

A key for the identification of economically important West African marine and freshwater shrimp-like crustaceans.

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(English version of Professor Theodore Monod's 1966 key, with some modification)

Introduction

Professor Monod in his paper on the shrimps and crabs of West African coast, gives a useful illustrated key for the identification of marine and freshwater shrimp-like crustaceans encountered in the industrial and artisanal fishery. As a first step in the bionomic studies of some of the marine shrimps, as well as in the efforts to build up a reference collection of crustaceans, it became necessary to translate Monod's key into English so as to make it readily usable. A few changes were later introduced in the key during the course of its application in the identification of marine and estuarine species. Some further changes in the key appear necessary. For instance, Heterocarpus ensifer is not keyed in the text, though figured by the author. Two freshwater species of Macrobrachium (M. foai and M. lujae) reported from Zaire (Holthuis, 1951) are also not in the key. Perhaps the status of these two species is doubtful or had changed at the time Monod wrote his work. The following key may therefore undergo some further changes, although in its present form, it is quite satisfactory for the identification of the common species.

Shrimp-like crustaceans (Decapoda-Natantia)

Pleura (side plates) of the second abdominal segment not overlapping those of the first segment. Third pair of pereiopods (walking legs) chelate (with pincers); fourth and fifth pereiopods not chelate ... Penaeidea (marine) ... A
 Pleura of second abdominal segment overlapping those of the first and third segments. Third pair of pereiopods non-chelate; that is, third, fourth and fifth pereiopods without pincers Caridea B

A. Penaeidea

- 1 Pleopods (swimming legs) 3 to 5 uniramous (not branched) Sicyonia galeata
 - Pleopods 3 to 5 biramous (branched) 2
- 2 Rostrum with teeth on dorsal and ventral surfaces 3
 - Rostrum with teeth on dorsal surface only 4
- 3 Coxa of pereiopod 1 to 3 each with a spine*. Telson with 3 pairs of spines (often dislodged or broken). Sixth abdominal segment without a groove on each side of the median carina. Lower surface of the rostrum with a single tooth. Carapace and abdominal segments with transverse bluish-brown bands; violet-blue margins of uropods fringed with red-setae. (Commonly called the tiger-shrimp or langostino) Penaeus kerathurus
 - Coxa of pereiopod 1 to 3 each without a spine*. Telson without spines. Sixth abdominal segment with a groove on each side of the median carina; lower surface of the rostrum with 2 teeth. Colour - brown or pinkish brown. (Common names: the shrimp; pink or rose or caramel shrimp) Penaeus duorarum notialis
- 4 Cervical groove well marked, reaching the medio-dorsal line. A post-orbital spine. Antennular flagella long (= carapace length), compressed and groove-like Solenocera membranaceum
 - Cervical groove incomplete. Post-orbital spine absent. Antennular flagella short, cylindrical and not grooved 5

*Not to be confused with basal spines on 1st and 2nd pereiopods, always present in Penaeus.

- 5 Dorsal surface of the rostrum with 3 teeth. Hepatic spine absent 6
- Dorsal surface of the rostrum with 5 teeth. Hepatic spine present 8
- 6 Carapace strongly sculptured. Fourth pereopod with an epipodite; third with a podobranch
Plesiopenaeus edwardsianus.
- Carapace almost smooth. Fourth pereopod without epipodite; third without a podobranch... Aristeus 7
- 7 Upper part of the internal half of the petasma entire Aristeus antennatus
- Upper part of the internal half of the petasma deeply notched Aristeus varidens
- 8 Antennular scale present; colour greyish 9
- Antennular scale absent; colour blood-red
Aristaeomorpha foliacea
- 9 Telson with one pair of spiniform teeth fixed subapically (apex trifid) and one pair of mobile spines (deciduous; often invisible). Fifth pair of pereopods similar to the preceding ones, not passing beyond 2/3 of the antennal scale; rostrum almost straight or only slightly curved10
- Telson with four pairs of subapical mobile spines. Fifth pair of pereopods thin, reaching beyond the extremity of antennal scale. Rostrum sigmoid, with a long non-toothed apex. Rostral formula 11/0 Parapenaeopsis atlantica
- 10 Rostrum relatively short and straight. Carapace without longitudinal and transverse sutures. Digits of pereopods 4 and 5 clawed. Petasma asymmetric. Rostral formula 7-10/0 Metapenaeopsis miersi
- Carapace with longitudinal and transverse sutures; digits of pereopods 4 and 5 flat, spear-shaped. Petasma symmetric. Rostral formula 8/0
Parapenaeus longirostris

B. Caridea

- 1 First two pair of pereopods more or less identical; carpe (= carpus) of 2nd pereopod not subdivided 2
- First two pair of pereopods more or less dissimilar; carpe of 2nd pereopod entire or subdivided 8
- 2 Pincers of first two pereopods oblique, with the digits of the chelae spoon-shaped and carrying tufts of bristles. Mandible without palps. (Freshwater Atyidae) 3

- Pincers of first two pereopods with prolonged carpe (digits normal, without tufts of bristles). Mandible with palp. (Marine forms) 6

- 3 Lateral rostral groove situated from the middle of the rostrum with the former's outer margin smooth or with an obtuse dent. Lower internal margin of merus of pereopod without a stub; telson about twice as long as wide 4
- Lateral rostral groove situated from the base of the rostrum, with an upturned strong dent-like projection on its outer edge; lower internal margin of merus of pereopod with a stub; telson almost as wide as long Atya gabonensis

- 4 Lateral rostral groove wider and rounded posteriorly; bristles on the telson edge medium and in a single series 5
- Lateral rostral groove narrow and pointed posteriorly, bordered on its outer margin by an obtuse dent in front of which the rostrum narrows; bristles on the posterior edge of telson medium and in 2 series Atya scabra

- 5 Rostrum sufficiently narrow, particularly at the sharp distal part. Lateral rostral grooves shallow and rounded. Dorsal rostral carina straight or slightly concave; ventral rostral surface only slightly carinated with some denticules. Stub on the merus of pereopod sufficiently pronounced and cornified apically...
Atya africana
- Rostrum wider and slightly rounded; lateral grooves sufficiently deep. Dorsal carina of rostrum narrow and quite inflexed at the extremity. Stub on walking leg low and slightly cornified
Atya intermedia

- 6 Pereopod 3 to 5 not abnormally long; pereopod 1 to 5 without exopodite. Dorsal and ventral surfaces of rostrum toothed Oplophoridae 7
- Pereopod 3 to 5 extremely long; 5th legs without exopodite; rostrum with teeth along dorsal surface only, the ventral surface simply setose
Nematocarcinus

- 7 3rd abdominal somite only carenated; posterior margins of 4th and 5th abdominal somites denticulated. Rostral formula 13-16/8-11. Photophores present Systellaspis debilis

- Only first abdominal somite without a carina; posterior margins of 4th and 5th abdominal somites entire. Rostral formula 5-11/3-7. No photophores ...
Acanthephyra
- 8 Carp of 2nd pereopod divided into 2 or more parts (marine, especially deep) 9
- Carp of 2nd pereopod simple, not divided (marine, estuarine, freshwater) Palaemonidae 18
- 9 Pincers of first pair of pereopods prominent, at least on one side; rostrum short or long 10
- Pincers of first pair of pereopods microscopic or absent. Rostrum always passes the eye, often very long, with dorsal and ventral teeth
Pandalidae 11
- 10 Right first pereopod with a pincer, left without. Rostrum short not passing the eye, apex bifid and without teeth on dorsal and ventral surfaces
Processidae (gen. Processa)
- Both the first pereopods chelate. Rostrum very long with dorsal and ventral teeth ... (Hippolytidae)
Hippolysmata (Exhippolysmata) hastatoides
- 11 Teeth at the base of the dorsal rostral surface 12
- Teeth along the whole length of the dorsal rostral surface 15
- 12 Posterior edge of 3rd abdominal segment with a median sharp tooth 13
- Posterior edge of 3rd abdominal segment rounded 14
- 13 Ventral rostral surface with numerous teeth (28-45); average size (up to 13cm) Plesionika ensis
- Ventral rostral surface with fewer teeth (9-11); size large (up to 27cm)..... Plesionika williamsi
- 14 Carapace at the very most with a feeble lateral carina along the branchial region. Pereopods 1 to 4 with epipodites. Rostrum with more than 20 ventral teeth Plesionika martia
- Carapace with a strong lateral carina along the branchial region. Pereopods 1 to 3 with epipodites. Rostrum with less than 20 ventral teeth.....
Plesionika carinata
- 15 Ventral rostral teeth spiniform and separate. Second pair of pereopods very unequal. Third

- abdominal segment with a dorsal median longitudinal carina Plesionika heterocarpus
- Ventral surface of the rostrum serrated with the teeth closely set or else rostrum very short with less than 10 ventral teeth. Second pair of pereopods similar. Third abdominal segment rounded dorsally, without a carina 16
- 16 Rostrum short (< carapace) and wide, with less than six teeth which do not form a serrated margin Plesionika acanthonotus
- Rostrum long (> carapace), narrow and needle-like, with a serrated ventral margin 17
- 17 Teeth at the base of the dorsal margin of the rostrum larger and of different form. Epipodites on pereopods 1 to 4 Plesionika edwardsii
- Dorsal and ventral margins of the rostrum alike, serrated and the spines closely set; basal spines of dorsal rostral margin not different from others. Epipodites absent on pereopods Parapandalus narval
- 18 Supraorbital spine present (freshwater) Desmocarid trispinosa
- Supraorbital spine absent 19
- 19 Branchiostegal spine absent, hepatic spine present .. 20
- Branchiostegal spine present, hepatic spine absent... 28
- 20 Digits of pereopods 3 to 5 simple (Macrobrachium)*.. 21
- Digits of pereopods 3 to 5 with 2 claws Brachycarpus biunguiculatus (marine littoral)
- 21 Length of carpus of second pereopod > length of merus 22
- Carpus of second pereopod shorter than merus**..... 27

*The key for Macrobrachium is not very satisfactory if the carp and merus of the second pereopod are more or less equal. For correct identification adult males should be used. Ovigerous females fall into two groups: either those with eggs small (< 1mm) and numerous (chevalieri, felicinum, macrobrachion, vollenhovenii, zariquieyi) or those with fewer but large (2-3mm) eggs (dux, raridens, sollaudii).

**In the case of M. vollenhovenii, the carpus and merus are practically equal.

- 22 Adult male with pincers of second pereopods very different in size and shape; digits of smaller one strongly curved and gaping with space between them filled by stiff bristles arising from the digits' margins Macrobrachium felicinum
- Adult male with pincers of second pereopods alike in size and shape; the digits are neither recurved nor gaping 23
- 23 Adult male with part of second pereopod padded (on lower margin of merus or else the digits). Eggs numerous and small (1mm diameter) 24
- Second pereopod of adult male without the pad. Eggs fewer and larger (2-3mm diameter) 25
- 24 Rostrum shorter than the antennular peduncle; dorsal teeth at base of rostrum more robust and erect than others*. Second pereopod of adult male massive with merus dilated and very hairy on lower surface. Carpus and pincers less hairy than merus, digits not so hairy as palm (freshwater)..... Macrobrachium chevalieri
- Rostrum slender, passing extremity of antennular peduncle; basal dorsal teeth of rostrum not very different from rest. Second pereopod of male slender with an elongated merus, but only digits of this leg are hairy (velvety felt-like pad), the others are bare or with some isolated setae (fresh and brackish waters)..... Macrobrachium macrobrachion
- 25 Carpus of 2nd pereopod always distinctly longer than palm (freshwater) Macrobrachium collaudii
- Carpus of 2nd pereopod also long or else shorter than palm 26
- 26 Space between two pairs of telson spines longer than that separating the two anterior pairs of spines. Second pereopod with carpus distinctly longer than merus (freshwater)..... Macrobrachium dux
- Space between two pairs of telson spines just as long or slightly shorter than that separating the two anterior pairs of spines. Second pereopod with carpus as long as or only just longer than merus (freshwater) Macrobrachium raridens

*This character does not seem to be very distinct.

- 27 Digits of 2nd pereopod \geq length of palm and without a large conical tooth internally. Small size (up to about 65mm). (Freshwater)
 Macrobrachium zariguieyi
 - Digits of 2nd pereopod notably shorter than the palm with a large tooth internally. Large size (up to 182mm). (Fresh and brackish water)
 M. vollenhovenii
- 28 Mandibular palp with two joints 29
 - Mandibular palp with three joints 31
- 29 Branchiostegal groove absent. Two apical setae at extremity of telson very large. Appendix interna on endopodite of male pleopod 1
 Leander tenuicornis
 - Branchiostegal groove present. Apical setae of telson small. Appendix interna on endopodite of male pleopod 1 absent 30
- 30 Pincers of 2nd pereopod a little greater than carpus. Rostral apex emarginate usually with 7 to 8 dorsal teeth of which 2 are above (on ?) carapace and a 3rd immediately above orbit. Usually 3 ventral rostral teeth (littoral) Palaemon (Palaeander) elegans
 - Pincers of 2nd pereopod notably smaller than carpus. One dorsal rostral tooth behind orbit; rostral apex slender and drawn out. (Brackish water) Palaemon (Palaeander) maculatus
- 31 Branchiostegal groove absent. Digits of pereopods 3 to 5 very slender and elongated ($>$ carpus+propodus). Rostrum slender and long, bent upwards. (Mainly marine but also occurs in brackish waters)
 Palaemon (Nematopalaemon) hastatus
 - Branchiostegal groove present. Digits of pereopods 3 to 5 smaller than propodus. (Marine; European reaching Cape Blanc)
 Palaemon (Palaemon) serratus

References

- Holthuis, L.B. (1951) The caridean crustacea of tropical West Africa. Atlantide Rep. 2.
 Monod, Th. (1966) Crevettes et Crabes de la cote occidentale de l'Afrique. Memoir IFAN No. 77.