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CEPHALOPOD COLLECTION OF "MUSEU DE ZOOLOGIA DA UNIVERSIDADE DE SÃO PAULO", SÃO PAULO, BRAZIL

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ABSTRACT

The cephalopod collection of the "Museu de Zoologia da Universidade de São Paulo" was revised. The collection includes 320 lots of 24 species and is representative of the known brazilian cephalopod coastal fauna. Fifty eight percent of the lots were of the family Loliginidae. Continental slope and oceanic species were scarce. Records of Scaeuergus unicolor and Pickfordiateuthis pulchella extend the first species southern distribution up to Rio Grande do Sul (Lat. 34°28' S) and the second's to São Paulo (Lat. 23°30' S). A list of cephalopods of brazilian waters is included.

INTRODUCTION

The cephalopod collection of the "Museu de Zoologia da Universidade de São Paulo" (MZUSP) is part of the Mollusca collection. In spite of the absence of researchers with specific interest in cephalopods in this institution, collectors as P. Montouchet, A.V. Boffi, among others, contributed with many lots mainly from coastal waters of São Paulo and Rio de Janeiro states. Much of the material was collected in surveys of the R/v "Prof. W. Besnard" of the "Instituto Oceanográfico da Universidade de São Paulo" from 1968 to 1972 along the southeastern and southern brazilian continental shelf.

The first specialist that accessed the collection was Gilbert Voss, who in 1964 examined a small collection of octopuses and described *Eledone massyae*, whose holotype and two paratypes are deposited in the collection. Palacio (1977), examined various lots for his PH.D dissertation on the brazilian coastal cephalopods. Juanico (1979) and after that Brackoniaki (1984) examined specifically the family Loliginidae. The latter redescribed *Loligo brasiliensis* Blainville, 1823 (nomen dubium) as *Loligo sanpaulensis* whose paratypes are deposited in the collection.

Through the kindness of Dr. José Luiz Moreira Leme, curator of the Mollusca collection we were able to examine in July 1989 all the 320 lots of cephalopods, actualize the identifications and register the unidentified lots. The aim of this work was to provide, as complete as possible, the list of species deposited in the Museum as part of the review of the brazilian cephalopod fauna (Haimovici, 1985; Haimovici and Andriquetto, 1986; Haimovici, Perez and Costa, 1989; Haimovici and Perez, 1991).

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LIST OF SPECIES

All numbers between brackets correspond to the collection of the Mollusca of the MZUSP. Classification above genus level follow Roper et al (1984). Measurements correspond to the dorsal mantle length in millimeters.

Type material

Loligo sanpaulensis Brackoniecki, 1984; pp. 435-448, figs 3-4 MZUSP 18498-18499 paratype, one male, ML 160.2 mm, off Chui (34°30'S), Brazil, 34°20'S, November, 1974; MZUSP 18680 paratype, two males, ML 69.4-85.4 mm, one female, ML 65.2 mm, R/v "Prof. W. Besnard" sta. 1188, 24°56'S, 48°29'W, 17 August, 1970; MZUSP 18601 paratype, one male, ML 78.2 mm, three females ML 60.2-93.1 mm, R/v "Prof. W. Besnard" sta. 471, 33°16'S 52°05'W, 13 December 1968.

Eledone massyae Voss, 1964; pp. 511-516, figs 3-4. MZUSP 15903 Holotype, one male, ML 46.0 mm, from Cabo Frio, Rio de Janeiro (23°S), Brazil, 25 October, 1955; MZUSP 19008 paratype, one female, ML 52.0 mm, from Cabo de São Tomé, Rio de Janeiro (22°S), Brazil; MZUSP 18009 paratype, one male, ML 34.5 mm, from Trindade Island, 20°30'S, 29°22'W, May 1900.

Eledone gaucha Haimovici, 1988; pp. 82-87, figs. 2-14. MZUSP 25242 paratype, one male, ML 32.0 mm, R/v "Atlântico Sul", cruise 10/83, sta. 55, 32°52'S, 51°43'W, 140 m depth, trawl, 30 August, 1983.

Non type material

Order Nautiloidea

Fam. Nautilidae

Nautilus pompilius Linnaeus, 1758, one shell from Indian Ocean. (MZUSP 2345)

Order Sepioidea

Fam. Sepiidae

Sepia esculenta Hoyle, 1885, One gladius from Yokohama, Japan. (MZUSP 2350).

Fam. Spirulidae

Spirula spirula (Linnaeus, 1758), various lots of shells collected from 1949 to 1970 in Ceará (lat. 4°S), (MZUSP 2595, 16295), Bahia (Lat. 15°S) (MZUSP 1922, 15841, 2346, 420), Espirito Santo (lat 20°S) (MZUSP 1269) and São Paulo (lat 24°S) (MZUSP 2347).

Fam. Sepiolidae

Semirossia tenera (Verrill, 1880), 28 lots from R/v "Prof. W. Besnard", collected from 1969 to 1972, between 23°19'S and 34°26'S; (MZUSP 18516, 18517, 18518, 18519, 18520, 18521, 18522, 18523, 18524, 18525, 18526, 18527, 18528, 18529, 18530, 18531, 18532, 18533, 18234, 19535, 18536, 18534, 18538, 18539, 18540, 27212, 27213, 27214), one egg capsulae with embryo from São Paulo (lat 23°30') (MZUSP 27234).

Order Teuthoidea

Sub Order Myopsida

Fam. Loliginidae

Loligo plei (Blainville, 1823), (= *Doryteuthis plei*) 84 lots from R/v "Prof. W. Besnard", collected from 1969 to 1970, between 22°05'S and 34°26'S; (MZUSP 18516, 18572, 18574, 18577, 18578, 18580, 18581, 18582, 18583, 18584, 18585, 18586, 18587, 18588, 18589, 18590, 18591, 18592, 18593, 18594, 18595, 18596, 18597, 18599, 18600, 18605, 18607, 18610, 18611, 18613, 18614, 18615, 18616, 18617, 18621, 18622, 18624, 18626, 18635, 18636, 18637, 18639, 18640, 18644, 18653, 18655, 18656, 18660, 18661, 18662, 18663, 18664, 18665, 18668, 18669, 18670, 18671, 18673, 18675, 18679, 18682, 18683, 27059, 27090, 27092, 27093, 27094, 27095, 27096, 27097, 27098, 27099, 27101, 27102, 27103, 27104, 27105, 27106, 27107, 27149, 27159, 27161, 27162); 9 lots from São Paulo (lat 23°30' - 26°S) (MZUSP 2233, 2237, 13298, 27071, 27072, 27073, 27076, 27078, 27084.), 7 lots from Rio de Janeiro (lat 21°15' - 23°15'S) (MZUSP 27060, 27061, 27062, 27063, 27064, 27077, 27079).

Loligo sanpaulensis Brackoniecki, 1984, 46 from R/v "Prof. W. Besnard", collected from 1969 to 1970, between 24°02'S and 39°52'S (MZUSP 18579, 18601, 18602, 18603, 18606, 18608, 18609, 18619, 18620, 18623, 18634, 18638, 18680, 27091, 27100, 27128, 27129, 27130, 27131, 27132, 27133, 27134, 27135, 27136, 27137, 27138, 27139, 27140, 27141, 27142, 27143, 27144, 27145, 27146, 27147, 27148, 27150, 27151, 27152, 27153, 27154, 27155, 27156, 27157, 27158, 27160.; 3 lots from Rio de Janeiro (lat 21°40' - 23°S) (MZUSP 12594, 27065, 27066); 2 lots from São Paulo State (late 23°30'-24°S) (MZUSP 27075, 27083); 4 lots from Rio Grande do Sul (lat 30°S) (MZUSP 26407, 26408, 26410, 26411).

Lolliguncula brevis (Blainville, 1823), 1 lot from Pernambuco (lat. 9°S) (MZUSP 27056); 1 lot from Bahia (lat. 15°S) (MZUSP 27237); 4 from Rio de Janeiro (lat 23°S) (MZUSP 15294, 27053, 27055, 27057); 16 lots from São Paulo and Paraná states (lat 23°30' - 26°S) (MZUSP 15499, 15543, 27052, 27054, 27068, 27069, 27070, 27074, 27080, 27082, 27085, 27088, 27163, 27164, 27165, 27166); 1 lot from Santa Catarina (lat 28°S) (MZUSP 16111).

Fam. Pickfordiateuthidae

Pickfordiateuthis pulchella Voss, 1958, 3 lots from São Paulo (lat. 23°30' - 24°S) (MZUSP 26923, 27238, 27239).

Sub Order Oegopsida

Fam. Ommastrephidae

Illex argentinus (Castellanos, 1960), 8 lots from R/v "Prof. W. Besnard", collected from December 1969 to October 1972, between 23°00'S and 35°10'S (MZUSP, 18595, 18648, 27167, 27168, 27169, 27170, 27171, 27172).

Order Octopoda

Sub Order Cirrata

Fam. Octopodidae

Subfam: Eledoninae

Eledone massyae Voss, 1964; 28 lots from R/v "W. Besnard", collected from December 1968 to November 1972, between 22°39'S and 34°24'S (MZUSP 18641, 18642, 18643, 18647, 18648, 18649, 18652, 18657, 18659, 18666, 18672, 18598, 27174, 27176, 27177, 27180, 27183, 27184, 27185, 27186, 27187, 27188, 27189, 27192, 27194, 27195, 27200, 27203).

Eledone gaucha Haimovici, 1988; 5 lots from R/v "Prof. W. Besnard", collected from December, 1968 to April, 1972, between 26°03'S and 32°24'S (MZUSP 27178, 27179, 27191, 27196, 27197).

Vosseledone charrua Palacio, 1978; 5 lots from R/v Prof. W. Besnard", collected from August to October 1972, between 35°18'S and 35°51'S (MZUSP 27173, 27181, 27182, 27204, 1590).

Subfam. Octopodinae

Octopus vulgaris Cuvier, 1797; 5 lots from R/v "Prof. W. Besnard", collected from August 1970 to January 1971, between 23°S and 24°37'S (MZUSP 18640, 18650, 18649, 27201, 27222); 1 lot from Ceará (lat. 4°S) (MZUSP 19629); 2 lots from Bahia (lat. 15°S) (MZUSP 27206, 27209); 2 lots from Rio de Janeiro (lat. 23° - 23°15'S) (MZUSP 27205, 27221); 2 lots from São Paulo (lat. 23°30' - 24°S) (MZUSP 27027, 793);

Octopus tehuelchus (D'Orbigny, 1838); 2 lots from R/v "Prof. W. Besnard", collected from October to December, 1968, between 29°34'S and 34°03'S (MZUSP 1588, 27175); 1 lot from Rio de Janeiro (lat. 23°S) (MZUSP 27236), 2 lots from São Paulo (lat. 23°30'S) (MZUSP 27199, 27208).

Octopus hummelincki Adam, 1936; 1 lot from Bahia (lat. 15°S) (MZUSP 27030).

Octopus briareus Robson, 1929; 1 lot from Bahia (lat. 15°S) (MZUSP 27211).

Octopus joubini Robson, 1929; 1 lot from São Paulo (lat. 23°30'S) (MZUSP 27028).

Octopus macropus Risso, 1826; 1 lot from Bahia (lat. 15°S) (MZUSP 27210).

Octopus defilippi Verany, 1851; 1 lot from Rio de Janeiro (lat. 23°S) (MZUSP 27198).

Scaevargus unicirrhus (D'Orbigny, 1840); 6 lots from R/v "Prof. W. Besnard", collected from May 1970 to April, 1972, between 23°15'S and 34°28'S (MZUSP 18633, 18651, 18678, 27190, 27193, 27202).

Fam. Argonautidae

Argonauta nodosa Solander, 1786; 1 lot from R/v "Prof. W. Besnard", collected on April 1972, in 31°58'S, 51°00'W (MZUSP 27219); 5 lots from São Paulo (lat. 24°S) (MZUSP 431, 2343, 2344, 7293, 27215).

Argonauta argo Linnaeus, 1758; 1 lot from São Paulo (lat. 24°S) (MZUSP 27218).

Argonauta sp.; 2 lots from São Paulo (lat. 24°S) (MZUSP 27216, 27217) (specimens without shell).

Fam. Ocythoidea

Ocythoe tuberculata Rafinesque, 1814; 1 lot from a shark stomach content caught between 28 - 34°S on March, 1984 (MZUSP 27220).

DISCUSSION

The cephalopod collection of the "Museu de Zoologia da Universidade de São Paulo" is representative of Brazilian known coastal fauna (tab 1.) as reviewed by Palacio (1977) and Haimovici (1985) and in particular of fauna of southeastern and southern regions (Haimovici and Andriquetto, 1986 and Haimovici, Perez and Costa, 1989). Of all lots, 58% are of Loliginidae and particularly of *Loligo sanpaulensis* and *Loligo plei*, the most important commercially fished southeastern Brazil squids (Costa and Haimovici, 1990). Because Palacio (1977) considered all as *L. plei* many lots included both species. Eledonids lots also were re-identified because of the recent description of *Eledone gaucha*, formerly lumped with *Eledone massyae*.

Table 1. Cephalopods recorded for Brazilian waters, including their habitat and range of distribution (sources: Palacio, 1977; Roper et al., 1984; Haimovici, 1985; Haimovici and Andriquetto, 1986; Warneke-Cremer, 1986; Nesis, 1987); Haimovici et al., 1989; Haimovici and Perez, 1991)

	Batimetric distribution	Habitat	Geographic distribution
Family Spirulidae Owen, 1836 <i>Spirula spirula</i> (Linnaeus, 1758)	100 - 1000m	Mesopelagic, neriticoceanic	Tropical Atlantic, Indo-West Pacific
Family Sepiolidae Leach, 1817 <i>Semirossia tenera</i> (Verrill, 1880)	60 - 160m	Demersal, muddy and sandy bottoms	Gulf of Maine to Rio Grande do Sul
<i>Heteroteuthis atlantis</i> Voss, 1955	450 - 950m	Lower epipelagic, mesopelagic	Tropical and Subtropical Atlantic
Family Loliginidae Steenstrup, 1861 <i>Loligo sanpaulensis</i> Brackoniecki, 1984	0 - 60m	Neritic, semipelagic	Central Brazil to central Argentina
<i>Loligo plei</i> (Blainville, 1823)	16 - 200m	Neritic, semipelagic	35° N to Northern Argentina
<i>Loligo surinamensis</i> Voss, 1974	27 - 60m	Neritic, semipelagic	Mouth of the Surinam and Amazon Rivers

Table 1. (Cont.)

	Batimetric distribution	Habitat	Geographic distribution
<i>Lolliguncula brevis</i> (Blainville, 1823)	0 - 20m	Neritic, shallow bays, estuaries	Bermuda to Patagonia
<i>Sepioteuthis sepioidea</i> (Blainville, 1823)	0 - 20m	Coral reefs, grass flats	Cape Canaveral to Rio de Janeiro
Family Pickfordioteuthidae Voss, 1953			
<i>Pickfordioteuthis pulchella</i> Voss, 1953	0 - 20m	Shallow waters, grass flats	Florida to São Paulo
Family Ommastrephidae Steenstrup, 1857			
<i>Illex argentinus</i> (Castellanos, 1968)	50 - 800m	Epipelagic	Southern Argentina to Rio de Janeiro
<i>Ornithoteuthis antillarum</i> (Adam, 1957)	Oceanic	Epipelagic	Circumtropical
<i>Ommastrephes pteropus</i> Stenstrup, 1855	Oceanic	Epipelagic-mesopelagic	Anti-atlantic, warm waters
<i>Ommastrephes bartramii</i> (Lesueur, 1821)	Oceanic	Epipelagic	Subtropical and temperate waters
<i>Symplectoteuthis luminosa</i> Sasaki, 1915	Oceanic	Epipelagic	Subtropical and temperate waters
<i>Hyaloteuthis pelagica</i> (Bosc, 1802)	Oceanic	Epipelagic	Warm waters, Atlantic and Pacific
<i>Todarodes filipovae</i> Adam, 1975	Oceanic	Demersal, over slopes	Circumpolar, Antarctic convergence
Family Thysanoteuthidae Keferstein, 1866			
<i>Thysanoteuthis rhombus</i> Troschel, 1857	Oceanic	Epipelagic	Circumtropical
Family Onychoteuthidae Gray, 1849			
<i>Onychoteuthis banksii</i> (Leach, 1817)	Oceanic	Epipelagic	Warm and temperate waters
<i>Moroteuthis ingens</i> (Smith, 1881)	Oceanic	Epipelagic	Subantarctic waters
Family Enoploteuthidae Pfeffer, 1912			
<i>Abraliopsis pfefferi</i> Joubin, 1896	?	Mesopelagic-bathypelagic	Tropical and Subtropical Atlantic
<i>Abralia veranyi</i> (Ruppel, 1844)	200 - 480m	Demersal, Bathyal, over slopes	Tropical and Subtropical Atlantic
<i>Abralia redfieldi</i> Voss, 1955	208 - 488m	Epipelagic-mesopelagic, bathyal	Tropical western Atlantic
Family Histiototeuthidae Verrill, 1881			
<i>Histiototeuthis dofleini</i> (Pfeffer, 1912)	Oceanic	mesopelagic	Warm and temperate waters
Family Cranchiidae Prosch, 1849			
<i>Liocranchia reinhardti</i> (Steenstrup, 1856)	up to 1200m	meso-bathypelagic	Tropical-subtropical cosmopolitan
Family Lycoteuthidae Pfeffer, 1908			
<i>Lycoteuthis diadema</i> (Chun, 1900)	up to 1500m	Bathyal, mesopelagic, over slopes	Southern subtropical waters

Table 1. (Cont.)

	Batimetric distribution	Habitat	Geographic distribution
Family Octopodidae Orbigny, 1845			
<i>Octopus defilippi</i> Verany, 1851	6- 60m	Benthic, sandy and muddy bottoms	Florida to Rio de Janeiro
<i>Octopus tehuelchus</i> Orbigny, 1834	up to 90m	Benthic, muddy and rocky bottoms	Peninsula Valdes to Rio de Janeiro
<i>Octopus vulgaris</i> Cuvier, 1797	0 - 200m	Benthic, rocks and coral reefs	Bermuda to Rio Grande do Sul
<i>Octopus burryi</i> Voss, 1950	10 - 200m	Benthic, sand, broken coral, shells	Tropical western Atlantic
<i>Octopus hummelincki</i> Adam, 1936	up to 200m	Benthic, calcareous algae, shells	Tropical western Atlantic
<i>Octopus macropus</i> Risso, 1826	shallow waters	Benthic, coral reefs, open bottoms	Warm to warm-temperate cosmopolitan
<i>Octopus joubini</i> Robson, 1929	up to 80m	Benthic, sand, hard coral, rubble	Tropical western Atlantic
<i>Octopus occidentalis</i> Hoyle, 1886	?	Benthic	Atlantic Oceanic Islands
<i>Octopus briareus</i> Robson, 1929	shallow waters	Benthic, coral reefs	Tropical Western Atlantic
<i>Benthoctopus january</i> (Hoyle, 1885)	350m	Benthic, upper bathyal	Gulf of Mexico to Southeastern Brazil
<i>Scaergus unicirrhus</i> (Delle Chiaje, 1938)	100 - 400m	Benthic, sand and coralline bottoms	Florida to Rio Grande do Sul
<i>Pteroctopus tetracirrhus</i> (Delle Chiaje, 1830)	25 - 720 m	Benthic, muddy bottoms	North Carolina to Uruguai
<i>Enteroctopus sp.</i> Robson, 1929	73m	Benthic, sand bottoms	One record.
<i>Eledone massyae</i> Voss, 1964	60 - 300m	Benthic, sandy and muddy bottoms	Peninsula Valdes to Rio de Janeiro
<i>Eledone gaucha</i> Haimovici, 1988	60 - 300m	Benthic, sandy and muddy bottoms	Rio Grande do Sul to Rio de Janeiro
<i>Pareledone turqueti</i> (Joubin, 1905)	540 - 4000m	Benthic, mud	Antartica to Rio de Janeiro
<i>Pareledone charcoti</i> (Joubin, 1905)	0 - 1500m	Benthic, sandy bottoms	Antartica to Rio de Janeiro
<i>Vosseledone charrua</i> Palacio, 1978	10 - 511m	Benthic, coralline bottoms	Uruguay to São Paulo
Family Bolitaenidae Chun, 1911			
<i>Eledonella pigmea</i> Verrill, 1884	100 - 2500m	Bathypelagic	Tropical-subtropical cosmopolitan
<i>Japetella diaphana</i> Hoyle, 1885	100 - 3000m	Bathypelagic	Tropical-subtropical cosmopolitan
Family Argonautidae Tryon, 1879			
<i>Argonauta nodosa</i> Lightfoot, 1786	Oceanic	Epipelagic	Worldwide in warm waters
<i>Argonauta argo</i> Linnaeus, 1758	Oceanic	Epipelagic	Tropical and temperate waters
<i>Argonauta hians</i> Solander, 1786	Oceanic	Epipelagic	Tropical cosmopolitan

Table 1. (Cont.)

	Batimetric distribution	Habitat	Geographic distribution
Family Tremoctopodidae Brock, 1882 <i>Tremoctopus violaceus</i> Delle Chiaje, 1830,	Oceanic	Epipelagic	Atlantic Ocean between 43°N-35°S
Family Ocythoidae Gray, 1849 <i>Ocythoe tuberculata</i> Rafinesque, 1814	Oceanic	Epipelagic	Tropical-subtropical cosmopolitan

Oceanic and continental slope species are scarcely represented in the collection. Of 7 species recorded by Perez and Haimovici (MS) in Rio Grande do Sul exclusive of outer shelf and upper slope, only *Illex argentinus*, *Vosseledone charrua* are included. *Ocythoe tuberculata* deposited in the collection came from shark stomach content.

The *Scaevrgus unicolor* found in 34°10'S extended its southern distribution to Rio Grande do Sul, formerly recorded up to Santa Catarina (Palacio, 1977). *Pickfordiateuthis pulchella*, formerly known up to Rio de Janeiro (Haimovici, Perez and Costa, 1989) is now recorded for São Paulo (23°S).

RESUMO

Revisou-se a coleção de cefalópodes do Museu de Zoologia da Universidade de São Paulo. A coleção inclui 320 lotes de 24 espécies e é representativa da fauna conhecida de cefalópodes costeiros do Brasil. Cinquenta e oito por cento dos lotes são da família Loliginidae. Espécies oceânicas e do talude continental estão pouco representadas. Registros de *Scaevrgus unicolor*, *Pickfordiateuthis pulchella* estendem ao sul a distribuição no Atlântico Sul Ocidental ao Rio Grande do Sul (lat. 34°S) e São Paulo (lat. 23°30'S) respectivamente. Uma lista dos cefalópodes registrados em águas do Brasil é apresentada.

REFERENCES

- Brackoniecki, T. F., 1984. A full description of *Loligo sanpaulensis* Brackoniecki, 1984 and a redescription of *Loligo gahi* D'Orbigny, 1835, two species of squid (Cephalopoda: Myopsida) from the southwest Atlantic. Bull. Mar. Sci., 34(3): 435-448.
- Costa, P. A. S. & Haimovici, M., 1990. A pesca de polvos e lulas no litoral do Rio de Janeiro. Submetido à Ciência e Cultura 42(12).
- Haimovici, M. 1985. Class Cephalopoda, Cuvier 1797. In: Rios, E.C. *Seashells of Brazil*. FURG. Rio Grande R.S. 328 pp.
- Haimovici, M. & Andriquetto, J. M. F., 1986 Cefalópodes costeiros capturados na pesca de arrasto do litoral Sul do Brasil. Arquivos de Biologia e Tecnologia. Curitiba 29(3): 473-495.
- Haimovici, M. & Perez, J. A. A., 1991. A pesca de cefalópodes em quatro cruzeiros de prospecção pesqueira demersal na plataforma externa e talude continental do Sul do Brasil entre Chui (34°30'S) e o cabo de Santa Marta Grande (28°40'S). Anais do Simposio da FURG de Pesquisa Pesqueira. Rio Grande, dez. 1988.
- Haimovici, M & Perez, J. A. A., 1991. Abundância e distribuição de cefalópodes em cruzeiros de prospecção pesqueira demersal na plataforma externa e talude continental do sul do Brasil. Atlântica, Rio Grande 13(1): 189-200.

- Haimovici, M.; Perez, J. A. A. & Costa, P. A. S., 1989. A review of cephalopods occurring in the waters of Rio de Janeiro State with first record of four species. *Rev. bras. de Biol.*, 49(2): 503-510.
- Juanico, M., 1979. Contribuição ao estudo da biologia dos Cephalopoda Loliginidae do Atlântico Sul Ocidental, entre Rio de Janeiro e Mar del Plata. D. Sc. Thesis, Instituto Oceanográfico de São Paulo, 102p.
- Nesis, K. N., 1987. Cephalopods of the world; squids, cuttlefishes, octopuses and allies. (Engl. Transl.) T.F.H. Publ., Neptune City, NJ, 351p.
- Palacio, J. F., 1977. A study of the coastal cephalopods from Brazil with reference to Brazilian zoogeography. PHD thesis, Univ. Miami, 311p.
- Roper, C. F. E.; Sweeney, M. J. & Nauen, C. E., 1984. FAO species catalogue. Vol. 3. Cephalopods of the world. An annotated and illustrated catalogue of species of interest to fisheries. FAO Fish. Synop., (125) Vol. 3: 1-277p.
- Voss, G., 1964. A note on some cephalopods from Brazil with a description of a new octopodid, *Eledone massyae*. *Bull. Mar. Sci. Gulf Carib.* 14: 511-516.
- Warneke-Cremer C., 1986. Beiträge zur Systematik und Verbreitung der Ommastrephiden aufgrund der Fänge des FFS "Walter Herwig", 1966 und 1968. *Mitt. Inst. Seefisch, Hamburg* (40): 1-116.