
Old records from Turkey: Aegean Sea, (Kubanç, 1995); Sea of Marmara (Kubanç, 1989); Black Sea, (Tunoğlu, 2002).

General distribution: Pharos and Naxos islands Greece, Aegean Sea; (Barbeito-Gonzales, 1971).
Genus: Semicytherura Wagner, 1957
Semicytherura amorpha Bonaduce et al., 1976
Material: 8. st..
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975).
Semicytherura rarecostata Bonaduce et al., 1975
Material: 13. st..
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975).
Semicytherura ruggierii (Pucci,1956) Ruggieri, 1959
Material: 8. st..
Old records from Turkey: Saros Bay, (Kubanç, 1999).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975); Evros Delta North Aegean Sea-Greece, (Stambolidis, 1985); Bay of Bou-Ismail, Algeria, (Yassini, 1979).
Semicytherura rara (Muller,1894) Masoli, 1968.
Material: 7. st..
Old records from Turkey: Saros Bay, (Kubanç, 1999).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975); Bay of Bou-Ismail, Algeria, (Yassini, 1979).
Family: XESTOLEBERIDIDAE Sars, 1928
Genus: Xestoleberis Sars, 1866
Xestoleberis margaritea (Brady, 1866) Brady, 1880
Material: 5. st.
New record for Turkey.
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Evros Delta North Aegean Sea-Greece, (Stambolidis, 1985); Bay of Bou-Ismail, Algeria, (Yassini, 1979).
Xestoleberis communis Muller,1894,
Material: 4 st. 8. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999); Aegean Sea, (Kubanç, 1995).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975); Evros Delta North Aegean Sea-Greece, (Stambolidis, 1985); Bay of Bou-Ismail, Algeria, (Yassini, 1979).
Xestoleberis decipiens Muller, 1894
Material: 2. st., 7. st., 8. st.
Old records from Turkey: Aegean Sea, (Kubanç, 1995); İstanbul, (Kılıç, 1992).
General distribution: Evros Delta North Aegean Sea-Greece, (Stambolidis, 1985); Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Black Sea, (Mordukhai-Boltovskoi, 1969).

Xestoleberis dispar Muller, 1894
Material: 2. st., 4. st., 7. st., 8. st., 11. st.
Old records from Turkey: Saros Bay (Kubanç, 1999); Aegean Sea, (Kubanç, 1995); Black Sea, (Tunoğlu, 2002).
General distribution: Adriatic Sea, (Bonaduce et al., 1975).
Xestoleberis plana Muller 1894
Material: 13. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975); Bay of Bou-Ismail, Algeria, (Yassini, 1979).
Xestoleberis margaritopsis Rome,1942
Material: 2. st.
Old records from Turkey: Saros Bay, (Kubanç, 1999).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Evros Delta North Aegean Sea–Greece, (Stambolidis, 1985).
Family: BYTOCYTHERIDAE Sars, 1866
Genus: Bythocythere Sars, 1866
Bythocythere turgida Sars, 1865
Material: 4 st.
Old records from Turkey: Saros Bay, (Kubanç, 1999); Aegean Sea, (Kubanç, 1995).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea, (Bonaduce et al., 1975); Evros Delta North Aegean Sea–Greece, (Stambolidis, 1985); Bay of Bou-Ismail, Algeria, (Yassini, 1979); Black Sea, (Mordukhai-Boltovskoi, 1969).
Family: PARADOXOSTOMATIDAE Brady- Norman, 1889
Genus: Paradoxostoma Fischer, 1855
Paradoxostoma aff. triste Muller, 1894
Material: 4 st. 11. st..
New record for Turkey.
General distribution: Bay of Bou-Ismail, Algeria, (Yassini, 1979). Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971).
Paradoxostoma simile Muller, 1894
Material: 3. st., 10. st., 11. st..
Old records from Turkey: Saros Bay, (Kubanç, 1999); Aegean Sea, (Kubanç, 1995); Black Sea, (Tunoğlu, 2002).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Black Sea, (Mordukhai-Boltovskoi, 1969).
Genus: Sclerochilus Sars,1866
Sclerochilus contortus (Norman,1862) Sars 1866
Material: 4 st.
Old records from Turkey: Saros Bay, (Kubanç, 1999).
General distribution: Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971); Adriatic Sea (Bonaduce et al., 1975); Norway, (Sars, 1928).
Superfamily: CYPRIDACEA Baird, 1845

Family: PONTOCYPRIDIDAE G. W. Muller, 1894
Genus: Argilloecia Sars, 1866
Argilloecia acuminata Muller, 1894
Material: 11. st.
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975); Bay of Bou-Ismail, Algeria, (Yassini, 1979).
Argilloecia minor (Jones and Hinde, 1890) Mandelstam, 1963
Material: 8. st.
New record for Turkey.
General distribution: Adriatic Sea, (Bonaduce et al., 1975); Pharos and Naxos islands Greece, Aegean Sea, (Barbeito-Gonzales, 1971).

Discussion

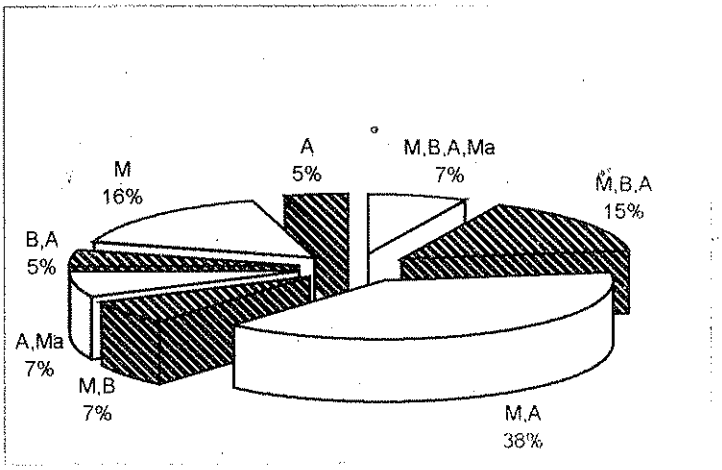
As a result of the systematic investigation of grab samples from 19 stations acquired from the region; One suborder (Podocopa), two superfamilies (Cytheracea, Cypridacea), thirteen families (Leptocytheridae, Cytherideidae, Cushmanideidae, Trachyleberididae, Hemicytheridae, Cytheromatidae, Loxoconchidae, Paracytherideidae, Cyheruridae, Xesteloberididae, Bythocytheridae, Paradoxostomatidae, Pontocypridididae), nineteen genera (Leptocythere, Callistocythere, Cyprideis, Pontocythere, Carinocythereis, Hiltermannicythere, Aurila, Urocythereis, Heterocythereis, Cytheroma, Loxoconcha, Paracytheridea, Pseudocytherura, Semicytherura, Xestoleberis, Bythocythere, Paradoxostoma, Sclerochilus, Argilloecia), fourty species (Leptocythere macella, L. ramosa, L. lagunae, L. rara, Callistocythere pallida, C. littoralis, C. adriatica, Cyprideis torosa, Pontocythere elongata, P. turbida, Carinocythereis antiquata, Hiltermannicythere rubra, Aurila speyeri, A. prasina, Urocythereis britannica, Heterocythereis albomaculata, Cytheroma variabilis, Loxoconcha minima, L. rhomboidea, L. littoralis, L. stellifera, L. ovulata, Paracytheridea parallia, Pseudocytherura calcarata, Semicytherura amorpha, S. rarecostata, S. ruggierii, S. rara, Xestoleberis margaritea, X. communis, X. decipiens, X. dispar, X. plana, X. margaritopsis, Bythocythere turgida, Paradoxostoma aff. triste, P. simile, Sclerochilus contortus, Argilloecia acuminata, A. minor) were identified. Among these species Leptocythere macella, L. ramosa, L. lagunae, L. rara, Loxoconcha minima, L. littoralis, Hiltermannicythere rubra, Heterocythereis albomaculata,

Cytheroma variabilis, Semicytherura amorpha, S. rarecostata, Xestoleberis margaritea, Paradoxostoma aff. triste, Argilloecia acuminata and A. minor are new records for recent ostracoda fauna of Turkey.

Distribution of species to the surrounding seas according to previous researches are plotted in table 3 and percentage values are given. No species were encountered only from the Black Sea, or only from the Sea of Marmara or from the Mediterranean and the Sea of Marmara or from the Mediterranean and Aegean Seas and the Sea of Marmara. In a research similarly located, Tunoğlu (2002) also encountered only a small amount of species of Black Sea origin. The interesting point is that 38% of the species in this research were previously encountered from the Mediterranean and Aegean Seas. A total of 59% of the species are either Mediterranean or Aegean species, however according to this value at least 35% of the species should be encountered from the Sea of Marmara instead of 0, as the Sea of Marmara is a passage between the Aegean Sea and the Black Sea this occurance is natural, nevertheless 14% of the species encountered both from the Aegean and the Mediterranean Sea is far less than the expected value of 35%, thus revealing the need for intensive studies about the Sea of Marmara.

Another point of interest is the high number of species from 19 stations between 5-65 m of depth. As the bottom current between the Black Sea and the Marmara flowing in the opposite direction in the Black Sea opening of the Bosphorus, it is possible that the Mediterranean biofacies is spreading towards the Black Sea with a tendency to the western part.

Table 3: Distribution of species for surrounding seas according to old records, M.; Mediterranean Sea, A.; Aegean Sea, B.; Black Sea, Ma.; Sea of Marmara.



The abundance of species increasing towards western located stations is a result of the bottom currents from the Sea of Marmara towards the Black Sea, occuring in the opposite direction to the surface current with a slightly increasing depth leading to a marine environment rather than a brackish water environment. Therefore the Mediterranean biofacies is more abundant on the western benthic zone. However on the eastern part of the zone, typical Black Sea characteristics are present due to the sudden increasing depth of the eastern shelf resulting in drastic changes in the bathymetric and physcochemical parameters and towards typical brackish water characteristics.

Maximum recorded depth distribution of the species encountered in this research was 170 m. While it is quite possible for these species adapting near-marine properties of the western Black Sea it is probable that they can be replaced by other forms in deeper eastern regions.

Some encountered species were typical brackish water forms (ie. Heterocythereis albomaculata, Cyprideis torosa, species of the genus Leptocythere). Salinity values of the Black Sea are variable because of the flow from the rivers, as well as from surface and bottom currents changing accordingly to the winds. Therefore tolerable conditions occur in favour of the Mediterranean and Aegean species. Occurrence of species in this region is likely to depend on the depth rather than the salinity.

Özet

Kendine has özellikleri bulunan Karadeniz, Anadolu anakarasının kuzeyinde konumlanmıştır. Acı su özelliği gösteren suları, İstanbul boğazından gelen akıntılar ve çok sayıda nehirin taşıdığı tatlı su akışı ile birlikte çok geniş bir ekolojik çeşitlilik gösterir. Bu araştırmada İstanbul'un kuzey bölgelerinden örnekler alınmıştır. Toplam 19 istasyon Kasım 2000 ve Mayıs 2001 tarihlerinde toplanmıştır. Bu istasyonlardan alınan grap örneğinden, ondokuz cinse ait, kırk tür saptanmıştır, bu türlerden 15 tanesi, Leptocythere macella, Leptocythere ramosa, L. lagunae, L. rara, Loxoconcha minima, L. littoralis, Hiltermannicythere rubra, Heterocythereis albomaculata, Cytheroma variabilis, Semicytherura amorpha, S. rarecostata, Xestoleberis margaritea, Paradoxostoma aff. triste, Argilloecia acuminata ve A. minor, Türkiye güncel ostrakod faunası için yeni kayıttır.

References

Altınsaçlı, S. (1988). Bergama İzmir Yöresi Ostrakod (Crustacea) Faunası ve Mevsimsel Dağılımları. Yüksek Lisans tezi, İst. Üniv. Fen Fak.

Athersuch, J. (1977). Urocythereis (Crustacea: ostracoda) in Europe, with Particular Reference to Recent Mediterranean Species. *Bull. Br. Mus. Nat.Hist.* 32 (7): 247-283.

Barbeito-Gonzales, J. P. (1971) Die Ostracoden des Künstenbereiches von Naxos (Griechenland) und ihre Lebensbereiche. *Mitt. Hmb. Zool. Mus. Inst.* 67: 255-326.

Bonaduce, G., Ciampo, G. & Masoli (1975). M., Distribution of Ostracoda in the Adriatic Sea. Publicazioni Della Stazione Zoologica di Napoli. Suppl. 40 (1): 1-154.

Gülen, D. (1985b). Bisexual Ostracoda (Crustacea) Populations in Anatolia. *İst. Üniv. Fen Fak. Mec. Seri B.* 50:81-86.

Gülen, D., Kubanç, C. and Altınsaçlı, S. (1995). İzmit Körfezi Kuvaterner İstifinin Ostrakod (Crustacea) Faunası: İzmit Körfezi'nin Kuvaterner İstifi (ed., E. Meriç).

Hartmann, G. and Puri, S. H. (1974). Summary of Neontological and Paleontological Classification of Ostracoda. *Mitt. Hmb. Zool. Mus. Inst.* 67: 255-326.

Kılıç, M., (1992). İstanbul Boğazı ve Karadeniz girişi Ostrakod (Crustacea) Faunası ve Zoocoğrafyası. Yüksek Lisans tezi, İst. Üniv. Fen Fak..

Kılıç, M., (1997). Karadeniz Kıyıları Ostrakod (Crustacea) Faunası. Doktora Tezi, İst. Üniv. Fen Fak.

Klie, W. (1938). Ostracode-Die Tierwelt: Deutschlands 34:1-230.

Kubanç, C. (1989). Marmara Denizi Ostrakod Faunası. Yüksek Lisans tezi, İst. Üniv. Fen Fak.

Kubanç, C., Altınsaçlı, S. (1990). Ayvalık-Bergama Lagün Ostrakod Faunası: X. Ulusal Biyoloji Kongresi Tebliğileri. Erzurum 37-46.

Kubanç, C. (1995). Ege Denizi Ostrakod (Crustacea) Faunası. Doktora tezi, İst. Üniv. Fen Fak.

Kubanç, N. (1999). Saroz Körfezi Ostrakod (Crustacea) Faunası. Doktora tezi, İst. Üniv. Fen Fak.

Kubanç, N. and Kılınçarslan, Y., (2001). A research on the Ostracoda (Crustacea) Fauna of Dardanelles. *İst. Univ. J. of Fish. and Aquat. Sci.* 12: 49-60.

Mordukhai-Boltovskoi F.D. (1969). Determination of the Fauna of the Black and Azov Seas, Kiev, Kievskaya Kni/linaya Fabrika 1-3.

Özuluğ O. (2002) Trakya Bölgesi Ostrakod (Crustacea) Faunası. Doktora tezi, İst. Üniv. Fen Fak.

Sars, O.G. (1928). An Account of the Crustacea of Norway. Bergen 9: 277.

Stambolidis, A. E. (1985). Zur Kenntnis Der Ostracoden Des Evros-Delta (Nord- Agaisches Meer) Griechland. *Mitt. Hmb. Zool. Mus. İnst.* 82: 155-254.

Şafak Ü. (1999). Recent Ostracoda Assemblage of the Gökçeada-Bozcaada-Çanakkale Region.*Yerbilimleri Geosound* 35: 149-172.

Tunoğlu, C. (2002). The Recent Ostracoda Association of İstanbul Strait exit, and Zonguldak and Amasra Coastal Areas of Black Sea. Bull. Earth Sciences Application and Research Centre of Hacettepe University 26: 27-43.

Yassini, I. (1979). The Littoral System Ostracodes from the Bay of Bou-ismail, Algiers, Algeria. *Re-vista Espanola de Micropaleontologia* 11(3): 353-416.

Received: 20.03.2003

Accepted:14.04.2003