7.12 Order Chromadorida Chitwood, 1933

*Diagnosis:* Chromadorea. Cuticle ornamented with transverse rows of punctuations as dots, rods or “basket weave” and often with lateral differentiation. Anterior sensilla arranged in two or three circles, i.e., an anterior circle of inner labial sensilla (usually papillae, but may be setiform), an outer circle of outer labial sensilla (seti- or papilliform) and a third circle of cephalic setae (pattern six + six + four); the second and third circles may form a single circle of ten sensilla (pattern six + ten). In the case of pattern six + six + four, the four cephalic setae are longer than the six outer labial sensilla, and in the case of pattern six + ten, the six outer labial sensilla are longer than the four cephalic setae of the same joint circle. Amphideal fovea variable, simple spiral, comma-like, transverse loop or slit, or multispiral; when spiral, amphideal fovea usually located posterior to the cephalic setae, but sometimes lying between the four cephalic setae and are then difficult to observe. Cephalic helmet not developed as such, but head cuticle may be slightly inflated within several genera. Cheilorhabdia with twelve cheilorhabdia (folds or rugae); pharyngostoma of variable size and shape, very often armed with a single bigger dorsal tooth and two or more smaller ventrosublateral teeth or denticles. Pharynx largely evenly muscular, cylindrical, posteriorly often widened or terminated with muscular bulb with well-cuticularized luminal walls. Female reproductive system didelphic-amphidelphic with antidromously reflexed ovaries. Males monorchic or didorchic. Precloacal supplements cup-shaped, fine tubular or setose. Caudal glands and spinneret present. Marine free-living, a few species epibiotic, uncommon in freshwater and soil. Six families.

7.12.1 Subfamily Chromadorinae Filipjev, 1917

*Diagnosis* (after Decraemer & Smol 2006): Chromadoridae. Cuticle homogeneous or heterogeneous, usually without or with slight lateral differentiation made by larger dots (only in *Chromadorella*, the lateral larger dots arranged in longitudinal rows). Outer labial papilliform sensilla and four cephalic setae in two separate circles. Amphideal fovea transverse slit-like, difficult to observe under light microscopy. Buccal cavity armed with three nearly equal solid teeth (except for *Prochromadora* with the dorsal tooth single or prevails). Pharyngeal tissue not enlarged around the buccal cavity. Simple and distinctly defined posterior pharyngeal bulb. Preanal cup-shaped supplementary organs usually present. Type genus: *Chromadora* Bastian, 1865

7.12.1.1 Genus *Atrochromadora* Wieser, 1959

*Diagnosis:* Chromadoridae. Homogeneous punctated body cuticle pattern along the body and with lateral differentiation of larger dots. Amphideal fovea transverse oval, open loop-shaped. Pharyngostoma with three solid teeth, the dorsal tooth larger than the ventrosublateral teeth. Males usually with cup-shaped precloacal supplements. Marine. Number of species: 12

Type species: *Atrochromadora parva* (de Man, 1893) Wieser, 1954 (= *Spiliphera parva* de Man, 1893)
Fig. 7.92: Examples of Chromadorinae. A, Atrochromadora obscura (from Wieser 1959, Fig. 66, A–C); B, Chromadora yamadae (from Kito 1978, Fig. 2); C, Chromadorella edmondsoni (from Wieser 1959, Fig. 67 A–D); D, Chromadorina astacicola (from Wieser 1968, Abb. 1); E, Prochromadora oerleji (head and anterior body) and P. erythrophthalma (male tail) (from Gerlach 1951, Abb. 21, 22); F, Prochromadorella obtusidens (from de Coninck & Stekhoven 1933, Fig. 56–57); G, H, Punctodora exochopora (from Hopper 1963, Fig. 1–3, 5, 9); I, Timmia acuticauda (from Gal’tsova 1985, Fig. 19).
7.12.1.1.2 Genus *Chromadora* Bastian, 1865  
(Fig. 7.92 B)

*Diagnosis*: Chromadorinae. Homogeneous punctated body cuticle pattern along the body, with lateral differentiation of larger dots. Transverse slit-like amphideal fovea. Pharyngostoma with three solid teeth, the dorsal tooth larger than the ventrosublateral teeth. Ocelli may be present. Males usually with cup-shaped precloacal supplements. Diffsers from very close *Atrochromadora* by only amphid shape, but the differentiation is not always clear. Marine.  
Number of species: 31  
Type species: *Chromadora nudicapitata* Bastian, 1865

7.12.1.1.3 Genus *Chromadorella* Filipjev, 1918  
(Fig. 7.92 C)

*Diagnosis*: Chromadorinae. Heterogeneous punctated body cuticle along the body, with lateral differentiation in longitudinal rows of larger dots. Amphideal fovea transverse oval in shape and slightly bent. Pharyngostoma with three solid teeth of about equal size. Posterior pharyngeal bulb not distinctly set off and with plasmatic interruptions that may appear double in some species. Males with five to twelve (mostly five) cup-shaped precloacal supplements. Diffsers from the similar *Neochromadora* by only structure of the pharyngostomal teeth. Marine.  
Number of species: 16  
Type species: *Chromadorella filiformis* (Bastian, 1865) Filipjev, 1918 (= *Chromadora filiformis* Bastian, 1865)

7.12.1.1.4 Genus *Chromadorina* Filipjev, 1918  
(Fig. 7.92 D)

*Diagnosis*: Chromadorinae. Homogeneous cuticle with transverse rows of dots but without obvious lateral differentiation. Amphideal fovea when visible, transverse slit-like. Pharyngostoma with three nearly equal solid teeth. Ocelli may be present. Cup-shaped precloacal supplements present. Marine and brackish species and four freshwater species.  
Number of species: 26  
Type species: *Chromadorina obtusa* Filipjev, 1918

7.12.1.1.5 Genus *Prochromadora* Filipjev, 1922  
(Fig. 7.92 E)

*Diagnosis*: Chromadorinae. Cuticle with homogeneous punctuation, without lateral differentiation. A single large dorsal tooth opposed by a ventrosublateral pit or at most by a small elevation of the buccal wall or small ventrosublateral teeth. Precloacal supplements present. Seven marine and one freshwater species.  
Number of species: 8  
Type species: *Prochromadora megodonta* Filipjev, 1922

7.12.1.1.6 Genus *Prochromadorella* Micoletzky, 1924  
(Fig. 7.92 F)

(= *Trichromadora* Kreis, 1929)  
*Diagnosis* (after Decraemer & Smol 2006): Chromadorinae. Heterogeneous punctated body cuticle along the body, lateral dots may be enlarged but not arranged in longitudinal rows. Amphideal fovea transversely oval, obscure, located between the four cephalic setae. Buccal cavity with three solid teeth of about equal size or the two ventrosublateral teeth smaller. Ocelli may be present. Males with cup-shaped precloacal supplements. Marine.  
Number of species: 35  
Type species: *Prochromadorella neapolitana* (de Man, 1876) Micoletzky, 1924 (= *Chromadora neapolitana* de Man, 1876)

7.12.1.1.7 Genus *Punctodora* Filipjev, 1929,  
(Fig. 7.92 G, H)

*Diagnosis*: Chromadorinae. Cuticle finely striated and finely homogeneously punctated along the body; lateral dots, some bigger than submedian dots. Amphideal fovea flattened, spiral and situated at the level of dorsal tooth. Stoma with well-developed dorsal tooth and two smaller ventrosublateral teeth visible at the anterior and posterior border of an indentation, also described as two transverse folds. Ocelli present. Secretory-excretory in head region. Well-defined posterior pharyngeal bulb. From one to 18 cup-shaped preanal supplements. Three species are freshwater, one is brackish and another is freshwater and brackish.  
Number of species: 5  
Type species: *Punctodora ratzeburgensis* (Linstow, 1876) Filipjev, 1929 (= *Chromadora ratzeburgensis* Linstow, 1876)

7.12.1.1.8 Genus *Timmia* Hopper, 1961 (Fig. 7.92 I)

(= *Parachromadora* Timm, 1952, homonym to *Parachromadora* Micoletzky, 1913)  
*Diagnosis*: Chromadorinae. Homogeneous cuticle with transverse rows of dots but without lateral differentiation. Amphideal fovea slit-like, when visible. Buccal cavity with three teeth of about equal size. A tubular curved
supplement immediately preanal in addition to the typical cup-shaped pre-cloacal supplements. *Timnia* is similar to *Chromadorina* except for the tubular pre-cloacal supplement. Marine.
Number of species: 3

### 7.12.1.2 Subfamily Euchromadorinae

*Gerlach & Riemann, 1973*

*Diagnosis:* (after Decraemer & Smol 2006): Chromadoridae. Body cuticle with complex heterogeneous ornamentation along the body (rarely homogeneous as in *Endeolophos* Boucher, 1976), often with lateral differentiation. The six outer labial and four cephalic sensilla setiform may be arranged in a single circle. Amphideal fovea transverse slit-like or oval, located posterior to the cephalic setae. Buccal cavity with large dorsal tooth, with or without denticles or smaller ventrosublateral teeth. Pharynx with or without defined terminal bulb. Gubernaculum usually with hammer- or L-shaped lateral pieces (wrongly indicated as telamon). Precloacal supplements absent, but a precloacal differentiation of body cuticle may be present. Marine.
Type genus: *Euchromadora* de Man, 1886

#### 7.12.1.2.1 Genus Actinonema Cobb, 1920 (Fig. 7.93 A)

(= *Pareuchromadora* Stekhoven & Adam, 1931)
*Diagnosis:* Euchromadorinae. Cuticle heterogeneous with lateral differentiation as a ridge beginning at the end of the pharynx. Six outer labial and four cephalic setae arranged in one circle of ten setae. Amphideal fovea conspicuous transversally oval with a double contour. Posterior pharyngeal bulb may be developed or not. Spicules simple, curved, with L-shaped telamon.
Number of species: 7
Type species: *A. pachydermatum* Cobb, 1920

#### 7.12.1.2.2 Genus Adeuchromadora Boucher & de Bovée, 1971 (Fig. 7.93 B)

*Diagnosis:* (after Boucher & de Bovée 1971): Euchromadorinae. Cuticle heterogeneous, with lateral ridge along the body. Amphideal fovea large, transversally elliptical. Buccal cavity armed with a pointed dorsal tooth and two small subventral teeth.
Type and only species: *Adeuchromadora megamphida* Boucher & de Bovée, 1971

#### 7.12.1.2.3 Genus Austranema Inglis, 1969 (Fig. 7.93 C)

Number of species: 5
Type species: *Austranema colesi* (Inglis, 1968) Inglis, 1969 (= *Euchromadora colesi* Inglis, 1968)

#### 7.12.1.2.4 Genus Crestanema Pastor de Ward, 1985 (Fig. 7.93 D)

*Diagnosis:* (after Pastor de Ward 1985): Euchromadorinae. Six outer labial and four cephalic setae arranged in one crown. Buccal armature formed by one dorsal and two small subventral teeth. Amphideal fovea transversally oval, with slightly concave posterior margin. Cuticle formed by rings with internal anterior and posterior processes, with alternate hooking. Wing type lateral differentiation nerve ring onward. Spicules simple in structure, gubernacula with two central pieces and two lateral guiding pieces (telamons).
Type and only species: *Crestanema patagonicum* Pastor de Ward, 1985

#### 7.12.1.2.5 Genus Endeolophos Boucher, 1976 (Fig. 7.93 E)

*Diagnosis:* Euchromadorinae. Cuticle heterogeneous, ornamented with longitudinal stick-like elements, with lateral differentiation but not as a ridge. Six outer labial and four cephalic sensilla arranged in two separate crowns of setae. Amphideal fovea as a transversal slit at the level of the cephalic setae. Buccal cavity with dorsal tooth and two tiny subventral teeth. No posterior pharyngeal bulb developed. Copulatory apparatus without lateral pieces (telamons).
Number of species: 5

#### 7.12.1.2.6 Genus Euchromadora De Man, 1886 (Fig. 7.93 F)

*Diagnosis:* Euchromadorinae. Complex cuticle heterogeneous, structured with hexagonal or ovoid punctations anteriorly and posteriorly, with slimmer markings restricted...
Fig. 7.93: Examples of Euchromadorinae. A, Actinonema celtica (from Boucher 1976, Fig. 1); B, Adeuchromadora megamphida (from Boucher & de Bovée 1971, Fig. 2); C, Austranema alii (from Murphy 1965, Fig. 1, 2); D, Crestanema patagonicum (from Pastor de Ward 1985, Fig. 7 H–J); E, Endoeolophos spinosos galapagensis (head) and E. minutus (male tail) (from Blome 1982, Abb. 28, 29); F, Euchromadora vulgaris head (from Coles, 1965, Fig. 10) and E. ezoensis male tail (from Kito 1977, Fig. 1, 10); G, Graphonema northumbriae (from Warwick & Coles 1975, Fig. 60); H, Parapinnanema harveyi (from Warwick & Coles 1975, Fig. 62); I, Protochromadora parafricana (from Gerlach 1958, Abb. 4); J, Rhips paraornata (from Platt & Zhang 1982, Fig. 9); K, Steineridora borealis (from Kito 1977, Fig. 2); L, Trochamus carinatus (from Boucher & de Bovée 1971, Fig. 1).
7.12 Order Chromadorida Chitwood, 1933

7.12.1.2.7 Genus Graphonema Cobb, 1898 (Fig. 7.93 G)

Diagnosis: Euchromadorinae. Complex cuticle heterogeneous, structured with hexagonal or ovoid punctations anteriorly and posteriorly, with slimmer markings restricted to the lateral surface over the middle of the body. Four cephalic setae. Transversally elliptical amphideal fovea with surrounding cuticular fringe. Buccal armament consists of larger dorsal tooth and two smaller subventral teeth; no additional denticles. No posterior pharyngeal bulb. In males, ventral cuticle anterior to the cloaca forms a prominent modification. Tail long and slim.
Number of species: 6
Type species: Graphonema vulgare Cobb, 1898

7.12.1.2.8 Genus Parapinnanema Inglis, 1969 (Fig. 7.93 H)

Diagnosis: Euchromadorinae. Cuticle usually sculptured in minute hexagonal blocks that become more elongate on posterior part of the body; cuticle with punctations dorsally and ventrally; cuticle very thick over pharyngeal region and battlement-like. Six outer labial and four cephalic setae arranged in a common circle. Transversally elliptical amphideal fovea with surrounding cuticular fringe. Buccal cavity armed with one dorsal tooth and two smaller subventral teeth; no additional denticles. No posterior pharyngeal bulb. Tail long and slim.
Number of species: 6
Type species: Parapinnanema wilsoni Inglis, 1969

7.12.1.2.9 Genus Protochromadora Inglis, 1969 (Fig. 7.93 I)

Number of species: 3
Type species: Protochromadora scampae (Coles, 1965)
Inglis 1969 (= Euchromadora scampae Coles, 1965)

7.12.1.2.10 Genus Rhips Cobb, 1920 (Fig. 7.93 J)

Number of species: 7
Type species: Rhips ornata Cobb, 1920

7.12.1.2.11 Genus Steineridora Inglis, 1969 (Fig. 7.93 K)

Number of species: 4
Type species: Steineridora loricata (Steiner, 1916) Inglis, 1969 (= Spiliphera loricata Steiner, 1916)

7.12.1.2.12 Genus Trochamus Boucher & de Bovée, 1971 (Fig. 7.93 L)

Number of species: 3
Type species: Trochamus carinatus Boucher & Bovée, 1972

7.12.1.3 Subfamily Hypodontolaiminae de Coninck, 1965

Diagnosis: Chromadoridae. Cuticle punctated heterogeneously or rarely homogeneously, with or without
lateral differentiation. Six outer labial papillae (except Megodontolaimus with outer labial setae) and four cephalic setae in two separate circles. Amphideal fovea distinct or rather obscure, transverse flattened oval, generally located between the four cephalic setae. Stoma funnel-shaped, armed with hollow teeth; the large dorsal tooth may be opposed by two smaller ventrosublateral teeth, denticles may be present; anterior part of pharynx often with prominent dorsal muscular swelling. Males with cup-like precloacal supplements, rarely absent. Marine, brackish water.

Type genus: Hypodontolaimus de Man, 1886

7.12.1.3.1 Genus Chromadorissa Filipjev, 1917  
(Fig. 7.94 A)


Number of species: 3
Type species: Chromadorissa beklemishevi Filipjev, 1917

7.12.1.3.2 Genus Chromadorita Filipjev, 1922  
(Fig. 7.94 B)

(= Allgeniella Strand, 1974)

Diagnosis: Hypodontolaiminae. Cuticle ornamentation homogeneous exceptionally with slightly more pronounced punctuation at the level of lateral fields. Hollow teeth, mostly one dorsal and one or two ventrosublateral, rarely one indistinct dorsal tooth only; sometimes tiny denticles may be present. Pharynx may be swollen anteriorly in various degrees; posterior bulb single. Precloacal supplements present or absent. Mostly marine, two species were also recorded in fresh water.

Number of species: 27
Type species: Chromadorita demaniana Filipjev, 1922

A sub-group within the Innocuonema-Chromadorita complex lacks precloacal supplements, has a somewhat elongated angular punctuation and a tail with the tip bent to the left and dorsally curved. Platt and Warwick (1988) remarked that some confusion may arise between Chromadorita and Innocuonema Inglis, 1969; both genera need revision.

7.12.1.3.3 Genus Deltanema Kreis, 1929

Diagnosis (after Decraemer & Smol 2006): Hypodontolaiminae. Body cuticle with fine transverse annulations; ornamentation not described. Amphideal fovea transverse slit-like, located anterior to a large dorsal tooth. Buccal cavity large, with well-developed dorsal tooth and two (?) smaller ventrosublateral teeth.

Type and only species: Deltanema parvum Kreis, 1929

Marine; genus originally described as close to Chromadorina and Chromadorita but distinguished from these genera by well-developed teeth. Deltanema is a monotypic genus known only from females of the type population. The genus was synonymized with Metalinhomeous by Hope and Murphy (1972) but recognized as valid by Lorenzen (1981, 1994). The limited description and illustrations of the type species are responsible for the unclear taxonomic status of this marine genus. Here, the genus Deltanema is considered as genus dubius.

7.12.1.3.4 Genus Denticulella Cobb, 1933  
(Fig. 7.94 C)

Diagnosis (after Dashchenko 2002): Hypodontolaiminae. Body cuticle with heterogeneous punctuation along the body, lateral differentiation of larger dots not arranged in longitudinal rows and, in the region of the buccal cavity, a pattern recalling the plaiting of a basketball may be present. Buccal cavity with a hollow dorsal tooth, two smaller ventrosublateral teeth and numerous additional denticles. Pharynx anteriorly with asymmetrical dorsal swelling with a degree of swelling related to the size of dorsal tooth, and posteriorly with a single end bulb. Males with cup-shaped precloacal supplements. Marine.

Number of species: 2
Type species: Denticulella pellucida Cobb, 1933

The genus is intermediate in position between the genera Chromadorita and Dichromadora, (Decraemer & Smol, 2006) the cuticle being laterally differentiated into larger dots, not arranged into longitudinal rows as in Chromadorita, and the buccal teeth similar in arrangement as in Dichromadora; denticles considered as typical of the genus were also observed in Dichromadora hyalocheile Gerlach, 1951. Wieser (1954) transferred Dichromadora stygia Gerlach, 1952 to Denticulella, but Blome (1974) transferred it to a new genus Parachromadorita Blome, 1974.

7.12.1.3.5 Genus Dichromadora Kreis, 1929  
(Fig. 7.94 D)

Diagnosis: Hypodontolaiminae. Cuticle ornamented homogeneously with a pronounced lateral differentiation.
Fig. 7.94: Examples of Hypodontolaiminae. A, Chromadorissa beklemishevi (adapted from Filipjev 1917, Fig. A–C, G); B, Chromadorita tenuis (from Gerlach 1965, Abb. 23); C, Denticulella boreala (from Dashchenko 2002, Fig. 2); D, Dichromadora geophila (from Gerlach 1951, Abb. 9); E, Hypodontolaimus colesi (from Platt & Warwick 1988, Fig. 73); F, Innuconema flaccidum (from Wieser 1959, Fig. 56); G, Karkinochromadora lorenzeni (from Blome 1982, Abb. 26 I–K); H, Megodontolaimus coxbazari (from Timm 1969, Fig. 1–2); I, Neochromadora poecilosoma (from Gerlach 1951, Abb. 9); J, Panduripharynx ornata (from Timm 1961, Fig. 29, anterior body) and P. pacifica (from Belogurov et al. 1985, Fig. 2, head); K, Parachromadorita stygia (from Blome 1974, Abb. 6–14); L, Ptycholaimellus adocius (from Dashchenko & Belogurov 1984, Fig. 2, head, optical section), PE hibernus (from Eskin & Hopper 1985, Fig. 4–5, surface view of head, male tail) and P. pandispiculatus (from Hopper 1961, Fig. 2, pharyngeal region); M, Spilophorella candida (from Gerlach 1951, Abb. 1, head and pharyngeal region) and S. paradoxa (from Gerlach 1951, Abb. 2).
in the form of two longitudinal rows of enlarged dots bordering the lateral field without ornamentation. Buccal cavity armed either with a single S-shaped hollow dorsal tooth or with three teeth, the dorsal one being larger than the two ventrosobratal lateral ones; sometimes denticles may be present. Pharynx usually not swollen anteriorly; posterior bulb single. Precloacal supplements in male absent or present. Marine, with three brackish water species. Number of species: 25
Type species: *Dichromadora cephalata* (Steiner, 1916) Kreis, 1929 (= *Chromadora cephalata* Steiner, 1916)

7.12.1.3.6 *Genus Hypodontolaimus* de Man, 1886
(Fig. 7.94 E)

(= *Iotadorus* Cobb, 1920)
Number of species: 27
Type species: *Hypodontolaimus inaequalis* (Bastian, 1865) de Man, 1886 (= *Spiliphera inaequalis* Bastian, 1865)
*Hypodontolaimus* is similar to *Dichromadora* except for shape of the dorsal tooth and apophysis.

7.12.1.3.7 *Genus Innocuonema* Inglis, 1969
(Fig. 7.94 F)

Number of valid species: 6
Type species: *Innocuonema flaccidum* (Wieser, 1959) Inglis, 1969 (= *Graphonema flaccidum* Wieser, 1959)
A revision of the genus is recommended because the difference between the genera *Chromadorita* and *Innocuonema* is not quite clear.

7.12.1.3.8 *Genus Karkinochromadora* Blome, 1982
(Fig. 7.94 G)

Type and only species: *Karkinochromadora lorenzeni* (Jensen, 1980) Blome, 1982 (= *Chromadora lorenzeni* Jensen, 1980)

Originally, the *Karkinochromadora* type species was described as a *Chromadora* species (Jensen, 1980) with a single dorsal tooth; the anteriormost dorsal tooth was apparently interpreted as part of the folded stoma wall.

7.12.1.3.9 *Genus Megodontolaimus* Timm, 1969
(Fig. 7.94 H)

*Diagnosis*: Hypodontolaiminae. Body cuticle with larger dots toward the extremities of the body or only anteriorly, and with lateral differentiation of larger dots at the borders of the lateral field; two or six alae are present, showing fine cross bars. Inner and outer labial sensilla as short setae, cephalic sensilla as much longer setae. Buccal cavity with a large hollow ventral tooth with hooked tip and a two-pronged dorsal tooth with crescent thickening along the buccal wall. Posterior pharyngeal bulb double. No precloacal supplements. Gubernaculum with lateral sleeve.
Number of valid species: 2
Type species: *Megodontolaimus coxbazari* Timm, 1969

7.12.1.3.10 *Genus Neochromadora* Micoletzky, 1924
(Fig. 7.94 I)

*Diagnosis*: Hypodontolaiminae. Body cuticle with complex and obvious punctations, no lateral differentiation. Buccal cavity with a single S-shaped hollow dorsal tooth or with three teeth, the dorsal one being larger than the two ventrosobratal lateral ones; sometimes denticles may be present. Pharynx usually not swollen anteriorly; posterior bulb single. Precloacal supplements in male absent or present. Marine, with three brackish water species. Number of species: 25
Type species: *Neochromadora poecilosoma* (de Man, 1893) Micoletzky, 1924 (= *Chromadora poecilosoma* de Man, 1893)

Hypodontolaimus is similar to *Dichromadora* except for shape of the dorsal tooth and apophysis.
7.12 Order Chromadorida Chitwood, 1933

7.12.1.3.11 Genus Panduripharynx Timm, 1969 (Fig. 7.94 J)

Diagnosis: Hypodontolaiminae. Cuticle ornamentation complex; lateral differentiation with larger dots bordering the lateral field (alae). Stoma broad, with well-cuticularized walls, large hollow dorsal tooth with small apophysis, two smaller hollow ventrosublateral teeth, and solid denticles. Peribuccal pharyngeal tissue swollen dorsally; posterior bulb double, massive, panduriform, with heavy internal sclerotizations. No precloacal supplements.
Number of species: 3
Type species: Panduripharynx ornata Timm, 1952

7.12.1.3.12 Genus Parachromadorita Blome, 1974 (Fig. 7.94 K)

Diagnosis (after Blome, 1974): Hypodontolaiminae. Body cuticle with lateral differentiation of irregular larger dots not arranged into longitudinal rows. Buccal cavity with a large hollow dorsal tooth, two smaller ventrosublateral teeth and a field of denticles. Peribuccal tissue swollen dorsally; pharyngeal end bulb single, pear-shaped. Male with cup-shaped precloacal supplements.
Type and only species: Parachromadorita stygia (Gerlach, 1952) Blome, 1974 (= Dichromadora stygia Gerlach, 1952)

The genus is differentiated from the related genera Chromadorita, Dichromadora and Chromadora by the type of lateral differentiation of the cuticle ornamentation as well as the shape of the amphideal fovea in the first two genera. It is also differentiated by the shape of the amphideal fovea from the genus Denticulella that also possesses a field of denticles. Marine.

7.12.1.3.13 Genus Ptycholaimellus Cobb, 1920 (Fig. 7.94 L)

Diagnosis: Hypodontolaiminae. Body cuticle with punctated ornamentation of two longitudinal rows of larger dots. Labial region usually offset and narrower than the rest of the head. Dorsal tooth in the buccal cavity large, hollow, with a dorsal apophysis. Peribuccal pharyngeal tissue swollen dorsally to accommodate the dorsal tooth. There, a pair of small globular cuticular bodies may be present on the outside of the peribuccal swelling. Posterior pharyngeal bulb double. Precloacal supplements mainly absent.
Number of species: 15
Type species: Ptycholaimellus carinatus Cobb, 1920

7.12.1.3.14 Genus Spilophorella Filipjev, 1917 (Fig. 7.94 M)

Diagnosis: Hypodontolaiminae. Cuticle with complex heterogeneous punctated ornamentation with lateral differentiation of larger dots arranged in longitudinal rows. Deep buccal cavity with a long hollow dorsal tooth. Peribuccal pharyngeal tissue swollen slightly and nearly symmetrical. Pharynx with elongated double posterior bulb. Tail terminated with a long pointed caudal tube (spinneret). Mostly marine, some species rarely were recorded in brackish habitats.
Number of species: 12
Type species: Spilophorella paradoxa (de Man, 1888) Filipjev, 1917 (= Spiliphera paradoxa de Man, 1888)

7.12.1.4 Subfamily Harpagonchinae Platonova & Potin, 1972


Type genus: Harpagonchus Platonova & Potin 1972

7.12.1.4.1 Genus Harpagonchus Platonova & Potin, 1972 (Fig. 7.95 A–D)

Diagnosis: Harpagonchinae. Pharynx posteriorly widened but not forming a true terminal bulb. Cup-shaped midventral precloacal supplementary organs present.
Number of species: 2
Type species: Harpagonchus averincevi Platonova & Potin, 1972

7.12.1.4.2 Genus Harpagonchoioides Platonova & Potin, 1972

Diagnosis: Harpagonchinae. Pharynx posteriorly terminated with a bulb. No precloacal supplementary organs in males.
Type and only species: Harpagonchoioides crassus Platonova & Potin, 1972.

Platonova and Potin (1972) initially described all the species and established the family Harpagonchidae.
Fig. 7.95: Examples of Harpagonchinae and Spilipherinae. A–D, *Harpagonchus averincevi* (from Platonova & Potin 1972, Fig. 1); E–L, Structures of *Acantholaimus* spp. E–J: *A. ewensis*, details (from Platt & Zhang 1982, Fig. 7); K, Spermatozoon of *A. mok* (from Gerlach et al. 1979, Abb. 2f); L, Spermatozoon of *A. calathus* (from Gerlach et al. 1979, Abb. 8G); M, *Spiliphera gracilicauda* (from Platt & Warwick 1988, Fig. 40).
within Chromadorida. Lorenzen (1981, 1994) restudied the type specimens and lowered the rank of Harpagonchidae to the level of subfamily within the family Chromadoridae, particularly on the basis of a single testis in the males.

The harpagonchines are evidently quite peculiar in the mode of life. All the species were collected from subantarctic and antarctic polychaete worms, *Harpagonchus avercinevi* and *H. similis* on the gills of *Aglaophamus macroura* (Nephtyidae), and *Harpagonchoides crassus* between parapodia of *Hemipodus digitifera* (Glyceridae). The nematodes fasten themselves onto body of polychaetes using mandibular hooks. The only other known example of such ectsymbiosis (or even ectoparasitism) of nematodes on polychaetes is *Theristus polychaetophilus* (*Xyalidae*) on *Scolelepis squamata* presented by Hopper (1966).

7.12.1.5 Subfamily Spilipherinae Filipjev, 1918

*Diagnosis* (after Decraemer & Smol 2006): Chromadoridae. Body cuticle with homogeneous or heterogeneous punctation, with or without lateral differentiation. Buccal cavity with three or more solid teeth with or without apophyses. Six outer labial setae and four cephalic setae usually inserted at the same level. Amphideal fovea situated laterally on the head, spiral, i.e., either cryptospiral with a circular outline or a single-loop spiral with at most 1.5 turns. Pharynx with subdivided end bulb. Precloacal supplements setose or absent. Tail conical or elongate. Marine. Type genus: *Spiliphera* Bastian, 1865

7.12.1.5.1 Genus *Acantholaimus* Allgén, 1933 (*Fig. 7.95 E–L*)

(= *Neochromadorina* Kreis, 1963)

*Diagnosis*: Spilipherinae. Body cuticle punctated with dots variously, often with transverse rows; lateral differentiation may be present as enlarged dots, irregular or arranged in rows. Amphideal fovea large, round with interrupted posterior rim or nearly comma-shaped. Buccal armament as three or more solid teeth, minute or large, often protrusible. Spicules of a peculiar shape, flattened and strongly broadened proximally. Spermatozoa giant, pear-shaped, often structurally complex. No precloacal supplements. Tail rather long, filiform. Marine, mostly deep-sea.

Number of species: 47

Type species: *Acantholaimus longisetosus* Allgén, 1933

*Acantholaimus* distinguishes itself from other genera of Chromadoridae by some features, particularly by structurally complex spermatozoa. The latter may be comparable in size with ova in uterus; usually, the giant spermatozoa are visibly very few in number within a male gonad (e.g., Gerlach et al. 1979). *Acantholaimus* is a typical deep-sea genus occurring in all oceans in the continental slope and abyssal plains (de Mesel et al. 2006). *Acantholaimus* is present in nearly every sample of deep-sea sediment, where moreover, the genus may be very abundant and species-rich. Not infrequently, several species occur together in one sample, and then they differ from one another in body size, tail length and details of the buccal armament (Miljutina & Miljutin 2012; Miljutina et al. 2013); possibly those species can occupy different ecological niches in deep-sea nematode communities.

7.12.1.5.2 Genus *Spiliphera* Bastian, 1865 (*Fig. 7.95 M*)

(= *Statenia* Allgén, 1930)

*Diagnosis*: Spilipherinae. Amphideal fovea in shape of clear open-looped spiral. Spicules not expanded proximally. Tail rather long, filiform.

Number of valid species: 2

Type species: *Spiliphera elegans* Bastian, 1865

7.12.2 Family Cyatholaimidae Filipjev, 1918

*Diagnosis*: Chromadorida. Cuticle with transverse rows of punctations. Lateral punctations may be larger, irregular or arranged in longitudinal rows. Inner labial sensilla often setiform; six outer labial sensilla and four cephalic sensilla jointed in a single circle of ten setae (with very rare exceptions where in separate circles); the six outer labial setae longer than the four cephalic setae. Amphideal fovea lateral, multispiral. Cheilostoma with distinctly cuticularized twelve rugae. Pharyngostoma with a large dorsal tooth, and usually with one or two pairs of smaller ventrosublateral teeth. Pharynx without or rarely with terminal bulb. Female didelphic-amphidelphic with anterior and posterior antidromously reflexed gonads always on different sides of the intestine. Male with two testes situated on opposite sides of the intestine, rarely with one testis; different types of precloacal supplements or supplements absent. Mostly marine, some species in brackish or freshwaters.

Type genus: *Cyatholaimus* Bastian, 1865
7.12.2.1 Subfamily Cyatholaiminae Filipjev, 1918


Type genus: Cyatholaimus Bastian, 1865

7.12.2.1.1 Genus Cyatholaimus Bastian, 1865 (Fig. 7.96 A) (syn. Necticonema Marion, 1970)

Diagnosis: Cyatholaiminae. No lateral differentiation of the cuticle. No precloacal supplements. Gubernaculum paired, distally swollen, squarish, with large pointed teeth. Tail conical.

Number of species: 13

Type species: Cyatholaimus ocellatus Bastian, 1865

7.12.2.1.2 Genus Longicyatholaimus Micoletzky, 1924 (Fig. 7.96 B)


Number of species: 9

Type species: Longicyatholaimus longicaudatus (Micoletzky, 1924)

7.12.2.1.3 Genus Marylynnia Hopper, 1977 (Fig. 7.96 C)

Diagnosis: Cyatholaiminae. Lateral differentiation of cuticle of larger and widely spaced dots; two types of cuticular pores present. Buccal cavity with dorsal tooth and two pairs of small subventral teeth. Cup-shaped precloacal supplements, very slightly cuticularized. Gubernaculum distally dentate, paired. Tail conico-cylindrical.

Number of species: 16

Type species: Marylynnia annae (Wieser & Hopper, 1967) (= Longicyatholaimus annae Wieser & Hopper, 1967)

7.12.2.1.4 Genus Metacyatholaimus Stekhoven, 1942 (Fig. 7.96 D)


Number of species: 6

Type species: Metacyatholaimus hirschi Stekhoven, 1942

7.12.2.1.5 Genus Paralongicyatholaimus Stekhoven, 1950 (Fig. 7.96 E)


Number of species: 4

Type species: Paralongicyatholaimus mastigodes Stekhoven, 1950

7.12.2.1.6 Genus Paramarylynnia Huang & Zhang, 2007 (Fig. 7.96 F)


Type and only species: Paramarylynnia subventrosetata Huang & Zhang, 2007

7.12.2.1.7 Genus Phyllolaimus Murphy, 1963 (Fig. 7.96 G)

Diagnosis: Cyatholaiminae. Cuticle without lateral differentiation as longitudinal rows of enlarged dots. Buccal cavity cyathiform with prominent, elongate dorsal tooth; additional teeth may be present. Lips with distinctive foliaceous processes of labial rugae. No basal pharyngeal bulb.

Number of species: 2

Type species: Phyllolaimus tridentatus Murphy, 1963

7.12.2.1.8 Genus Praeacanthonchus Micoletzky, 1924 (Fig. 7.96 H)

Diagnosis: Cyatholaiminae. Lateral differentiation of larger dots. Teeth in the buccal cavity variably developed...
Fig. 7.96: Examples of Cyatholaiminae 1. A, *Cyatholaimus ocellatus* (from Wieser 1955, Abb. 2 A–E); B, *Longicyatholaimus marilynae* (from Hopper 1972, Fig. 17–19); C, *Marylynnia annae* (from Hopper 1972, Fig. 1–3); D, *Metacyatholaimus spatiosus* (from Wieser 1954, Fig. 99); E, *Paralongicyatholaimus macramphis* (from Lorenzen 1972a, Abb. 8); F, *Paramarylynnia subventrosetata* (from Huang & Zhang, 2007, Fig. 1); G, *Phyllolaimus tridentatus* (from Murphy, 1963, Fig. 2 A, C); H, *Praecanthonchius punctatus* (from De Coninck, Stekhoven, 1933, Fig. 31, 32); I, *Xyzors fitzgeraldae* (from Inglis 1963, 25, 27); J, *Acanthonchus duplicatus* (from Wieser 1959, Fig. 42); K, *Biarmifer laminatus* (from Wieser, 1954, Fig. 97); L, *Paracanthonchus serratus* (from Wieser 1959, Fig. 40).
and may be reduced. Tubular precloacal supplements. Gubernaculum distally dentate, proximally single.

Number of species: 10

Type species: *Praeacanthonchus punctatus* (Bastian, 1865) Micoletzky, 1924 (= *Cyatholaimus punctatus* Bastian, 1865)

### 7.12.2.1.9 Genus *Xyzors* Inglis, 1963 (Fig. 7.96 I)


Number of species: 3

Type species: *Xyzors fitzgeraldae* Inglis, 1963

### 7.12.2 Subfamily Paracanthonchinae

**De Coninck, 1965**


Type genus: *Paracanthonchus* Micoletzky, 1924

#### 7.12.2.2.1 Genus *Acanthonchus* Cobb, 1920 (Fig. 7.96 J)


Number of species: 10

Type species: *Acanthonchus viviparus* Cobb, 1920

#### 7.12.2.2 Genus *Biarmifer* Wieser, 1954 (Fig. 7.96 K)


Number of species: 3

Type species: *Biarmifer cochleatus* Wieser, 1954

#### 7.12.2.3 Subfamily Pomponematinae

**Gerlach & Riemann, 1973**

*Diagnosis* (after Decraemer & Smol 2006): Cyatholaimidae. Body cuticle punctated, with lateral differentiation
7.12 Order Chromadorida Chitwood, 1933

Fig. 7.97: Examples of Cyatholaiminae and Achromadoridae. A, Paracyatholaimoides multispiralis (from Gerlach 1953c, Abb. 16); B, Paracyatholaimus intermedius (adapted from Gerlach 1953a, Abb. 5); C, Craspedema reflectans (from Gerlach 1964); D, Minolaimus lineatus (from Vitiello 1970, Fig. 25); E, Nannolaimoides decoratus (from Ott, 1972, Fig. 4, 7); F, Parapomponema hastatum (from Ott 1972, Fig. 13, 16–18); G, Pomponema elegans (from Lorenzen, 1972b, Abb. 2); H, Propomponema websteri (from Sharma & Vincx 1982, Fig. 26, 30); I, Xenocyatholaimus delamarei (from Gerlach 1953b, Fig. 1); J, Achromadora sedata (from Gagarin 2001, Fig. 1).
in ornamentation. Precloacal supplements knob-like or flattened, complicated, consisting of several elements; gubernaculum paired proximally.
Type genus: Pomponema Cobb, 1917

7.12.2.3.1 Genus Craspedema Gerlach, 1956 (Fig. 7.97 C)

Diagnosis: Pomponematinae. Lateral differentiation of body cuticle very prominent as longitudinal rows of enlarged punctations with broad lateral fields between them.
Number of species: 2
Type species: Craspedema octogoniata (Gerlach, 1954) Gerlach, 1956 (= Kraspodema octogoniatum Gerlach, 1954)

7.12.2.3.2 Genus Minolaimus Vitiello, 1970 (Fig. 7.97 D)

Diagnosis: Pomponematinae. Anterior body end conically narrowed. Lateral differentiation as three longitudinal rows of enlarged dots. Amphideal fovea large, multispiral, situated at a distance from cephalic apex. Buccal cavity very small and unarmed. Tail filiform.
Number of species: 2
Type species: Minolaimus lineatus Vitiello, 1970

7.12.2.3.3 Genus Nannolaimoides Ott, 1972 (Fig. 7.97 E)

Diagnosis: Pomponematinae. Lateral differentiation of cuticle irregular. Buccal cavity with small dorsal tooth and weakly developed ventrolateral projections. Gubernaculum with lateral flanges without teeth or denticles.
Number of species: 3
Type species: Nannolaimoides armatus (Gerlach, 1964) Ott, 1972 (= Nannolaimus armatus Gerlach, 1964)

7.12.2.3.4 Genus Parapomponema Ott, 1972 (Fig. 7.97 F)

Diagnosis (after Ott 1972): Pomponematinae. Cuticular ornamentation simple, lateral differentiation consisting of two rows of larger dots, beginning anterior to the middle of the pharynx. Gubernaculum with L-shaped lateral plates; preanal supplements consisting of an outer plate and an inner plate, joined by a constriction. Marine.
Number of species: 2
Type species: Parapomponema hastatum Ott, 1872

7.12.2.3.5 Genus Pomponema Cobb, 1917 (Fig. 7.97 G)

Diagnosis: Pomponematinae. Body cuticle heterogeneous, lateral differentiation as longitudinal rows of enlarged dots. Cuticle of head region may be thickened. Buccal cavity with a big pointed dorsal tooth, lesser subventral teeth and additional minute denticles. Gubernaculum with variously structured distal ends.
Number of species: 30
Type species: Pomponema mirabile Cobb, 1917

7.12.2.3.6 Genus Propomponema Ott, 1972 (Fig. 7.97 H)

Diagnosis: Pomponematinae. Body cuticular ornamentation heterogeneous, with alternating rows of dots and slit-like markings, no lateral differentiation except for slight lateral irregularity on the tail. Gubernaculum with lateral flanges bearing blunt teeth.
Number of species: 2
Type species: Propomponema foeticolum Ott, 1972
Synonymization with Pomponema is possible.

7.12.2.4 Subfamily Xenocyatholaiminae Gerlach & Riemann, 1973

Diagnosis (after Decraemer & Smol 2006): Cyatholaimidae. Cuticle with transverse striae, only with punctated ornamentation anterior to the amphideal fovea and on tail; ten longitudinal ridges present. Six outer labial setae and four cephalic setae arranged in a single circle, the four cephalic setae being shorter than six outer labial setae. Amphideal fovea multispiral, located and about one head width from anterior end. Buccal cavity large, with large pointed dorsal tooth. Precloacal supplements absent; gubernaculum small. Marine.
Type and only genus: Xenocyatholaimus Gerlach, 1953

7.12.2.4.1 Genus Xenocyatholaimus Gerlach, 1953 (Fig. 7.97 I)

Diagnosis: see diagnosis of Xenocyatholaiminae.
Type and only species: Xenocyatholaimus delamarei Gerlach, 1953
7.12.3 Family Achromadoridae
Gerlach & Riemann, 1973

*Diagnosis*: Chromadorida. Cuticle with transverse rows of fine punctations, without pronounced lateral differentiation. Six inner labial sensilla papillose. Six outer labial setae and four shorter cephalic setae form a jointed circle, but seldom may be arranged in two separate circles. Amphideal fovea spiral, situated posterior to the cephalic setae. Buccal cavity with a distinct dorsal tooth, subventral teeth small or absent. Pharynx with moderately developed terminal bulb. Female anterior and posterior gonad situated on the same side of the intestine, either both on the left or on the right side. Males rare; precloacal supplements inconspicuous or absent. Reproduction mostly by parthenogenesis. A purely limnetic-terrestrial family.

Type genus: *Achromadora* Cobb, 1913

Lorenzen (1981, 1994) concluded that Achromadoridae is a holophyletic taxon; the holophyly is established with two holapomorphies: 1) position of both anterior and posterior ovaries on the same side of the midgut and 2) prevailing parthenogenetic mode of reproduction. According to the tree based on small subunit rDNA sequences (Holterman et al., 2008), Achromadoridae and Cyatholaimidae are sister groups to each other; further, they are grouped with Ethmolaimidae and Chromadoridae.

Lorenzen (1981, 1994) included also *Kreisonema* Khera, 1969 and *Paradoxolaimus* Kreis, 1924, which both were earlier placed within Leptolaimidae. Both genera are poorly studied yet to understand their relationships within Chromadorea.

7.12.3.1 Genus *Achromadora* Cobb, 1913
(Fig. 7.97 J)

*Diagnosis*: see diagnosis of Achromadoridae.

Number of species: 24

Type species: *Achromadora minima* (Cobb, 1891) (junior synonym of *Achromadora ruricola* (de Man, 1880) Micoletzky, 1922)

*Achromadora* species are confined with terrestrial (soil, moss) and, to a lesser degree, freshwater biotopes.

7.12.4 Family Ethmolaimidae
Filipjev & Schuurmans Stekhoven, 1941

*Diagnosis*: Chromadorida. Cuticle with transversal rows of punctuation, lateral differentiation may be developed as enlarged dots. Pattern of anterior sensilla six + six + four, inner labial sensilla papillose, outer labial sensilla papillose or setose, cephalic sensilla setose. Amphideal fovea rounded and spirally coiled in one turn, located at the level of the stoma. Pharyngostoma tubular, with sclerotized walls and with three nearly equal teeth anteriorly, or subventral teeth, some smaller than the dorsal tooth. Pharynx around the stoma slightly thickened and offset; terminal thickening or bulb also present. Two opposed outstretched testes; both gonads on different sides of the intestine. Males with ventral row of precloacal cup-shaped supplements; ventral precloacal seta present. Tail conical, usually rounded tip.

Type genus: *Ethmolaimus* de Man, 1880. Three genera very close to one another.

7.12.4.1 Genus *Ethmolaimus* de Man, 1880
(Fig. 7.98 A)

*Diagnosis*: Ethmolaimidae. Head rounded with labial region not offset. Inner labial sensilla papillose, outer labial sensilla papillose or setose, cephalic sensilla setose or papillose. Most species are freshwater, some occur in brackish biotopes.

Number of species: 13

Type species: *Ethmolaimus pratensis* de Man, 1888

7.12.4.2 Genus *Paraethmolaimus* Jensen, 1994 (Fig. 7.98 B)

*Diagnosis*: Ethmolaimidae. Head with labial region set off. All anterior sensilla as papillae. Brackish and marine.

Number of species: 2

Type species: *Paraethmolaimus appendixocaudatus* Jensen, 1994

7.12.4.3 Genus *Trichethmolaimus* Platt, 1982 (Fig. 7.98 C)


Type and only species: *Trichethmolaimus hirsutus* (Gerlach, 1956) Platt, 1982 (= *Spiliphera hirsuta* Gerlach, 1956)

7.12.5 Family Neotonchidae
Wieser & Hopper, 1966

*Diagnosis*: Chromadorida. Cuticle annulated and punctated. Anterior sensilla arranged in three circles, only the
Fig. 7.98: Examples of Ethmolaimidae and Neotonchidae. A, Ethmolaimus pratensis (from Platt, 1982, Fig. 2); B: Paraethmolaimus appendicocaudatus (from Jensen 1994, Fig. 9); C, Trichethmolaimus hirsuta (from Gerlach 1956, Taf. 31, Fig. A–B); D, Comesa corcunda (from Gerlach 1956, Taf. 30, Fig. A–D); E, Filtonchus ewensis (from Platt 1982, Fig. 36); F, Gomphionchus lutosus (from Wieser & Hopper 1966, Fig. 20); G, Gomphionema typicum (from Platt 1982, Fig. 7 C–E); H, Nonchloraimus fusus (from Platt, 1982, Fig. 32); I, Neotonchus punctatus (from Wieser & Hopper 1966, Fig. 1–2: anterior body and male tail; Platt 1982, Fig. 16: head).
four cephalic setae are setiform. Amphideal fovea lateral, multispiral with more than three turns. Buccal cavity with large dorsal tooth, with or without two small subventral teeth. Pharynx with a muscular end bulb. Two opposed testes, rarely single anterior testis. Midventral precloacal cup-shaped supplements present. Spicules short and fairly straight but bent one-third of the distance from the distal end. Tail conical, with rounded tip. Strictly marine.

Type genus: *Neotonchus* Cobb, 1933

No morphological holomorphies are known for the Neotonchidae (Lorenzen 1981, 1994). Characterization of Neotonchidae presents a mixture of features of the families Chromadoridae (three separate circles of anterior sensilla, cup-shaped precloacal supplements), Cyatholaimidae (multispiral amphideal fovea, diorchic condition) and even Microlaimidae (buccal cavity of *Comesa*), and therefore various neotonchid genera were formerly placed in different families. Even the taxon Neotonchidae (originally established as a subfamily) has been referred to different families, Cyatholaimidae and Ethmolaimidae in two revisions of Wieser & Hopper (1966) and Platt (1982). Also, discrimination of now established genera is not always clear.

### 7.12.5.1 Genus *Comesa* Gerlach, 1956

(Fig. 7.98 D)

(= *Neotonchoides* Platt, 1982)

**Diagnosis:** Neotonchidae. Buccal cavity with a distinct forward-pointing tooth and ventral ridges but no subventral teeth. Posterior pharyngeal bulb small (<25% total pharynx length) but distinct.

Number of species: 9

Type species: *Comesa corcunda* Gerlach, 1956

### 7.12.5.2 Genus *Filitonchus* Platt, 1982

(Fig. 7.98 E)

**Diagnosis:** Neotonchidae. Body cylindrical, filiform. Inner labial sensilla papillose whereas outer labial and cephalic sensilla setose. Buccal cavity rather narrow; dorsal tooth small, if present.

Type and only species: *Filitonchus filiformis* (Warwick, 1971) Platt, 1982 (= *Neotonchus filiformis* Warwick, 1971)

### 7.12.5.3 Genus *Gomphionchus* Platt, 1982

(Fig. 7.98 F)

**Diagnosis:** Neotonchidae. Similar to *Gomphionema* but the dorsal tooth less strongly cuticularized and reaching the cheilostoma.


### 7.12.5.4 Genus *Gomphionema* Wieser & Hopper, 1966 (Fig. 7.98 G)

**Diagnosis:** Neotonchidae. Buccal cavity heavily cuticularized, consisting of an anterior concave chamber and a cylindroconoid posterior portion, and armed with a massive dorsal tooth not entering the cheilostoma; subventral teeth absent. Pharyngeal bulb large, “barrel-shaped”, occupying approximately one-third of the total pharyngeal length.

Number of species: 3

Type species: *Gomphionema typica* Wieser & Hopper, 1966

### 7.12.5.5 Genus *Nannolaimus* Cobb, 1933

(Fig. 7.98 H)

**Diagnosis:** Neotonchidae. Body cylindrical, filiform. Inner and outer labial sensilla setose. Buccal cavity rather narrow; dorsal tooth small, if present.

Number of species: 4

Type species: *Nannolaimus guttatus* Cobb, 1933

### 7.12.5.6 Genus *Neotonchus* Cobb, 1933

(= *Heterocyatholaimus* Allgén, 1935)

**Diagnosis:** Neotonchidae. Body punctated cuticle usually with some lateral differentiation. Sublateral pores associated with little somatic setae present. Buccal cavity weakly to moderately cuticularized, armed with a small to medium-sized triangular dorsal tooth, and with or without subventral teeth. Pharyngeal end bulb small, distinct. Gubernaculum simple, rod-like.

Number of species: 6

Type species: *N. punctatus* Cobb, 1933

### 7.12.6 Family Selachinematidae

Cobb, 1915

(= *Choanolaimidae* De Coninck & Stekhoven, 1933)

**Diagnosis:** Chromadorida. Annulated cuticle with transverse rows of dots often focused as tiny asterisks. Pattern of anterior sensilla six + ten. Amphideal fovea lateral, multispiral. Pharynx wide and strongly muscular, often with anterior and posterior muscular thickenings. Buccal...
cavity well-developed, two-chambered. Buccal armament derived from the sclerotized structures of the stoma walls (rhabdions), in the form of either three sets of small teeth, denticles, or two or three mandibles, but never dorsal and subventral teeth. Intestine consists of large bulging cells with distinct boundaries. Precloacal supplementary organs, when present, cup-shaped or setose but never tubular. Testes usually paired. Marine. Type genus: Selachinema Cobb, 1915

Broad truncated cephalic end and voluminous complex buccal cavity with elaborated armament are developed in connection with the raptorial mode of life of the selachinematids. Many of them were recorded repeatedly as predators of other nematodes. Gerlach (1964a) derived radially-symmetrical, two-chambered stoma of selachinematids from the bilaterally-symmetrical stoma of Cyatholaimidae through reduction of the anteriormost vestibular chamber (cheilostoma), disappearance of the prominent dorsal tooth and development of movable two-chambered stoma with walls strengthened by radial sclerotized beams (rhabdions).

There are two different trends of stoma development in two subfamilies. In Choniolaiminae, tooth-like structures are differentiated at the posterior ends of the rhabdions of the anterior cup-shaped stoma chamber. When the mouth opens by gripping a prey, the anterior chamber widens funnel-like. Anterior rhabdions diverge distally and meet together proximally, thus holding the prey with the teeth. In contrast, in Selachinematinae, when the thin-walled anterior chamber widens, three or two strong indented mandibles of the posterior chamber move outside and open to grasp a prey. There is a sequence of graduated reduction of the dorsal mandible within Selachinematinae, from Synorchium and Synonchiella with three equal mandibles, through Kosswigonema in which the dorsal mandible is notably smaller than subventral ones, to Demonema and especially Cheironchus, in which the dorsal mandible is vestigial.

Feeding of selachinematids on other nematodes was established already by pioneering nematologists (Allgén 1939, and sources cited therein). Okhlopkov (2003) studied gut content in some selachinematid species in the White Sea, Northern Russia and found that Gamma-nema rapax and Halichoanolaimus robustus, juveniles and adults, feed on only nematodes of various families and sizes. On the contrary, the gut content of Latronema aberrans consisted essentially of particles and debris of unclear origin.

There are two subfamilies classified within the family Selachinematidae.

### 7.12.6.1 Subfamily Choniolaiminae Schuurmans-Stekhoven & Adam, 1931

**Diagnosis:** Choniolaimidae. Radially symmetrical stoma consists of two compartments: an anterior broad, cup-shaped chamber and a posterior narrow, cylindroid chamber. The anterior chamber is reinforced by six radial cuticularized rhabdions that may bear tiny denticles posteriorly. Walls of the posterior chamber consist of three weaker longitudinal rhabdions.

Type genus: Choniolaimus Ditlevsen, 1918

#### 7.12.6.1.1 Genus Choanolaimus de Man, 1880 (Fig. 7.99 A)

**Diagnosis:** Choniolaiminae. All the anterior sensilla are papilloid. Cuticle is laterally differentiated with larger more widely separated dots. Amphideal fovea coiled in two or three turns. Rhabdions of the anterior cup-shaped stoma chamber posteriorly bicuspid. Pharynx cylindrical. Precloacal supplements are papilla pierced by fine pores. Tail very short, rounded conical or semicircular.

Type and only species: Choanolaimus psammophilus de Man, 1880. The species lives mainly in brackish subsoil water and thus cannot be considered as true marine.

#### 7.12.6.1.2 Genus Choniolaimus Ditlevsen, 1918 (Fig. 7.99 B)

(= Bulbopharyngiella Allgén, 1929)

**Diagnosis:** Choniolaiminae. All the anterior sensilla are papilloid. Cuticle is laterally differentiated with larger more widely separated dots. Amphideal fovea coiled in two or three turns. Rhabdions of the anterior cup-shaped stoma chamber posteriorly bicuspid. Pharynx cylindrical. Precloacal supplements are papilla pierced by fine pores. Tail very short, rounded conical or semicircular.

Type and only species: Choanolaimus psammophilus de Man, 1880. The species lives mainly in brackish subsoil water and thus cannot be considered as true marine.

#### 7.12.6.1.3 Genus Cobbionema Filipjev, 1922 (Fig. 7.99 C)

**Diagnosis:** Choniolaiminae. Outer labial sensilla as long setae, cephalic sensilla as short setae. Amphideal fovea...
Fig. 7.99: Images of genera Selachinematidae. A, *Choanolaimus psammophilus* (from Platt & Warwick 1988, Fig. 132); B, *Choniolaimus panicus* (from Okhlopkov 2002, Fig. 1); C, *Cobbionema acrocerca* (from Stekhoven 1950, Fig. 60); D, *Gammanema rapax* (from Okhlopkov, 2002, Fig. 6); E, *Halichoanolaimus* sp. (orig., Okhlopkov); F, *Latronema aberrans* (from Okhlopkov 2002, Fig. 9–10); G, *Cheiranchus conicaudatus* (from Tchesunov & Okhlopkov 2006, Fig. 4–5); H, *Demonema rapax* (from Gerlach 1958, Fig. 1B–C); I, *Kosswigonema acanthum* (from Gerlach 1964, Abb. 15); J, *Synonchiella hopperi* (from Tchesunov & Okhlopkov 2006, Fig. 10–11); K, *Synonchium obtusum* (from Gerlach 1964, Abb. 16).
spirally coiled in three turns. Stoma consists of anterior cup-shaped and posterior cylindrical chambers with denticles between them. Apophyses projected from anterior rhabdions into the pharyngeal tissue. Pharynx with strong anterior bulb and weaker posterior thickening. Tail consists of anterior conical and posterior slender cylindrical portions.

Number of species: 2
Type species: *Cobbionema acrocerca* Filipjev, 1922

### 7.12.6.1.4 Genus Gammanema Cobb, 1920
(Fig. 7.99 D)

(= *Trogolaimus* Cobb, 1920, opinion of Tchesunov & Okhlopkov 2006)

**Diagnosis:** Choniolaiminae. No lateral differentiation of the cuticle. Anterior and cephalic sensilla setose. Four cervical setae developed in most species. Cuticular rhabdions of the anterior cup-shaped stoma chamber often with fine longitudinal striation; the anterior rhabdions posteriorly terminate in teeth-like projections but no minute denticles on bottom of the anterior stoma chamber. No posterior pharyngeal bulb. Tail conical. Preanal midventral supplementary organs usually present, cup-shaped.

Number of species: 9
Type species: *Gammanema ferox* Cobb, 1920

### 7.12.6.1.5 Genus Halichoanolaimus De Man, 1886
(Fig. 7.99 E)

(= *Smalsundia* Allgén, 1929)

**Diagnosis:** Choniolaiminae. Lateral dots of the cuticle are bigger and more widely separated. All anterior sensilla are papilloid. Cervical setae not evident. There are three transversal sets of denticles between the anterior and posterior stoma chambers. No posterior pharyngeal bulb. Adult stages, at least, are devoid of rectum and anus, i.e., their intestine is blind. Precloacal supplementary organs papilloid or setose. Tail elongated with a distal cylindrical of filiform portion.

Number of species: 23
Type species: *Halichoanolaimus robustus* (Bastian, 1865)
(= *Spiliphera robusta* Bastian, 1865)

### 7.12.6.1.6 Genus Latronema Wieser, 1954 (Fig. 7.99 F)

**Diagnosis:** Choniolaiminae. Body very short, cylindrical, with abruptly truncated anterior end. Cuticle with fine but distinct annulations and 12–50 longitudinal ridges. All anterior sensilla setose, arranged in two circles, six + ten; outer labial and cephalic setae not united in lateromedian pairs but widely separated. Amphideal fovea often rather small, round, transversally oval, spirally coiled in one or two turns. Anterior stoma chamber large and can open up very wide. Anterior rhabdions very strong and terminate posteriorly in many pointed teeth that protrude outward by the wide opening of the mouth. Supplementary organs sucker-like or cup-shaped. Tail conical.

Number of species: 2
Type species: *Latronema orcinum* (Gerlach, 1952) Wieser, 1954 (= *Synonchiella orcina* Gerlach, 1952)
Number of species: 2
Type species: Demonema rapax Cobb, 1894

7.12.6.2.3 Genus Kosswigonema Gerlach, 1964  
(Fig. 7.99 I)

Diagnosis: Selachinematinae. Four long lateromedian setae and six lateral and submedian pairs of short setae. Amphideal fovea spirally coiled in 2.5–3 turns. Stoma consists of cup-shaped anterior chamber with strongly sclerotized walls and posterior portion transformed into a mandibular apparatus. Three mandibles: two subventral mandibles strong, consisting of two parts and bearing numerous teeth, and the dorsal mandible weaker. Pharynx muscular, anteriorly swollen; no posterior bulb. Supplementary organs cup-shaped. Tail short, conical.
Type and only species: Kosswigonema acanthum (Gerlach, 1957) Gerlach, 1964 (= Selachinema acanthum Gerlach, 1957)

7.12.6.2.4 Genus Synonchiella Cobb, 1933  
(Fig. 7.99 I)

Diagnosis: Selachinematinae. Cuticle with transverse rows of dots arranged transversally or longitudinally; lateral differentiation of the cuticle weakly developed, lateral differentiation or not developed at all. Anterior stoma chamber nonsclerotized and inconspicuous, posterior stoma equipped with three equally solid mandibles distally bilobed, with hooks or claws anteriorly. Pharynx without posterior bulb. Cup-shaped precloacal supplementary organs. Tail conical or with hind cylindrical portion.
Number of species: 15
Type species: Synonchiella truncata Cobb, 1933

7.12.6.2.5 Genus Synonchium Cobb, 1920  
(Fig. 7.99 K)

Diagnosis: Selachinematinae. Cuticle with transversal rows of dots. Anterior sensilla papillloid. Amphideal spirally coiled, relatively small and transversally oval. Anterior stoma chamber cup-shaped and relatively voluminous, with weak rhabdions; posterior stoma chamber provided with three equal mandibles with strong median tooth and weaker flank teeth. Preanal supplementary organs inconspicuous or absent. No gubernaculum. Tail short, conical.
Number of species: 3
Type species: Synonchium obtusum Cobb, 1920

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