

CHECK-LIST OF CUMACEA FROM IBERIAN WATERS

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Check-list of Cumacea from Iberian waters.—Based on the existing literature and adding some new data, a total of 172 species have been recorded. Fifty one of them are common to the Atlantic and the Mediterranean, 98 have only been found in the Atlantic and 23 are confined to the Mediterranean. Of all Iberian species, 52.3% are present in the Boreal region and 23.2% in the North-western Atlantic. The bathyal bottoms (200-3000 m) show the larger bathymetrical range with 141 species recorded.

Key words: Cumacea, Check-list, Biogeography, North-eastern Atlantic, Western Mediterranean.

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INTRODUCTION

The cumaceans of Iberian waters have not been studied in their entirety, moreover, works on these crustaceans from the littoral of the Iberian peninsula and Balearic Islands are scarce. However, some oceanographic cruises that have sampled the bathyal and abyssal bottoms of the Bay of Biscay (Caudan, Thalassa, Polygas, Biogas), Strait of Gibraltar (Balgim) and Western Mediterranean (Polymède) have added a great number of species to the Ibero-balearic fauna (BONNIER, 1896; REYSS, 1972, 1978; JONES, 1974, 1984, 1990; BISHOP, 1981a, 1981b; LEDOYER, 1987). Thus, the object of this study is to compile and present all available references on cumaceans that inhabit the Iberian waters.

MATERIAL AND METHODS

The area covered by this check-list is located around the Iberian peninsula and the Balearic Islands and delimited by parallels 35°N and 45°N, and meridians 5°E and 15°W. Some species that have not been found in this area also have been included if they have been found in this vicinity, because the area does not belong to a biogeographic region but it encloses parts of two provinces (Mediterranean and Lusitanian).

The present publication is principally based on existing literature with addition of a few new data. Previous references with indication of locality, depth and synonymy (when these exist) have been presented for all the species, followed by the new data. The last systematic revisions of BACESCU (1988, 1992)

were used for the nomenclature of these organisms. For family Leuconidae, the system of WATLING (1991) was also followed.

RESULTS

Order Cumacea Kröyer, 1846
Family Lampropidae Sars, 1878

Chalarostylis elegans Norman, 1879
Bay of Biscay, 46°15'N 04°50'W, 1922 m (REYSS, 1978; JONES, 1985); Gulf of Cádiz, 890-1523 m (JONES, 1990).

Hemilamprops assimilis Sars, 1883
Bay of Biscay (JONES, 1985).

Hemilamprops cristatus (Sars, 1870)
Bay of Biscay, 43°43'N 03°47'W and 43°46.7'N 03°38'W, 641-2379 m (REYSS, 1978; JONES, 1985); Strait of Gibraltar, Gulf of Cádiz, 281-1530 m (JONES, 1990); Catalanian Sea, 41°03'N 02°03'E, 610-640 m (CARTES & SORBE, 1993). All references as *H. cristata*.

Hemilamprops normani Bonnier, 1896
Bay of Biscay, 44°36'N 02°05'W and 44°17'N 02°18'W, 650-950 m (BONNIER, 1896); Bay of Biscay, 43°40'N 03°35'W, 1739 m (REYSS, 1978; JONES, 1985).

Hemilamprops roseus (Norman, 1863)
Arcachon, 44°31'N 02°04'W, 180 m (SORBE, 1982) as *H. rosea*.

Mesolamprops denticulatus Ledoyer, 1983
Alboran Sea, 425-570 m (LEDOYER, 1987) as *M. denticulata*.

Paralamprops orbicularis (Calman, 1905)
Bay of Biscay, 43°40.8'N 03°35.2'W, 1739 m (REYSS, 1978); Cape Sao Vicente, 1523 m (JONES, 1990).

Paralamprops semiornatus Fage, 1929
Portugal, 41°01'N 09°54'W, 3798 m (FAGE, 1929) as *P. semiornata*.

Platysympus typicus (Sars, 1870)
Minorca, 39°43.9'N 04°42.3'E, 2584 m (REYSS, 1972); Bay of Biscay, 43°46.7'N 03°38'W, 2379 m (REYSS, 1978; JONES, 1985); Alboran Sea, 480-555 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 281-1350 m (JONES, 1990); Catalanian Sea, 40°12'N 01°40'E and 40°26'N 02°00'E, 1478-1808 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°36'N 02°13'W and 44°32'N 02°15'W, 708-1043 m (ELIZALDE et al., 1993).

"*Platytyphlops*" *lathierae* Reyss, 1978
Bay of Biscay (JONES, 1985).

Family Bodotriidae Scott, 1901
Subfamily Bodotriinae Scott, 1901

Alticuma carinatum (Zimmer, 1921)
Gulf of Cádiz, 1691-2035 m (JONES, 1990).

Atlantocuma tenue Jones, 1984
Bay of Biscay, 44°05'N 04°19'W and some other stations of Biogas cruises, 1913-1980 m (JONES, 1984).

Bodotria arenosa Goodsir, 1843
Gulf of Roses, 30-95 m (DESBRUYÈRES et al., 1972-73) as *B. scorpioides*; Strait of Gibraltar, 150 m (JONES, 1990); Portinho da Arrábida (Portugal) (DEXTER, 1992); Barcelona, 41°25'06''N 02°16'40''E and some other stations, 10-65 m (CORBERA & CARDELL, in press); Gibraltar Harbour, 12 m.

Bodotria armoricana Le Loeuff & Intes, 1977
Arcachon, 44°31'N 01°19'W, 25-106 m (SORBE, 1982; CORNET et al., 1983).

Bodotria gibba (Sars, 1879)

Barcelona, 41°27.4'N 02°17.8'E, 30 m (CORBERA & CARDELL, in press).

Bodotria pulchella (Sars, 1878)

Strait of Gibraltar, 281 m (JONES, 1990); Estuary of Bidasoa River (Bay of Biscay) (SAN VICENTE et al., 1990); Trafaria Beach, 38°29'N 09°15'W (DEXTER, 1990); Formosa Estuary (Portugal) (DEXTER, 1992). Barcelona, 41°27.2'N 02°15.9'E and two other stations, 5-10 m (CORBERA & CARDELL, in press); Blanes, 41°40.6'N 02°48.2'E, 15 m.

Bodotria scorpioides (Montagu, 1804)

Banyuls, Port-Vendres (France), surface (FAGE, 1923, 1933); Portinho da Arrábida (Portugal) (DEXTER, 1992); Creixell (Tarragona), 0.5-3.5 m (SAN VICENTE & SORBE, 1993); Medes Islands, 42°02.8'N 03°13.5'E, 5-12 m; Biniveca cove (Minorca), 4 m.

Cyclaspis longicaudata Sars, 1865

Bay of Biscay, 44°05'N 04°45'W, 960 m (BONNIER, 1896); Gulf of Cádiz, 36°42'N 08°40'W, 750 m (FAGE, 1929); Minorca, 39°43.9'N 04°42.3'E, 2584 m; Balearic Sea, 38°27'N 04°08'E, 2447 m; Gulf of Lions, 42°15'N 04°28.5'E, 2090 m (REYSS, 1972); Bay of Biscay (JONES, 1985); Alboran Sea, 905->1000 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 740-1510 m (JONES, 1990); Catalanian Sea, 40°50'N 01°34'E and two other stations, 862-1808 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°32'N 02°15'W, 1024-1043 m (ELIZALDE et al., 1993).

Cyclaspoides sarsi Bonnier, 1896

Bay of Biscay, 44°17'N 02°18'W, 950 m (BONNIER, 1896); Cape Sao Vicente, 1523 m (JONES, 1990); Cap Ferret Canyon, 44°32'N 02°15'W, 1024-1043 m (ELIZALDE et al., 1993).

Eocuma dollfusi Calman, 1907

Bay of Biscay (CALMAN, 1907; FAGE, 1951); Bidasoa Estuary, Hendaye Beach (Bay of Biscay), 0.2-0.5 m (NOUVEL, 1972); Cape Carvoeiro (Portugal), 10-15 m (REIS et al., 1982); Off Óbidos lake, 39°26'N 09°14'W, 10-28 m (RODRIGUES & DAUVIN, 1985; DEXTER, 1992); Peniche, Figueira da Foz (Portugal) (DEXTER, 1992); Hendaye Beach (SAN VICENTE & SORBE, 1993).

Eocuma ferox (Fischer, 1872)

Banyuls, Port-Vendres (France), surface (FAGE, 1923); Barcelona, 41°27.2'N 02°15.9'E, 5 m (CORBERA & CARDELL, in press); L'Estartit, 42°03.3'N 03°12.4'E, 8 m; Blanes, 41°40.6'N 02°48.2'E, 15 m.

Iphinoe armata Ledoyer, 1965

Barcelona, 41°25.6'N 02°14.7'E and two other stations, 10-20 m (CORBERA & CARDELL, in press).

Iphinoe crassipes crassipes Hansen, 1895

Blanes, 41°40.6'N 02°48.2'E, 15 m (CORBERA, 1994).

Iphinoe douniae Ledoyer, 1965

Blanes, 41°40.6'N 02°48.2'E, 15 m.

Iphinoe inermis Sars, 1879

Banyuls, Port-Vendres (France), surface (FAGE, 1923, 1933, 1940); Gulf of Roses, 5-20 m (DESBRUYÈRES et al., 1972-73); Formosa Estuary, Algarve continental shelf (Portugal) (DEXTER, 1992); Barcelona, 41°25.6'N 02°14.5'E, 5 m (CORBERA & CARDELL, in press).

Iphinoe maculata Ledoyer, 1965

Barcelona, 41°26.6'N 02°15.1'E, 10 m (CORBERA & CARDELL, in press); Blanes, 41°40.6'N 02°48.2'E, 15 m.

Iphinoe rhodaniensis Ledoyer, 1965
Barcelona, 41°23'N 02°15'02''E and some other stations; 20-65 m (CORBERA & CARDELL, in press); Alfacs Bay (Ebro Delta), 1 m.

Iphinoe serrata Norman, 1867
Gulf of Roses (DESBRUYÈRES et al., 1972-73); Arcachon, 44°31'N 01°34'W and some other stations, 85-180 m (SORBE, 1982; CORNET et al., 1983); Alboran Sea, 195-290 m (LEDOYER, 1987); Formosa Estuary, Algarve continental shelf, Portinho da Arrábida (Portugal) (DEXTER, 1992); Barcelona, 41°22'07''N 02°19'01''E and some other stations, 53-69 m (CORBERA & CARDELL, in press).

Iphinoe tenella Sars, 1878
Arcachon (France) (CALMAN, 1907); Banyuls, Port-Vendres (France), surface (FAGE, 1923, 1933); Gulf of Roses (DESBRUYÈRES et al., 1972-73); Arcachon (France), 0.2-0.5 m (NOUVEL, 1972); Estuary of Bidasoa River (Bay of Biscay) (SAN VICENTE et al., 1990); Caldeira de Tróia, 38°29'N 08°53'W, Sao Torpes Beach, 37°54'N 08°48'W (DEXTER, 1990; 1992); Alvor Estuary, Lagoa de Albufeira, Portinho da Arrábida (Portugal) (DEXTER, 1992); Barcelona, 41°22'45''N 02°14'50''E and some other stations, 20-55 m (CORBERA & CARDELL, in press); Medes Islands, 42°02.8'N 03°13.5'E, 5-12 m; Minorca (Maó).

Iphinoe trispinosa (Goodsir, 1843)
Saint-Jean-de-Luz (France) (Calman, 1907); Portugal (CANDEJAS, 1929) as *I. algarbiensis*; Banyuls, Port-Vendres, Colliure (France), Roses, surface (FAGE, 1933); Arcachon, 44°31'N 01°19'W, 25 m (SORBE, 1982; CORNET et al., 1983); Cape Carvoeiro (Portugal), 15-30 m (REIS et al., 1982); Santander, 43°28'N 03°44'W, 15-20 m (LASTRA et al.,

1990); Formosa Estuary, Algarve continental shelf, Estuary of Sado River, Protinho da Arrábida, Peniche, Figueira da Foz (Portugal) (DEXTER, 1992); Hendaye Beach (SAN VICENTE & SORBE, 1993).

Subfamily Vaunthompsoniinae Sars, 1878

Bathycuma brevirostre (Norman, 1879)
Bay of Biscay, 44°36'N 04°25'W and two other stations of Caudan cruise, 650-1710 m (BONNIER, 1896) as *Vaunthompsonia caeca*; Minorca, 39°43.9'N 04°42.3'E, 2584 m; Balearic Sea, 38°27'N 04°08'E, 2447 m; Gulf of Lions, 42°15'N 04°28.5'E, 2090 m (REYSS, 1972); Alboran Sea, 998 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 364-1870 m (JONES, 1990); Catalanian Sea, 41°03'N 02°03'E and some other stations, 552-1808 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°32'N 02°15'W, 1024-1043 m (ELIZALDE et al., 1993).

Cumopsis fagei Bacescu, 1956
Arcachon (France), 0.2-0.4 m (NOUVEL, 1972); Arcachon, 44°31'N 01°19'W and 44°31'N 01°34'W, 25-85 m (SORBE, 1982; CORNET et al., 1983); Off Óbidos Lake, 39°26'N 09°14'W, 28 m (RODRIGUES & DAUVIN, 1985; DEXTER, 1992); Estuaries of Deba, Urola and Oria Rivers (Bay of Biscay) (SAN VICENTE et al., 1990); Sao Torpes Beach, 37°54'N 08°48'W (DEXTER, 1990); Algarve continental shelf (Portugal) (DEXTER, 1992); Hendaye Beach (SAN VICENTE & SORBE, 1993).

Cumopsis goodsir (van Beneden, 1861)
Banyuls (France) (FAGE, 1940) as *C. goodsiri*; Bidasoa Estuary, Hendaye Beach (Bay of Biscay), 0.2-0.5 m (NOUVEL, 1972); Trafaria Beach, 38°29'N 09°15'W; Caldeira de Tróia, 38°29'N 08°53'W (DEXTER, 1990); Barcelo-

na, 41°25.6'N 02°14.5'E and 41°27.2'N 02°15.9'E, 5 m (CORBERA & CARDELL, in press); Creixell (Tarragona), 0.5-3.5 m (SAN VICENTE & SORBE, 1993) as *C. goodsiri*; Roda de Barà (Tarragona), 41°10'N 01°29'E, 0.5-3 m; L'Estartit, 42°03.3'N 03°12.4'E, 8 m.

Cumopsis longipes (Dohrn, 1869)

Bidassoa Estuary, Hendaye Beach (Bay of Biscay), 0.2-0.5 m (NOUVEL, 1972); Oria and Urumea Estuaries (Bay of Biscay) (SAN VICENTE et al., 1990); Sao Torpes Beach, 37°54'N 08°48'W (DEXTER, 1990); Peniche (Portugal) (DEXTER, 1992). According to BACESCU (1988) the atlantic records of this species belong to *C. fagei*, because *C. longipes* is surely a Mediterranean species.

Vaunthompsonia cristata Bate, 1858

Saint-Jean-de-Luz (France) (Calman, 1907); Banyuls, Port-Vendres (France), surface (FAGE, 1923, 1933); Balearic Sea, 38°27'N 04°08'E, 2447 m; Gulf of Lions, 42°15'N 04°28.5'E, 2090 m (REYSS, 1972); Gulf of Roses, 20-50 m (DESBRUYÈRES et al., 1972-73); Strait of Gibraltar, Gulf of Cádiz, 150-452 m (JONES, 1990); Formosa Estuary (Portugal) (DEXTER, 1992); Medes Islands, 42°02.8'N 03°13.5'E, 5-12 m.

Family Leuconidae Sars, 1878

Bytholeucon hiscens (Bishop, 1981)

Bay of Biscay, 47°35'N 08°40'W and some other stations of Biogas cruises, 2246 m (BISHOP, 1981b) as *Paraleucon? hiscens*.

Eudorella intermedia Hansen, 1920

Gulf of Cádiz, 1530 m (JONES, 1990).

Eudorella nana Sars, 1879

Banyuls (France), 30-35 m (FAGE, 1951); Balearic Sea, 37°03'N 03°34.9'E, 2292 m

(REYSS, 1972); Gulf of Roses, 90-120 m (DESBRUYÈRES et al., 1972-73); Arcachon, 44°31'N 01°34'W and two other stations, 85-120 m (SORBE, 1982); Alboran Sea, 489 m (LEDOYER, 1987); Barcelona, 41°22'45''N 02°14'50''E and some other stations), 25-47 m (CORBERA & CARDELL, in press).

Eudorella parvula Hansen, 1920

Bay of Biscay (JONES, 1985).

Eudorella truncatula (Bate, 1859)

Cap Canyon, 42°24.4'N 03°39.5'E, 1040-1180 m (REYSS & SOYER, 1966); Balearic Sea, 37°03'N 03°34.9'E, 2292 m (REYSS, 1972); Gulf of Roses, 20-200 m (DESBRUYÈRES et al., 1972-73); Arcachon, 44°31'N 01°34'W and three other stations, 85-180 m (SORBE, 1982); Alboran Sea, 395-555 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 250-1141 m (JONES, 1990); Catalonian Sea, 41°04'N 02°04'E, 552-644 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°32'N 02°15'W, 1024-1043 m (ELIZALDE et al., 1993); Barcelona, 41°20'41''N 02°11'47''E, 25-47 m (CORBERA & CARDELL, in press).

Leucon (Leucon) affinis Fage, 1951

Alboran Sea, 425-555 m (LEDOYER, 1987); Catalonian Sea, 41°04'N 02°04'E and 40°50'N 01°34'E, 552-989 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°36'N 02°13'W, 708-714 m (ELIZALDE et al., 1993); Barcelona, 41°23'02''N 02°15'58''E and some other stations, 53-69 m (CORBERA & CARDELL, in press).

Leucon (Leucon) homorhynchus Bishop, 1981

Bay of Biscay, 44°05'N 04°19'W and some other stations of Biogas cruises, 1845-4453 m (BISHOP, 1981b).

Leucon (Leucon) mediterraneus Sars, 1879
Banyuls, 25-50 m (PAGE, 1940); Gulf of Roses,
20-200 m (DESBRUYÈRES et al., 1972-73); Al-
boran Sea, 425 m (LEDOYER, 1987); Barcelona,
41°25'06''N 02°16'40''E and some other sta-
tions, 36-65 m (CORBERA & CARDELL, in press).

Leucon (Leucon) nasica (Kröyer, 1841)
Gulf of Cádiz, 250 m (JONES, 1990).

Leucon (Leucon) profundus Hansen, 1920
Bay of Biscay (JONES, 1985); Gulf of Cádiz,
1691 m (JONES, 1990).

Leucon (Leucon) serratus Norman, 1879
Strait of Gibraltar, Gulf of Cádiz, 181-
1360 m (JONES, 1990).

Leucon (Macrauloleucon) siphonatus
Calman, 1905
Bay of Biscay, 46°17'N 05°42'W, 4380 m
(PAGE, 1929); Cap Canyon, 42°24.4'N
03°39.5'E, 1040-1180 m (REYSS & SOYER,
1966); Arcachon, 44°31'N 01°34'W and three
other stations, 85-120 m (SORBE, 1982); Albo-
ran Sea, 425-998 m (LEDOYER, 1987); Strait of
Gibraltar, Gulf of Cádiz, 155-1360 m (JONES,
1990); Catalanian Sea, 41°04'N 02°04'E, 552-
989 m (CARTES & SORBE, 1993); Cap Ferret
Canyon, 44°36'N 02°13'W and 44°32'N
02°15'W, 708-1043 m (ELIZALDE et al., 1993);
Barcelona, 41°21'38''N 02°14'48''E, 59 m
(CORBERA & CARDELL, in press).

Leucon (Epileucon) craterus (Bishop, 1981)
Bay of Biscay, 44°24'N 04°48'W and some
other stations of Biogas cruises, 4413 m
(BISHOP, 1981a); Cape Sao Vicente, 893 m
(JONES, 1990). Both references as *Epileucon*
craterus.

Leucon (Epileucon) ensis (Bishop, 1981)
Bay of Biscay, 44°06'N 04°16'W and some
other stations of Biogas cruises, 1845-2006 m

(BISHOP, 1981a)†; Cape Sao Vicente, Gulf of
Cádiz, 250-893 m (JONES, 1990); Catalanian
Sea, 41°04'N 02°04'E, 552-644 m (CARTES &
SORBE, 1993); Cap Ferret Canyon, 44°32'N
02°15'W, 1024-1043 m (ELIZALDE et al.,
1993). All references as *Epileucon ensis*.

Leucon (Epileucon) longirostris Sars, 1871
Bay of Biscay, 46°17'N 05°42'W, 4380 m;
South of Portugal, 36°08'N 08°02'W, 1500 m
(PAGE, 1929); Alboran Sea, 36°10'N
02°55'50''W, 1293 m (BACESCU, 1961); Cap
Canyon, 42°24.4'N 03°39.5'E, 1040-1180 m
(REYSS & SOYER, 1966); Gulf of Lions,
42°15'N 04°28.5'E, 2090 m (REYSS, 1972);
Bay of Biscay, 44°05'N 04°19'W and some
other stations of Biogas cruises, 1845-2430 m
(BISHOP, 1981a) as *Epileucon longirostris*;
Alboran Sea, 425-720 m (LEDOYER, 1987);
Strait of Gibraltar, Gulf of Cádiz, 500-1870 m
(JONES, 1990) as *Epileucon longirostris*;
Catalanian Sea, 41°04'N 02°04'E and some
other stations, 552-1808 m (CARTES & SORBE,
1993) as *Epileucon longirostris*.

Leucon (Epileucon) pusillus (Bishop, 1981)
Bay of Biscay, 43°37'N 02°18'W, 770-
1000 m (BISHOP, 1981a); Cape Sao Vicente,
740-1523 m (JONES, 1990); Cap Ferret
Canyon, 44°32'N 02°15'W, 1024-1043 m
(ELIZALDE et al., 1993). All references as
Epileucon pusillus.

Leucon (Epileucon) socius (Bishop, 1981)
Bay of Biscay, 44°29'N 04°54'W and
44°24'N 04°48'W, 4203-4413 m (BISHOP,
1981a) as *Epileucon socius*.

Leucon (Epileucon) spiniventris Hansen, 1920
Bay of Biscay, 44°05'N 04°19'W and some
other stations of Biogas cruises, 1845-2430 m
(BISHOP, 1981a); Strait of Gibraltar, Cape Sao
Vicente, 740-1283 m (JONES, 1990). Both
references as *Epileucon spiniventris*.

Leucon (Epileucon) tenuirostris Sars, 1887
Bay of Biscay, 46°31'N 10°24'W and
46°30'N 10°27'W, 4706 and 4715 m (BISHOP,
1981a) as *Epileucon* cf. *tenuirostris* form A.

Leucon (Crymoleucon) macrorhinus Fage, 1951
Alboran Sea, 135-998 m (LEDOYER, 1987);
Cape Sao Vicente, Gulf of Cádiz, 893-
1360 m (JONES, 1990); Catalanian Sea,
41°04'N 02°04'E and 40°50'N 01°34'E,
552-989 m (CARTES & SORBE, 1993).

Family Nannastacidae Bate, 1866

Campylaspides canariensis Jones, 1984
Bay of Biscay, 44°06'N 04°22'W, 2006 m
(JONES, 1984).

Campylaspides grandis Fage, 1929
Azores, 38°45'N 26°35'45''W, 1482 m
(FAGE, 1929); Bay of Biscay, 44°05'N
04°19'W, 1950 m (JONES, 1984); Gulf of
Cádiz, 1255-1870 m (JONES, 1990).

Campylaspis affinis Sars, 1870
Bay of Biscay (JONES, 1984).

Campylaspis alba Hansen, 1920
Bay of Biscay, 43°40.8'N 03°35.2'W,
1739 m (JONES, 1974, 1984); Cape Sao
Vicente, 1141 m (JONES, 1990).

Campylaspis bicarinata Jones, 1974
Bay of Biscay, 47°35'N 09°41'W, 4125 m
(JONES, 1984).

Campylaspis bonetti Bacescu & Muradian, 1972
Bay of Biscay, 43°37'N 02°18'W, 770-
1000 m (JONES, 1984).

Campylaspis costata Sars, 1865
Bay of Biscay, 44°11'N 04°15'W, 2430 m
(JONES, 1984).

Campylaspis exarata Jones, 1974
Gulf of Cádiz, 1530 m (JONES, 1990).

Campylaspis gamoi Jones, 1984
Bay of Biscay, 47°36'N 08°40'W, 2325 m
(JONES, 1984).

Campylaspis glabra Sars, 1879
Balearic Sea, 38°27'N 04°08'E, 2447 m;
Gulf of Lions, 42°15'N 04°28.5'E, 2090 m
(REYSS, 1972); Arcachon, 44°31'N 01°34'W
and some other stations, 85-180 m (SORBE,
1982); Alboran Sea, 167->1000 m (LEDOYER,
1987); Strait of Gibraltar, 281 m (JONES,
1990); Catalanian Sea, 40°50'N 01°34'E and
two other stations, 552-1808 m (CARTES &
SORBE, 1993); Cap Ferret Canyon, 44°33'N
02°09'W and 44°36'N 02°13'W, 425-714 m
(ELIZALDE et al., 1993).

Campylaspis globosa Hansen, 1920
Bay of Biscay, 44°11'N 04°15'W and some
other stations of Polygas and Biogas cruises,
2096-2430 m (JONES, 1984).

Campylaspis horridoides Stephensen, 1915
Balearic Sea, 38°27'N 04°08'E, 2447 m
(REYSS, 1972); Bay of Biscay, 43°35.6'N
03°24.8'W, 860 m (JONES, 1974; 1984); Gulf of
Cádiz, 890-1175 m (JONES, 1990); Catalanian
Sea, 40°26'N 02°00'E and 40°12'N 01°40'E,
1478-1808 m (CARTES & SORBE, 1993).

Campylaspis intermedia Hansen, 1920
Bay of Biscay, 44°05'N 04°19'W and
some other stations of Biogas cruises,
1913-2006 m (JONES, 1984).

Campylaspis jonesi Bacescu & Muradian, 1972
Strait of Gibraltar, Gulf of Cádiz, 135-398 m
(JONES, 1990).

Campylaspis laevigata Jones, 1974
Bay of Biscay, 43°43'N 03°47.8'W, 641 m

(JONES, 1974, 1984); Gulf of Cádiz, 1222-1523 m (JONES, 1990).

Campylaspis laticarpa Hansen, 1920

Bay of Biscay, 44°04'N 04°19'W, 1980 m (JONES, 1984).

Campylaspis legendrei Fage, 1951

Alboran Sea, 167-205 m (LEDOYER, 1987); Strait of Gibraltar, 150-364 m (JONES, 1990); Gibraltar Harbour, 12 m.

Campylaspis macrophthalma Sars, 1879

Arcachon, 44°31'N 01°34'W and three other stations, 85-180 m (SORBE, 1982); Bay of Biscay (JONES, 1984); Alboran Sea, 205-480 m (LEDOYER, 1987).

Campylaspis mansa Jones, 1974

Bay of Biscay, 44°04'N 04°21'W and some other stations of Biogas cruises, 1980-4715 m (JONES, 1984).

Campylaspis mauritanica Bacescu & Muradian, 1972

Strait of Gibraltar, Gulf of Cádiz, 135-398 m (JONES, 1990).

Campylaspis nitens Bonnier, 1896

Bay of Biscay, 44°17'N 02°18'W, 950 m (BONNIER, 1896); Bay of Biscay, 43°35.6'N 03°24.8'W, 860-2379 m (JONES, 1974, 1984); Cap Ferret Canyon, 44°36'N 02°13'W and 44°32'N 02°15'W, 708-1043 m (ELIZALDE et al., 1993).

Campylaspis paeneglabra Stebbing, 1912

Bay of Biscay (JONES, 1984).

Campylaspis rostrata Calman, 1905

Gulf of Cádiz, 35°24'15''N 10°19'07''W, 1205 m (CALMAN, 1910); Bay of Biscay, 43°43'N 03°47.8'W and some other stations of Thalassa, Polygas and Biogas cruises,

641-1336 m (JONES, 1974, 1984); Alboran Sea, 395-480 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 364-2035 m (JONES, 1990); Cap Ferret Canyon, 44°32'N 02°15'W, 1024-1043 m (ELIZALDE et al., 1993).

Campylaspis rubicunda (Lilljeborg, 1855)

Bay of Biscay, 2857 m (JONES, 1984).

Campylaspis spinosa Calman, 1906

Alboran Sea, 425->1000 m (LEDOYER, 1987); Gulf of Cádiz, 740-1530 m (JONES, 1990); Catalanian Sea, 40°26'N 02°00'E, 1772-1808 m (CARTES & SORBE, 1993).

Campylaspis squamifera Fage, 1929

Bay of Biscay, 46°17'N 05°42'W, 4380 m (FAGE, 1929); Bay of Biscay, 43°35.6'N 03°24.8'W and some other stations of Polygas and Biogas cruises, 641-4380 m (JONES, 1974, 1984); Alboran Sea, 425->1000 m (LEDOYER, 1987); Cape Sao Vicente, 1523 m (JONES, 1990); Catalanian Sea, 40°50'N 01°34'E, 862-989 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°36'N 02°13'W, 708-714 m (ELIZALDE et al., 1993).

Campylaspis sulcata Sars, 1870

Arcachon, 44°31'N 01°34'W and some other stations, 85-180 m (SORBE, 1982); Bay of Biscay, 48°28'N 09°39'W, 860 m (JONES, 1984); Alboran Sea, 425-489 m (LEDOYER, 1987); Cap Ferret Canyon, 44°33'N 02°09'W, 425-437 m (ELIZALDE et al., 1993).

Campylaspis undata Sars, 1865

Bay of Biscay, 1470 m (JONES, 1984).

Campylaspis vallecuculata Jones, 1974

Bay of Biscay, 44°11'N 04°15'W, 2430 m (JONES, 1984).

Campylaspis verrucosa Sars, 1866

Galicia, 43°12'N 09°33'W, 510 m; Gulf of Cádiz, 36°42'N 08°40'W, 750 m (FAGE, 1929); Bay of Biscay, 43°43'N 03°47.8'W and some other stations of Thalassa, Polygas and Biogas cruises, 641-1739 m (JONES, 1974, 1984); Alboran Sea, 480 m (LEDOYER, 1987); Strait of Gibraltar, 364 m (JONES, 1990).

Campylaspis vitrea Calman, 1906

Bay of Biscay, 43°43'N 03°47.8'W and some other stations of Thalassa cruises, 641-1000 m (JONES, 1974; 1984); Gulf of Cádiz, 740-1870 m (JONES, 1990); Catalanian Sea, 40°50'N 01°34'E, 862-989 m (CARTES & SORBE, 1993).

Cumella aculeata Jones, 1984

Bay of Biscay, 44°04'N 04°21'W and some other stations of Biogas cruises, 1980-4203 m (JONES, 1984).

Cumella compacta Jones, 1984

Gulf of Cádiz, 181 m (JONES, 1990).

Cumella concinna Jones, 1984

Bay of Biscay, 44°11'N 04°15'W, 2430 m (JONES, 1984).

Cumella decipiens Jones, 1984

Bay of Biscay, 44°05'N 04°19'W and two other stations of Biogas cruises, 1913-2006 m (JONES, 1984); Gulf of Cádiz, 173-1255 m (JONES, 1990).

Cumella divisa Jones, 1984

Bay of Biscay, 44°11'N 04°15'W, 2430 m (JONES, 1984).

Cumella exstans Jones, 1984

Bay of Biscay, 46°30'N 10°27'W and two other stations of Biogas cruises, 4715 m (JONES, 1984).

Cumella limicola Sars, 1879

Banyuls, Port-Vendres (France), surface (FAGE, 1923, 1933); Strait of Gibraltar, 150 m (JONES, 1990); Barcelona, 41°23'48''N 02°18'06''E and four other stations, 10-55 m (CORBERA & CARDELL, in press); Gibraltar Harbour, 12 m; Medes Islands, 42°02.8'N 03°13.5'E, 5-12 m; Blanes, 41°40.6'N 02°48.2'E, 15 m; Roda de Barà (Tarragona), 41°10'N 01°29'E, 1.5 m; Biniveca Cove (Minorca), 4 m; Alfacs Bay (Ebro Delta), 1 m.

Cumella pygmaea Sars, 1865

Saint-Jean-de-Luz (France) (Calman, 1907); Arcachon, 44°31'N 01°34'W and three other stations, 85-120 m (SORBE, 1982); Gibraltar Harbour, 12 m; Medes Islands, 42°02.8'N 03°13.5'E, 5-12 m; Biniveca Cove (Minorca), 4 m.

Cumella spicata Jones, 1984

Cape Sao Vicente, 1523 m (JONES, 1990).

Cumella subducta Jones, 1984

Bay of Biscay, 44°05'N 04°19'W, 1950 m (JONES, 1984).

Cumellopsis bicostata Jones, 1984

Bay of Biscay, 47°32'N 09°41'W, 4190 m (JONES, 1984).

Cumellopsis helgae Calman, 1905

Bay of Biscay, 44°05'N 04°19'W and some other stations of Polygas and Biogas cruises, 1913-2430 m (JONES, 1984).

Cumellopsis laevis Jones, 1984

Bay of Biscay, 47°31'N 09°35'W, 4150 m (JONES, 1984); Gulf of Cádiz, 1222-1250 m (JONES, 1990).

Cumellopsis puritani Calman, 1906

Gulf of Lions, 42°15'N 04°28.5'E, 2090 m

(REYSS, 1972); Gulf of Cádiz, 740 m (JONES, 1990); Catalanian Sea, 40°50'N 01°34'E, 862-989 m (CARTES & SORBE, 1993).

Nannastacus brevicaudatus Calman, 1905
Arcachon, 44°31'N 01°34'W and some other stations, 85-180 m (SORBE, 1982).

Nannastacus longirostris Sars, 1879
Banyuls, Port-Vendres (France), surface (FAGE, 1923, 1933); Arcachon, 44°31'N 01°50'W and 44°31'N 02°00'W, 114-120 m (SORBE, 1982); Alboran Sea, 167-252 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 150-309 m (JONES, 1990); Barcelona, 41°23'48''N 02°18'06''E and three other stations, 54-69 m (CORBERA & CARDELL, in press); Gibraltar Harbour, 12 m; Medes Islands, 42°02.8'N 03°13.5'E, 5-12 m.

Nannastacus unguiculatus (Bate, 1859)
Saint-Jean-de-Luz (France) (Calman, 1907); Banyuls, Port-Vendres (France), surface (FAGE, 1923, 1933); Alboran Sea 115-425 m (LEDOYER, 1987); Hendaye Beach (SAN VICENTE & SORBE, 1993); Gibraltar Harbour, 12 m; Medes Islands, 42°02.8'N 03°13.5'E, 5-12 m; Biniveca Cove (Minorca), 4 m.

Paracampylaspis platycarpus Jones, 1984
Bay of Biscay, 48°28'N 09°50'W, 1300 m (JONES, 1984); Strait of Gibraltar, 826 m (JONES, 1990).

Platycuma candidum Jones, 1973
Bay of Biscay, 47°33'N 09°37'W, 4226 m (JONES, 1984, 1985).

Platycuma hessleri Jones, 1973
Bay of Biscay, 47°31'N 09°35'W, 4150 m (JONES, 1984).

Platycuma holti Calman, 1905
Bay of Biscay, 46°17'N 05°42'W, 4380 m (FAGE, 1929); Bay of Biscay, 44°06'N 04°16'W and some other stations of Biogas cruises, 1845-3480 m (JONES, 1984); Gulf of Cádiz, 1691 m (JONES, 1990).

Platycuma sandersi Jones, 1973
Bay of Biscay, 44°11'N 04°15'W, 2430 m (JONES, 1984, 1985).

Procampylaspis armata Bonnier, 1896
Bay of Biscay, 44°17'N 02°18'W, 950 m (BONNIER, 1896) as *P. armata* and *P. echinata*; Minorca, 39°43.9'N 04°42.3'E, 2584 m (REYSS, 1972); Bay of Biscay, 44°04'N 04°21'W and some other stations of Thalassa Polygas and Biogas cruises, 1980 m (JONES, 1984); Alboran Sea, 170-555 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 135-1222 m (JONES, 1990); Catalanian Sea, 40°50'N 01°34'E and 40°26'N 02°00'E, 862-1808 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°36'N 02°13'W, 708-714 m (ELIZALDE et al., 1993).

Procampylaspis bacescoi Reys & Soyer, 1966
Cap Canyon, 42°24.4'N 03°39.5'E, 1040-1180 m (REYSS & SOYER, 1966).

Procampylaspis bituberculata Hansen, 1920
Bay of Biscay (JONES, 1984; 1985); Gulf of Cádiz, 1175 m (JONES, 1990).

Procampylaspis bonnieri Calman, 1906
Minorca, 39°43.9'N 04°42.3'E, 2584 m (REYSS, 1972); Bay of Biscay, 47°35'N 09°33'W, 4228 m (JONES, 1984); Strait of Gibraltar, Gulf of Cádiz, 181-1523 m (JONES, 1990); Catalanian Sea, 40°50'N 01°34'E and two other stations, 552-1808 m (CARTES & SORBE, 1993).

Procampylaspis hirta Jones, 1984

Bay of Biscay, 47°28'N 09°07'W, 3448 m (JONES, 1984, 1985).

Procampylaspis inermis Jones, 1984

Bay of Biscay, 47°33'N 09°37'W, 4226 m (JONES, 1984, 1985).

Procampylaspis lutensis Jones, 1984

Bay of Biscay, 44°05'N 04°19'W and some other stations of Polygas and Biogas cruises, 1980-2076 m (JONES, 1984); Gulf of Cádiz, 948-2035 m (JONES, 1990).

Procampylaspis macronix Hansen, 1920

Bay of Biscay, 47°34'N 08°40'W, 2165 m (JONES, 1984, 1985); Gulf of Cádiz, 1175-1255 m (JONES, 1990).

Procampylaspis mediterranea Ledoyer, 1987

Alboran Sea, 480 m (LEDOYER, 1987).

Procampylaspis ommidion Jones, 1984

Bay of Biscay, 47°28'N 09°07'W, 3448 m (JONES, 1984, 1985); Strait of Gibraltar, Gulf of Cádiz, 740-1360 m (JONES, 1990); Cap Ferret Canyon, 44°32'N 02°15'W, 1024-1043 m (ELIZALDE et al., 1993).

Schizocuma spinocolatum (Jones, 1984)

Bay of Biscay, 44°08'N 04°16'W and some other stations of Biogas cruises, 1934-2006 m (JONES, 1984) as *Cumella spinocolata*; Catalanian Sea, 40°50'N 01°34'E, 862-989 m (CARTES & SORBE, 1993) as *Cumella* cf. *spinocolata*.

Schizocuma vema (Bacescu, 1972)

Bay of Biscay, 44°06'N 04°16'W and some other stations of Polygas and Biogas cruises, 1845-2076 m (JONES, 1984) as *Cumella vema*.

Schizotrema atlanticum Bacescu & Muradian, 1972

Strait of Gibraltar, Gulf of Cádiz 135-398 m (JONES, 1990).

Styloptocuma acuminatum (Jones, 1984)

Bay of Biscay, 44°05'N 04°19'W, 1950 m (JONES, 1984) as *Cumella acuminata*.

Styloptocuma cristatum (Jones, 1984)

Bay of Biscay, 47°34'N 09°38'W, 4144 m (JONES, 1984) as *Cumella cristata*.

Styloptocuma dayae (Jones, 1984)

Gulf of Cádiz, 1255 m (JONES, 1990) as *Cumella dayae*.

Styloptocuma echinatum (Jones, 1984)

Bay of Biscay, 44°05'N 04°19'W, 1950 m (JONES, 1984); Gulf of Cádiz, 1530 m (JONES, 1990) as *Cumella echinata*.

Styloptocuma egregium (Hansen, 1920)

Bay of Biscay, 44°04'N 04°21'W, 1980 m (JONES, 1984) as *Cumella egregia*.

Styloptocuma erectum (Jones, 1984)

Bay of Biscay, 47°35'N 08°40'W, 2246 m (JONES, 1984) as *Cumella erecta*.

Styloptocuma gracillimum (Calman, 1905)

Bay of Biscay, 44°05'N 04°17'W, 1894 m (JONES, 1984); Gulf of Cádiz 452-1523 m (JONES, 1990); Catalanian Sea, 40°50'N 01°34'E, 862-989 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°33'N 02°09'W and 44°36'N 02°13'W, 425-714 m (ELIZALDE et al., 1993). All references as *Cumella gracillima*.

Styloptocuma longisipho (Jones, 1984)

Bay of Biscay, 46°31'N 10°23'W, 4706 m (JONES, 1984) as *Cumella longisipho*.

Family Diastylidae Bate, 1856

Diastylis bradyi Norman, 1879

Arcachon, 44°31'N 01°19'W and two other stations, 25 m (SORBE, 1982; CORNET et al., 1983); Cape Carvoeiro (Portugal), 10-30 m (REIS et al., 1982); Off Óbidos Lake, 39°26'N 09°14'W, 40 m (RODRIGUES & DAUVIN, 1985; DEXTER, 1992); Santander, 43°28'N 03°44'W, 15-20 m (LASTRA et al., 1990); Portinho da Arrábida, Peniche, Figueira da Foz (Portugal) (DEXTER, 1992).

Diastylis cornuta (Boeck, 1864)

Gulf of Cádiz, 370 m, 38°03'N 11°32'W, Catalanian Sea, 42°57'15''N 02°58'57''E, 1060 m (CALMAN, 1910) also recorded as *D. capreensis*; Gulf of Cádiz, 36°42'N 08°40'W, 750 m; Galicia, 43°12'N 09°33'W, 510 m (FAGE, 1929); Arcachon, 44°31'N 02°04'W, 180 m (SORBE, 1982; CORNET et al., 1983); Alboran Sea, 395-998 m (LEDOYER, 1987); Portinho da Arrábida (Portugal) (DEXTER, 1992).

Diastylis jonesi Reyss, 1972

Balearic Sea, 38°27'N 04°08'E, 2447 m, Gulf of Lions, 42°15'N 04°28.5'E, 2090 m (REYSS, 1972); Alboran Sea, 395-998 m (LEDOYER, 1987); Catalanian Sea, 40°50'N 01°34'E, 862-989 m (CARTES & SORBE, 1993).

Diastylis laevis Norman, 1869

Arcachon, 44°31'N 01°34'W and two other stations, 85-114 m (SORBE, 1982; CORNET et al., 1983); Portinho da Arrábida, Sines (Portugal) (DEXTER, 1992) in part as *D. rostrata*.

Diastylis lucifera (Kröyer, 1841)

Portinho da Arrábida (Portugal) (DEXTER, 1992).

Diastylis neapolitana Sars, 1879

Banyuls (France), 40 m (FAGE, 1940).

Diastylis rathkii (Kroyer, 1841)

Saint-Jean-de-Luz (France) (Calman, 1907) as *D. spinosa*.

Diastylis richardi Fage, 1929

Bay of Biscay, 46°17'N 05°42'W, 4380 m (FAGE, 1929).

Diastylis rugosa Sars, 1865

Arcachon (France) (CALMAN, 1907); Banyuls, Port-Vendres (France), surface (FAGE, 1923); Gulf of Roses, 5-80 m (DESBRUYÈRES et al., 1972-73); Arcachon (France), 0.2-0.5 m (NOUVEL, 1972); Off Óbidos Lake, 39°26'N 09°14'W, 40 m (RODRIGUES & DAUVIN, 1985; DEXTER, 1992); Portinho da Arrábida (Portugal) (DEXTER, 1992); Barcelona, 41°23'02''N 02°15'58''E and some other stations, 20-65 m (CORBERA & CARDELL, in press); Medes Islands, 42°02.8'N 03°13.5'E, 5-12 m.

Diastylis tumida (Liljeborg, 1855)

Gulf of Cádiz, 36°42'N 08°40'W, 750 m (FAGE, 1929).

Diastylis vema Bacescu, 1961

Alboran Sea, 36°10'N 02°55'50 W, 1293 m (BACESCU, 1961).

Diastylodes bacescoi Fage, 1940

Banyuls (France) (FAGE, 1940); Alboran Sea, 252-555 m (LEDOYER, 1987).

Diastylodes biplicatus (Sars, 1865)

Arcachon, 44°31'N 01°34'W and two other stations, 85-120 m (SORBE, 1982; CORNET et al., 1983); Alboran Sea, 195-425 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 181-500 m (JONES, 1990). All references as *D. biplicata*.

Diastylodes carpinei Bacescu, 1969

Gulf of Lions, 42°15'N 04°28.5'E, 2090 m (REYSS, 1972); Alboran Sea, 395-998 m

(LEDOYER, 1987); Catalanian Sea, 41°04'N 02°04'E and some other stations, 552-1808 m (CARTES & SORBE, 1993).

Diastylodes serratus (Sars, 1865)

Cap Canyon, 42°24.4'N 03°39.5'E, 1040-1180 m (REYSS & SOYER, 1966); Minorca, 39°43.9'N 04°42.3'E, 2584 m (REYSS, 1972); Arcachon, 44°31'N 01°50'W and two other stations, 85-120 m (SORBE, 1982); Alboran Sea 167-489 m (LEDOYER, 1987); Gulf of Cádiz, 181-1360 m (JONES, 1990); Cap Ferret Canyon, 44°36'N 02°13'W and two other stations, 425-1043 m (ELIZALDE et al., 1993). All references as *D. serrata*.

Ekleptostylis walkeri (Calman, 1907)

Banyuls (France) (FAGE, 1940); Arcachon, 44°31'N 01°34'W and three other stations, 85-120 m (SORBE, 1982); Alboran Sea, 142-555 m (LEDOYER, 1987); Gulf of Cádiz, 181-452 m (JONES, 1990).

Leptostylis ampullacea (Liljeborg, 1855)

Arcachon, 44°31'N 01°34'W and 44°31'N 01°50'W, 85-114 m (SORBE, 1982).

Leptostylis bacescoi Reyss, 1972

Balearic Sea, 38°27'N 04°08'E, 2447 m (REYSS, 1972); Gulf of Cádiz, 1175-1523 m (JONES, 1990).

Leptostylis gamoi Reyss, 1972

Balearic Sea, 38°27'N 04°08'E, 2447 m (REYSS, 1972).

Leptostylis longicaudata Bonnier, 1896

Bay of Biscay, 44°36'N 02°05'W, 650 m (BONNIER, 1896).

Leptostylis macrura Sars, 1869

Alboran Sea 167-998 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 155-1255 m (JONES, 1990).

Leptostylis villosa Sars, 1869

Cap Ferret Canyon, 44°33'N 02°09'W and 44°36'N 02°13'W, 425-714 m (ELIZALDE et al., 1993).

Leptostylis zimmeri Fage, 1929

Bay of Biscay, 46°17'N 05°42'W, 4380 m (FAGE, 1929).

Makrokylindrus (Adiastylis) anomalus (Bonnier, 1896)

Bay of Biscay, 44°17'N 02°18'W, 950 m (BONNIER, 1896), as *Diastylis anomala*.

Makrokylindrus (Adiastylis) costatus (Bonnier, 1896)

Bay of Biscay, 45°47'N 03°55'W, 1410 m (BONNIER, 1896), as *Diastylis costata*.

Makrokylindrus (Adiastylis) insignis (Sars, 1871)

West of Portugal, 38°07'N 09°18'W, 1006 m (SARS, 1871) as *Diastylis insignis*; Gulf of Cádiz, 36°42'N 08°40'W, 750 m (FAGE, 1929); Bay of Biscay, 43°40'N 03°35'W, 1739 m (REYSS, 1974); Catalanian Sea, 40°50'N 01°34'E, 862-989 m (CARTES & SORBE, 1993).

Makrokylindrus (Adiastylis) josephinae (Sars, 1871)

West of Portugal, 38°10.5'N 09°25'W, 1372 m (SARS, 1871) as *Diastylis Josephinae*; Bay of Biscay, 44°36'N 02°05'W and 44°17'N 02°18'W, 650-950 m (BONNIER, 1896), as *Diastylopsis (?) dubia*; Bay of Biscay, 43°36'40''N 06°22'30''W, 393-1353 m; South of Portugal, 38°03'N 11°32'W, 370 m (CALMAN, 1910) as *Diastylis Josephinae*; Galicia, 43°12'N 09°33'W, 510 m; Gulf of Cádiz, 36°42'N 08°40'W, 750 m, South of Portugal, 36°08'N 08°02'W, 1500 m (FAGE, 1929); Bay of Biscay, 43°35.6'N 03°24.8'W, 860-2379 m

(REYSS, 1974); Strait of Gibraltar, Gulf of Cádiz, 452-1870 m (JONES, 1990); Cap Ferret Canyon, 44°36'N 02°13'W, 708-714 m (ELIZALDE et al., 1993).

Makrokyllindrus (Adiastylis) longicaudatus (Bonnier, 1896)

Bay of Biscay, 44°36'N 02°05'W, 650 m (BONNIER, 1896) as *Leptostylis longicaudata*; Strait of Gibraltar, Gulf of Cádiz, 826-1250 m (JONES, 1990); Cap Ferret Canyon, 44°32'N 02°15'W, 1024-1043 m (ELIZALDE et al., 1993).

Makrokyllindrus (Adiastylis) longipes (Sars, 1871)

West of Portugal, 38°07'N 09°18'W, 1006 m (SARS, 1871) as *Diastylis longipes*; Bay of Biscay, 44°17'N 02°18'W, 950 m (BONNIER, 1896) as *Diastylis longipes*; Bay of Biscay, 43°36'40''N 06°22'30''W, 1190 m (CALMAN, 1910) as *Diastylis longipes*; Gulf of Cádiz, 36°42'N 08°40'W, 750 m (FAGE, 1929); Balearic Sea, 38°27'N 04°08'E, 2447 m, Gulf of Lions, 42°15'N 04°28.5'E, 2090 m (REYSS, 1972); Alboran Sea, 395-570 m (LEDOYER, 1987); Strait of Gibraltar, Gulf of Cádiz, 364-1523 m (JONES, 1990); Catalanian Sea, 41°04'N 02°04'E and 40°26'N 02°00'E, 552-1808 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°32'N 02°15'W, 1024-1043 m (ELIZALDE et al., 1993).

Makrokyllindrus (Adiastylis) myriamae (Reyss, 1974)

Bay of Biscay, 47°32'N 08°30.1'W, 1970 m (REYSS, 1974, 1985); Gulf of Cádiz, 890 m (JONES, 1990).

Makrokyllindrus (Adiastylis) tubulicauda (Calman, 1905)

Bay of Biscay, 46°17'N 05°42'W, 4380 m (FAGE, 1929)

Makrokyllindrus (Makrokyllindrus) dubius (Bonnier, 1896)

Bay of Biscay, 44°36'N 02°05'W, 650 m (BONNIER, 1896) as *Diastylopsis (?) dubia*.

Makrokyllindrus (Makrokyllindrus) mystacinus (Sars, 1887)

Bay of Biscay, 46°17'N 05°42'W, 4380 m (FAGE, 1929); Bay of Biscay, 43°46'N 03°38'W, 1739-2379 m (REYSS, 1974; JONES, 1985).

Makrokyllindrus (Makrokyllindrus) stebbingi (Stephensen, 1915)

Gibraltar, 36°02'N 05°06'W, 800 m (STEPHENSEN, 1915) as *Diastylis stebbingi*; Catalanian Sea, 40°50'N 01°34'E and 41°04'N 02°04'E, 552-989 m (CARTES & SORBE, 1993).

Vemakylindrus charcoti (Reyss, 1974)

Alboran Sea, 395-489 m (LEDOYER, 1987) as *Diastylis charcoti*.

Vemakylindrus doryphora (Fage, 1940)

Arcaçhon, 44°31'N 01°34'W and some other stations, 85-180 m (SORBE, 1982) as *Diastylis doryphora*; Gulf of Cádiz, 1917 m (JONES, 1990).

Vemakylindrus gibraltarensis (Bacescu, 1961)

Alboran Sea, 36°10'N 02°55'50''W, 1293 m (BACESCU, 1961) as *Makrokyllindrus gibraltarensis*.

Vemakylindrus hastatus (Hansen, 1920)

Strait of Gibraltar, Gulf of Cádiz, 155-826 m (JONES, 1990); Catalanian Sea, 40°50'N 01°34'E and 41°04'N 02°04'E, 552-989 m (CARTES & SORBE, 1993); Cap Ferret Canyon, 44°32'N 02°15'W, 1024-1043 m (ELIZALDE et al., 1993).

Family Pseudocumatidae Sars, 1878

Pseudocuma ciliatum Sars, 1879

Banyuls, Port-Vendres, surface (PAGE, 1923, 1933) as *P. ciliata*; Barcelona, 41°25.6'N 02°14.5'E and 41°27.2'N 02°15.9'E, 5 m (CORBERA & CARDELL, in press) as *P. ciliata*; Roda de Barà (Tarragona), 41°10'N 01°29'E, 0.5-3 m.

Pseudocuma longicorne (Bate, 1858)

Banyuls, Port-Vendres, surface (PAGE, 1923, 1933) as *P. longicornis*; Arcachon, 44°31'N 01°34'W, 85 m (SORBE, 1982) as *P. longicornis*; Estuary of Bidasoa River (Bay of Biscay) (SAN VICENTE et al., 1990) as *P. longicornis*; Caldeira de Tróia, 38°29'N 08°53'W (DEXTER, 1990) as *P. longicornis*; Barcelona, 41°27.2'N 02°15.9'E and some other stations, 5-30 m (CORBERA & CARDELL, in press); Medes Islands, 42°02.8'N 03°13.5'E, 5-12 m; Blanes, 41°40.6'N 20°48.2'E, 15 m.

Pseudocuma simile Sars, 1900

Banyuls, Port-Vendres, surface (PAGE, 1923; 1933) as *P. similis*; Portinho da Arrábida (Portugal) (DEXTER, 1992) as *P. similis*; Barcelona, 41°25.6'N 02°14.7'E and 41°26.6'N 02°15.1'E, 10 m (CORBERA & CARDELL, in press); Blanes, 41°40.6'N 02°48.2'E, 15 m.

Family Ceratocumatidae Calman, 1905

Ceratocuma cyrtum Bishop, 1980

Bay of Biscay, 47°36'N 08°40'W, 2325-2360 m (BISHOP, 1980).

Ceratocuma horridum horridum Calman, 1905

Bay of Biscay, 47°36'N 08°40'W, 2325 m (BISHOP, 1980); Cape Sao Vicente, Gulf of Cádiz, 740-1360 m (JONES, 1990).

DISCUSSION

A total of 172 species of Cumacea have been recorded in the Iberian waters. Of these, 51 (29.6 %) are common to both the Atlantic and the Mediterranean, 98 (56.9 %) have been recorded only in the Atlantic and 23 (13.4 %) are confined to the Western Mediterranean, the majority of which are probably endemic.

The greatest affinities of the Ibero-Balearic fauna in its entirety are with that of the Boreal region and of the North-western Atlantic. Some 52.3% of Iberian species are also present in the Boreal region and some 23.2% are also present in the North-western Atlantic (table 1). These affinities are increased to the Ibero-Atlantic species (59.7% and 26.8% respectively). The Ibero-Mediterranean species show a different pattern: some 48.6% of these species also have been recorded in the Eastern Mediterranean, while only some 19.7% are common with the Boreal region.

On the other hand, the Ibero-Atlantic fauna has a larger affinity with the North-western Atlantic than with the Mauritano-Senegalese fauna (26.8% as opposed to 21.5% of common species), while this affinity reverses with the Ibero-Mediterranean fauna (12.6% as opposed to 16.2% of common species). These differences between the fauna may be explained by the geological history of the Mediterranean Sea. During the Messinian crisis, this sea remained isolated from the Atlantic and the Indian Oceans, and the increase in salinity produced by this isolation, may have caused extinction of the greater part of benthic species. After the reopening of Atlantic communication, the Mediterranean was recolonized by consecutive contributions of Boreal (cold) and Senegalese (warm) fauna (FREDJ, 1974; PÉRÈS, 1985).

A high percentage (75.5%) of Atlantic species inhabits exclusively bathyal and

Table 1. Number and percentage (in brackets) of species of cumaceans in Iberian waters that are common with other biogeographic provinces or regions.

Número y porcentaje (entre paréntesis) de especies de cumáceos de las aguas ibéricas comunes con otras regiones o provincias biogeográficas.

Provinces and regions	Species		
	Ibero-Mediterranean (n=74)	Ibero-Atlantic (n=149)	Total Iberian (n=172)
Lusitanian	51 (68.9)	149 (100)	149 (86.6)
Western Mediterranean	74 (100)	51 (34.2)	74 (43.0)
Boreal	22 (29.7)	89 (59.7)	90 (52.3)
Northwestern Atlantic	9 (12.6)	40 (26.8)	40 (23.2)
Eastern Mediterranean	36 (48.6)	28 (18.8)	37 (21.5)
Mauritan-Scnegalese	12 (16.2)	32 (21.5)	33 (19.2)
Arctic	14 (18.9)	34 (22.8)	34 (19.7)
Southwestern Atlantic	2 (2.7)	20 (13.4)	20 (11.6)
Southeastern Atlantic	7 (9.4)	15 (10.1)	16 (9.3)
Indo-Pacific	6 (8.1)	7 (4.7)	8 (4.6)

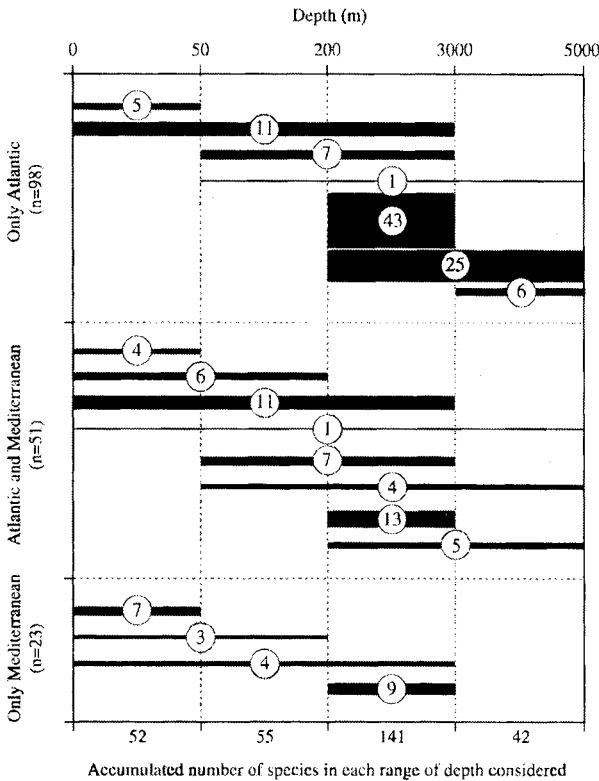


Fig. 1. Bathymetrical distribution of number of species recorded in Iberian waters.

Distribución batimétrica del número de especies citadas en las aguas ibéricas.

abyssal bottoms (fig. 1). These species probably were not able to colonise the Mediterranean Sea due to the presence of the shallower bottoms of the Strait of Gibraltar (280 m depth). On the other hand, species originating in the Mediterranean have colonised the Gulf of Cádiz as favoured by the Mediterranean outflow (JONES, 1990). This explains such large differences between the bathymetrical distribution of Atlantic and Mediterranean species, which are amplified due to the absence of sea floors below 3000 m in the Ibero-Mediterranean area.

The bathyal bottoms (200-3000 m) are the depth range with the largest number of species of Cumacea (141) recorded. This distribution differs very much from that observed by JONES (1969) in his revision of 770 species then known, where the greater number of species were found in littoral and sublittoral bottoms (0-200 m). However, this author commented that the scarcity of cumaceans in deeper water may have been due to the unsuitable collecting gear then in use. This present work is possibly the opposite case, because of the greater number of species recorded in the bathyal bottom (200-3000 m) due to the largest sampling effort in this range of depth. Future sampling with special attention to suprabenthic communities of the continental shelf, should result in important information concerning cumacean fauna of these waters.

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