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## Key to the species of Candaciidae Candacia occurring in the China Seas

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## REVIEW-TAXONOMIC INDEX

# Key to the Species of Candaciidae *Candacia* Occurring in the China Seas

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*Candacia armata* (10b/35a/f), *bipinnata* (10a/39a/f), *bispinosa* (3a/22a/f), *bradyi* (7a/30b/f), *catula* (18a/26a/f), *columbiae* (20b/39b/f), *curta* (13a/29a/f), *discaudata* (14a/30a/f), *elongate* (6a/25a/f), *ethiopica* (19a/33a/f), *guggenheimi* (16a/34b/f), *longimana* (11a/38a/f), *norvegica* (20a/34a/f), *pachydactyla* (18b/36a/f), *simplex* (5b/23a/f), *tenuimana* (13b/38b/f), *truncata* (5a/24a/f), *tuberculate* (16b/28a/f), *varicans* (12a/32a/f), *worthingtoni* (4a/24b/f)

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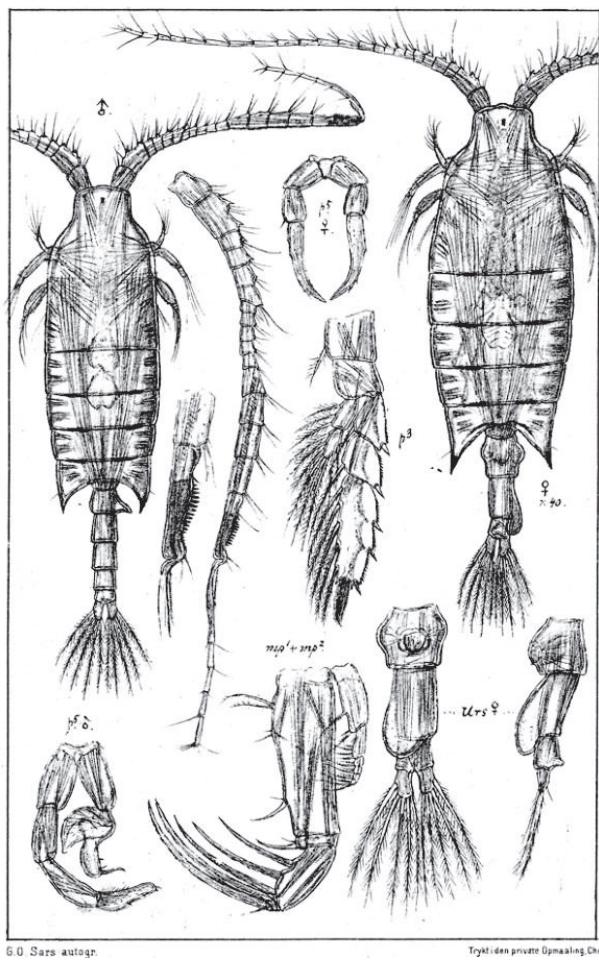
E-mail address: [ctshih@mail.ntou.edu.tw](mailto:ctshih@mail.ntou.edu.tw) (C.-t. Shih).



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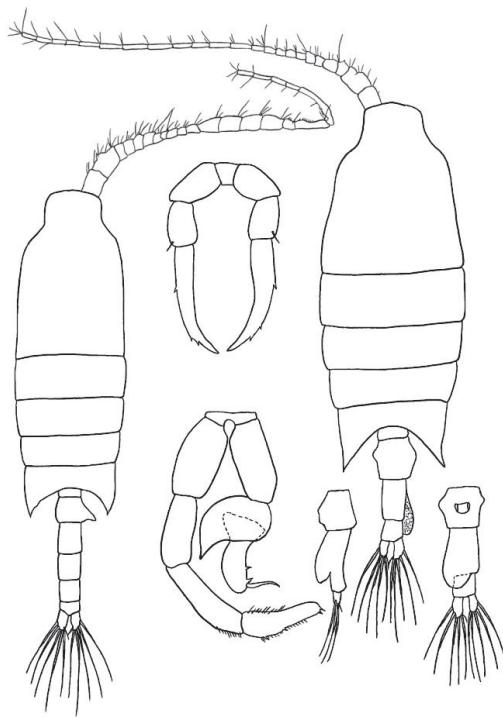
*Candacia armata* Boeck, 1872 (Size: female, 1.72–2.90 mm; male, 1.70–2.90 mm)



*Candacia armata* Boeck, 1872

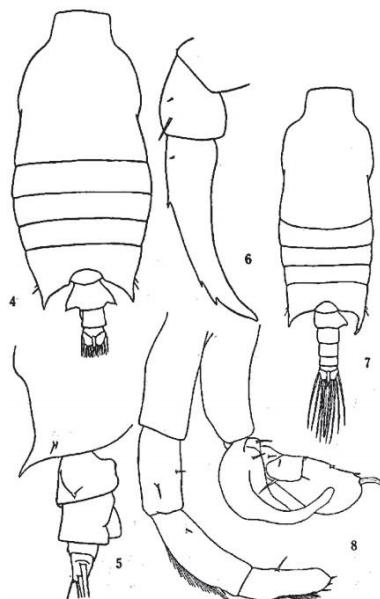
Sars, 1903: pl. 91. Female: habitat (dorsal); urosome (dorsal & lateral); maxilla & maxilliped; leg 3; leg 5. Male: habitat (dorsal); right antennule and its middle segments; leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en> [Accessed]

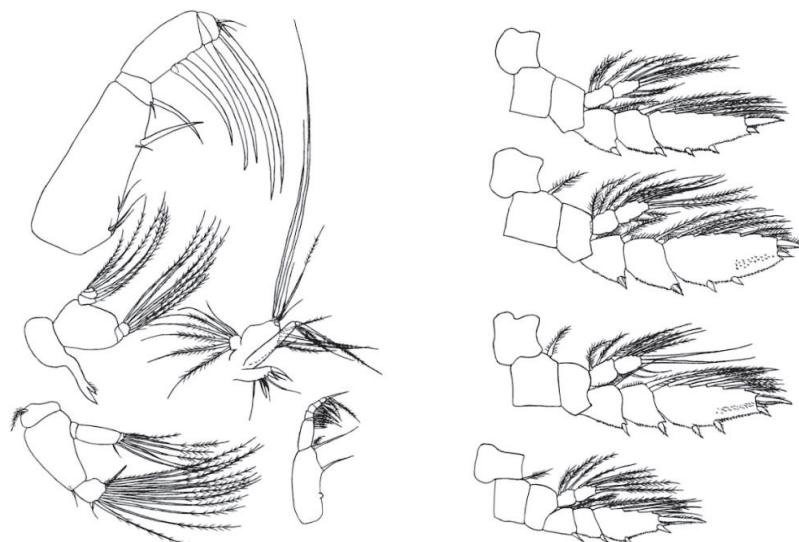
*Candacia armata* Boeck, 1872*Candacia armata* Boeck, 1872

Original. *C. armata* Boeck, 1872, female, 2.45 mm, East China Sea, habitus (dorsal); leg 5, urosome (dorsal/lateral); male, 2.38 mm, East China Sea, habitus (dorsal); leg 5.

*Candacia bipinnata* (Giesbrecht, 1889) (Size: female, 2.09–3.16 mm; male, 1.90–3.02 mm)



Chen & Zhang



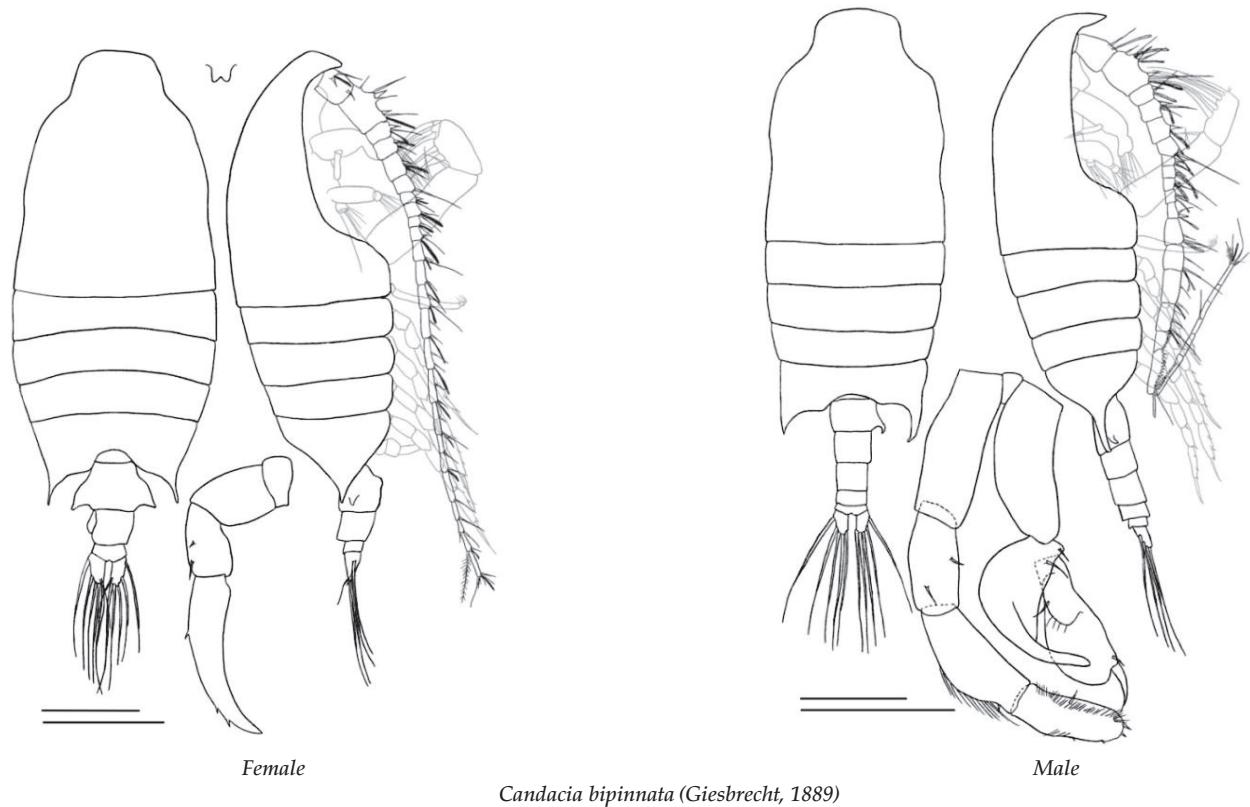
Original

*Candacia bipinnata* (Giesbrecht, 1889)

Chen & Zhang, 1965: pl. 37. *C. bipinnata* (Giesbrecht, 1889), Female. 4. Habitus (dorsal); 5. Urosome (lateral); 6. Left leg 5. Male. habitus (dorsal); 8. Leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed November 27, 2020].

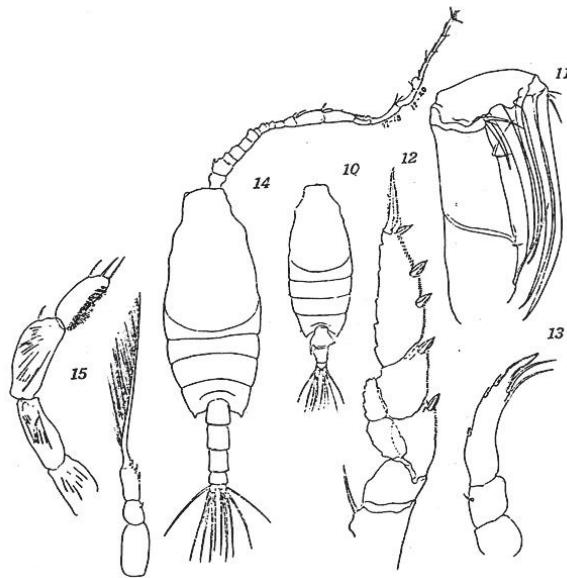
Original. *C. bipinnata* (Giesbrecht, 1889), Female, 2.64 mm, East China Sea (25°20'N 122°25'E): c. right antenna; d. right mandible; e. right maxillule; f. right maxilla; g. right maxilliped; h-k. right Legs 1–4.

*Candacia bipinnata* (Giesbrecht, 1889)

*Candacia bipinnata* (Giesbrecht, 1889)

Original. *C. bipinnata* (Giesbrecht, 1889), Female, 2.64 mm, East China Sea ( $25^{\circ}20'N$   $122^{\circ}25'E$ ): a/b. habitus (dorsal/lateral); c. leg 5 (posterior). Male, 2.40 mm, East China Sea ( $25^{\circ}20'N$   $122^{\circ}25'E$ ): a/b. habitus (dorsal/lateral); c. leg 5 (posterior).

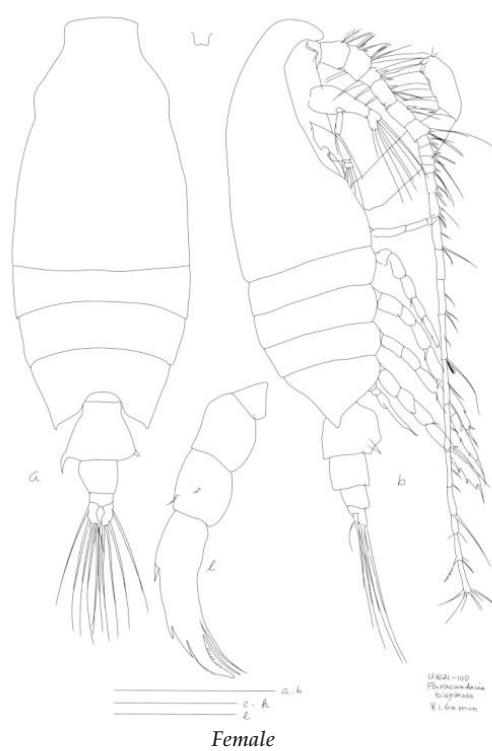
*Candacia bispinosa* (Claus, 1863) (Size: female, 1.50–2.16 mm; male, 1.36–2.00 mm)



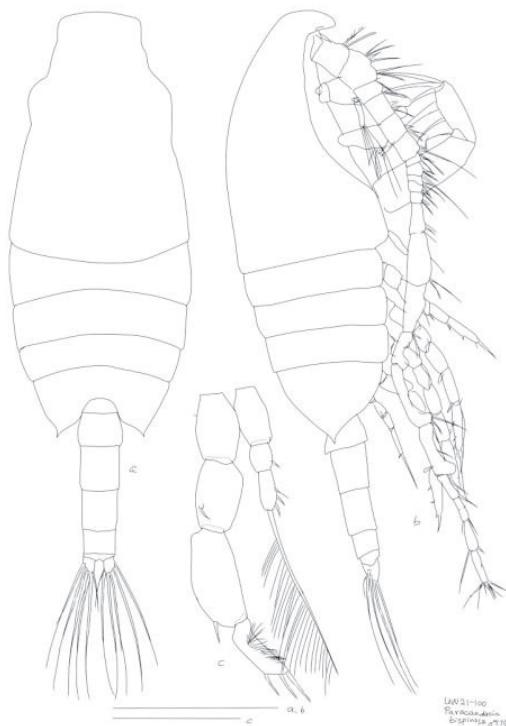
*Candacia bispinosa* (Claus, 1863)

Tanaka, 1935: pl. 6. Female. 10. Habitus (dorsal); 11. Maxilla; 12. Leg 3; 13. Leg 5. Male. 14. Habitus (dorsal); 15 leg 5 (left and right).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 20, 2021].

*Candacia bispinosa* (Claus, 1863)

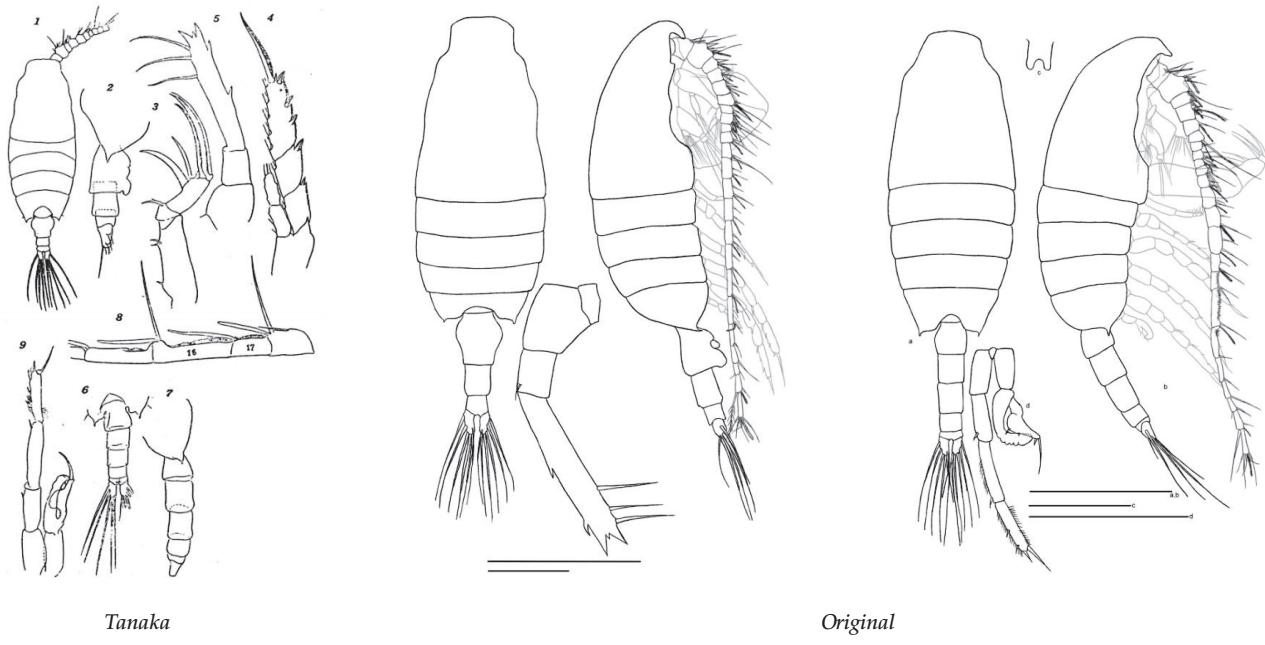
Female

*Candacia bispinosa* (Claus, 1863)

Male

Original. *C. bispinosa* (Claus, 1863), Female, 1.64 mm, East China Sea (25°25'N 122°15'E): a/b. habitus (dorsal/lateral); c. rostrum; d. leg 5. Male, 1.70 mm, East China Sea (25°25'N 122°15'E): a/b. habitus (dorsal/lateral); c. leg 5 (posterior).

*Candacia catula* (Giesbrecht, 1889) (Size: female, 1.32–1.70 mm; male, 1.30–1.62 mm)



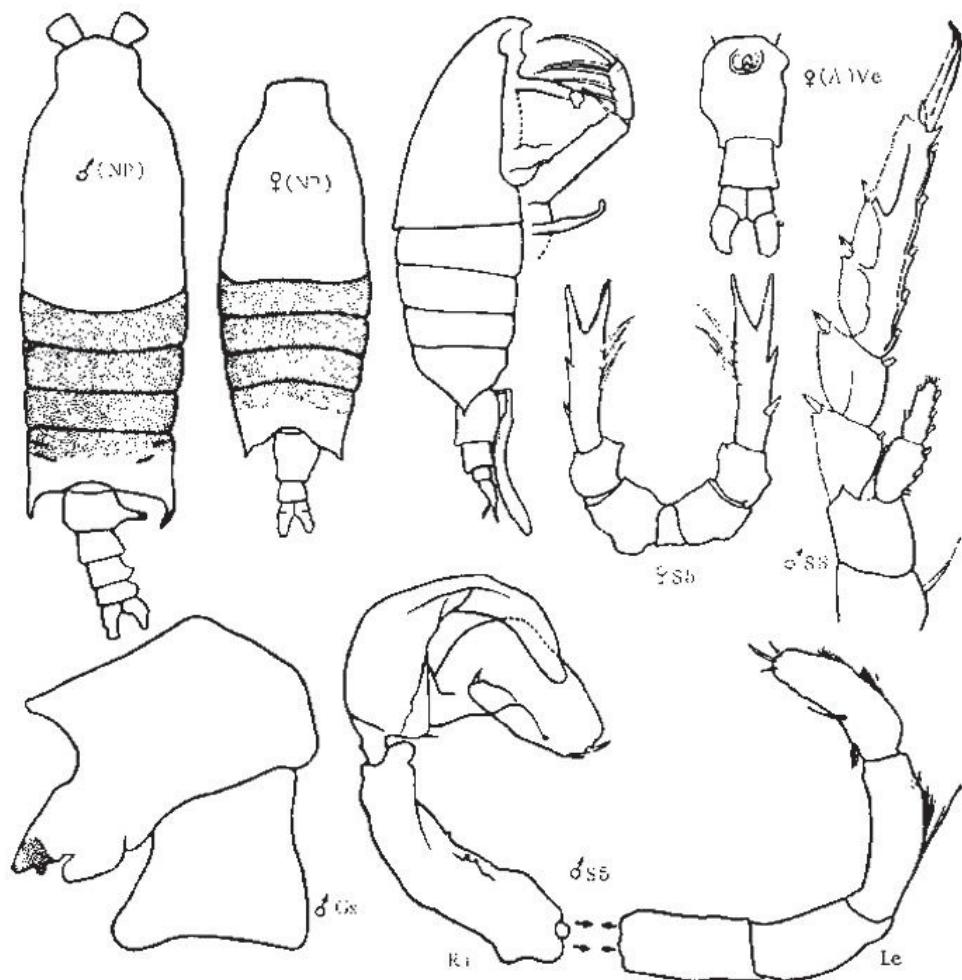
*Candacia catula* (Giesbrecht, 1889)

Tanaka, 1935: pl. 4. Female. 1. habitus (dorsal); 2. pediger 5 and urosome (lateral); 3. maxilla; 4. Leg 3; 5. leg 5. Male. 6/7. pediger 5 and urosome (dorsal/lateral); 8. right antennule; 9. leg 5 (anterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 26, 2021].

Original. *C. catula* (Giesbrecht, 1889), Female, 1.66 mm, East China Sea ( $25^{\circ}51'N$   $121^{\circ}28'E$ ): a/b. habitus (dorsal/lateral); c. leg 5 (posterior). Male, 1.46 mm, East China Sea ( $25^{\circ}51'N$   $121^{\circ}28'E$ ): a/b. habitus (dorsal/lateral); c. rostrum (anterior); d. leg 5 (posterior)

*Candacia columbiae* Campbell, 1929 (Size: female, 3.70–4.60 mm; male, 3.20–4.50 mm)

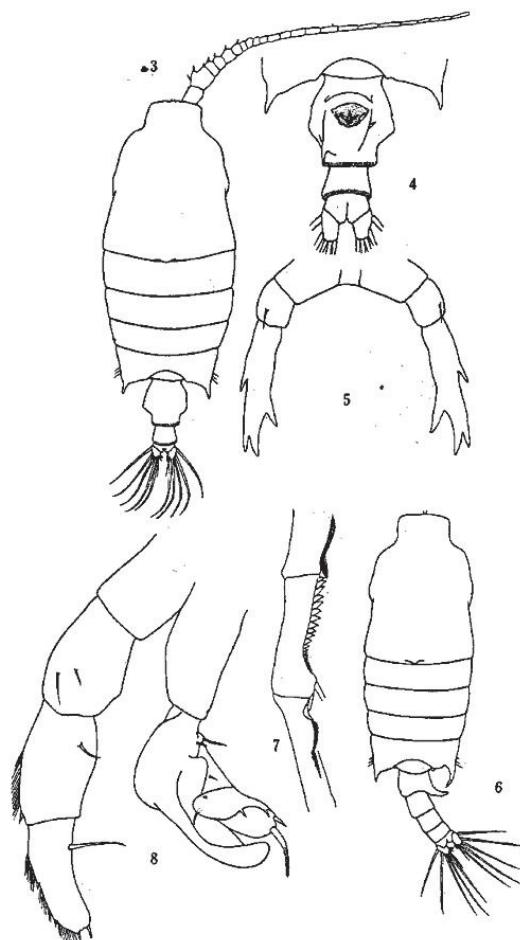


*Candacia columbiae* Campbell, 1929

Brodsky, 1950: Fig. 287. Female. habitus (dorsal/lateral); urosome (ventral); leg 5. Male. habitus (dorsal); leg 3; leg 5 (posterior); genital somite (lateral).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed may 07, 2021].

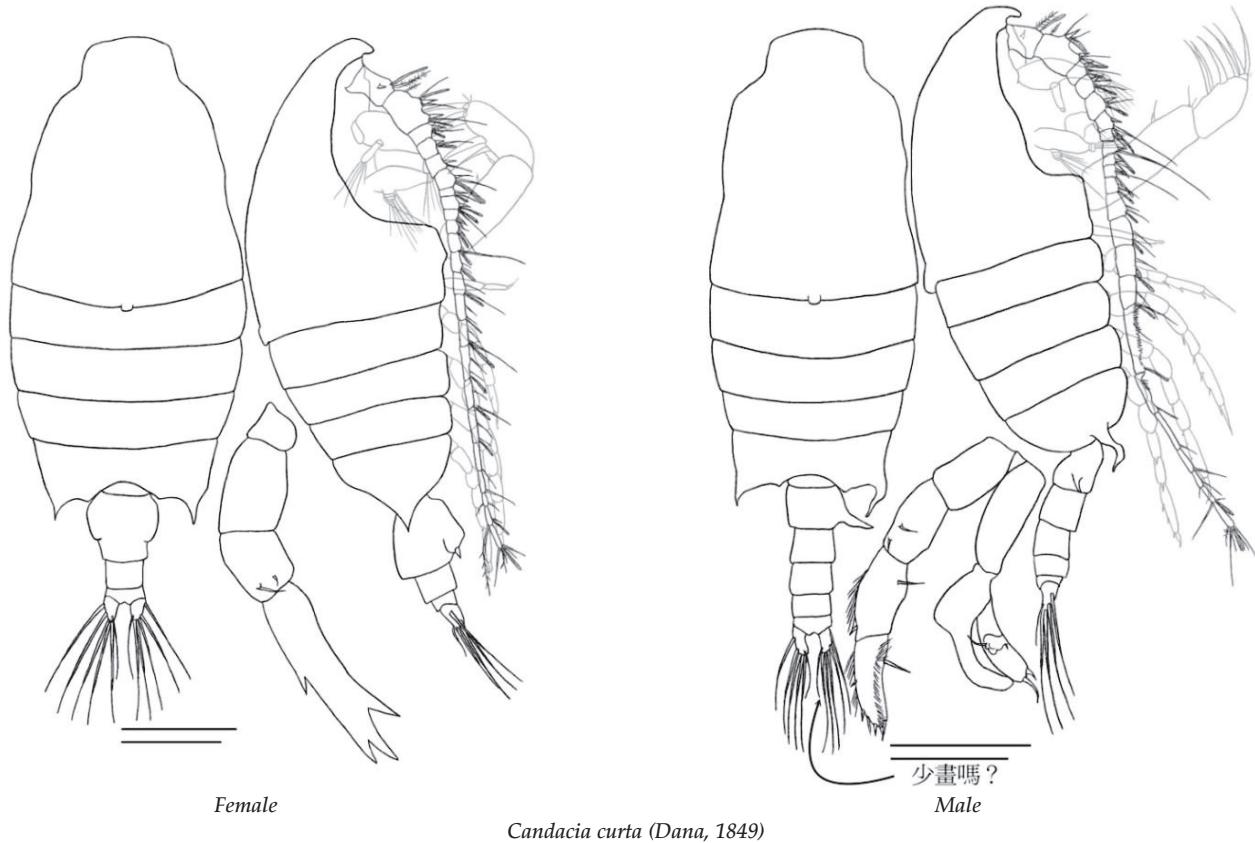
*Candacia curta* (Dana, 1849) (Size: female, 1.80–2.50 mm; male, 1.46–2.72 mm)



*Candacia curta* (Dana, 1849)

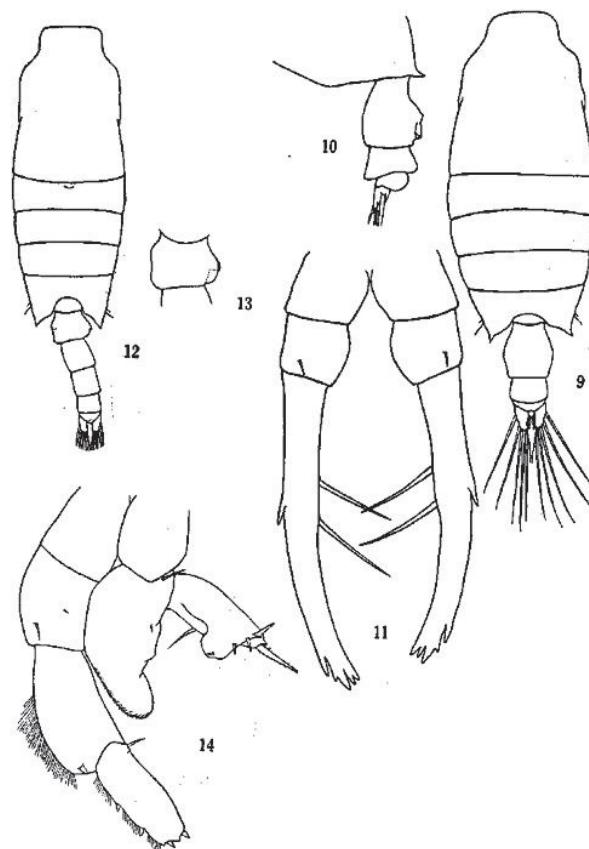
Chen & Zhang, 1965: pl. 36. Female. 3. habitus (dorsal); 4. urosome (ventral); 5. leg 5. Male. 6. habitus (dorsal); 7. right antennule segments 16–18; 8. leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 27, 2021].

*Candacia curta* (Dana, 1849)

Original. *C. curta* (Dana, 1849), Female, 2.50 mm, East China Sea (25°39'N 122°50'E): a/b. habitus (dorsal/lateral); c. leg 5 (posterior). Male, 2.40 mm, East China Sea (25°39'N 122°50'E): a/b. habitus (dorsal/lateral); c. leg 5 (posterior).

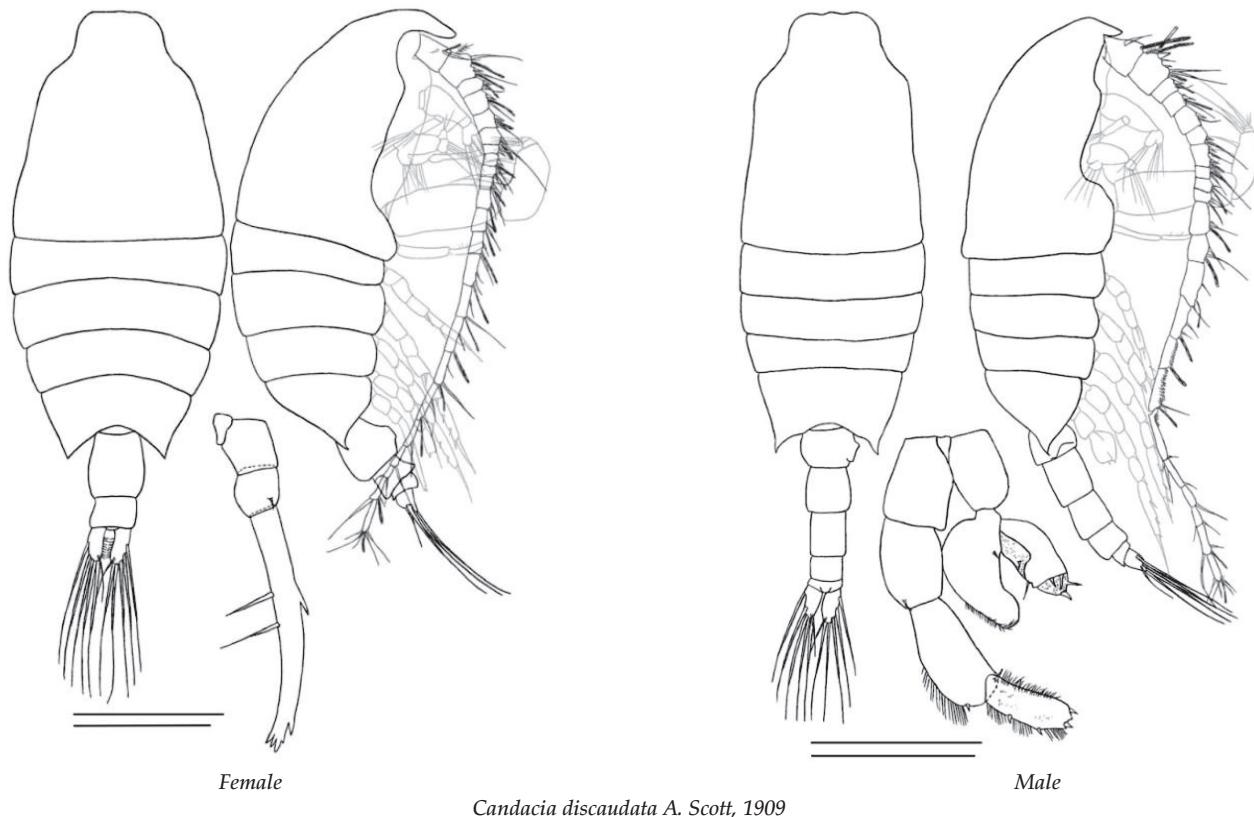
*Candacia discaudata* A. Scott, 1909 (Size: female, 1.55–1.94 mm; male, 1.48–1.82 mm)



*Candacia discaudata* A. Scott, 1909

Chen & Zhang, 1965: pl. 37. Female. 9. habitus (dorsal); 10. urosome (lateral); 11. leg 5. Male. 12. habitus (dorsal); 13. genital segment (dorsal); 14. leg 5 (posterior).

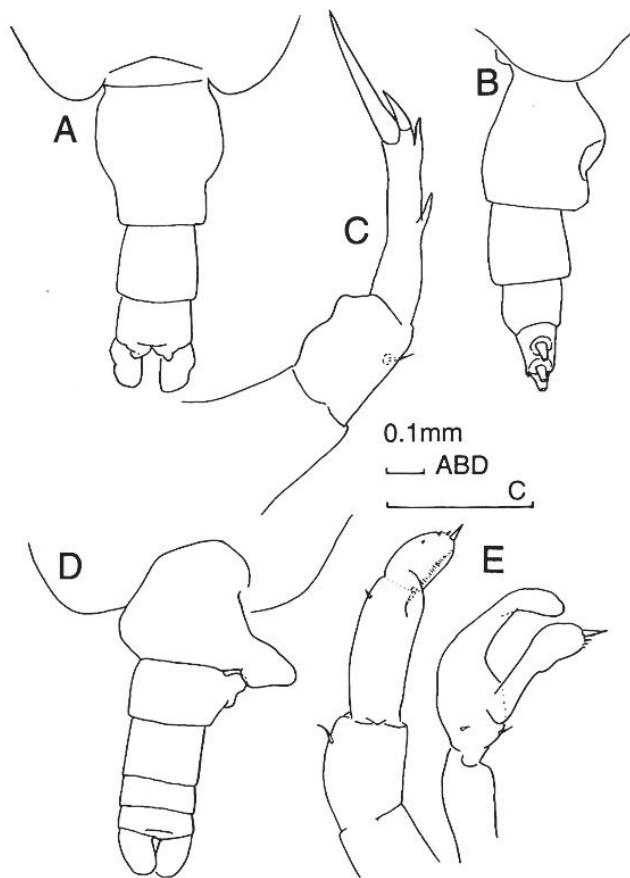
Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 17, 2021].

*Candacia discaudata* A. Scott, 1909

*Candacia discaudata* A. Scott, 1909

Original. *C. discaudata* A. Scott, 1909, Female, 1.80 mm, East China Sea (25°30'N 122°09'E): a/b. Habitus (dorsal/lateral); c. leg 5 (posterior). Male, 1.71 mm, East China Sea (25°30'N 122°09'E): a/b. habitus (dorsal/lateral); c. leg 5 (posterior).

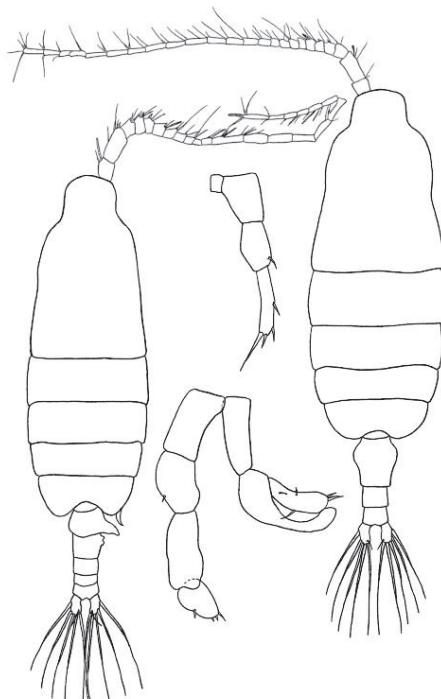
*Candacia elongata* (Boeck, 1872) (Size: female, 1.97–3.50 mm; male, 3.04–3.80 mm)



*Candacia elongata* (Boeck, 1872)

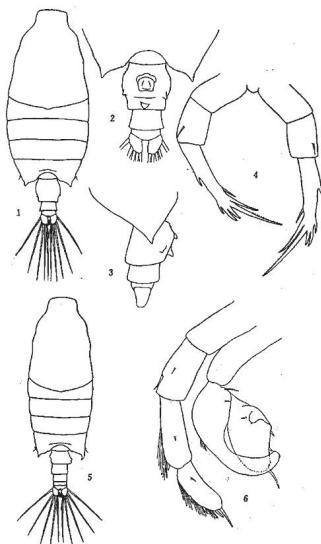
Bradford-Grieve, 1999: f.119. Female: A/B. urosome (dorsal/lateral); C. leg 5. Male: D. urosome (dorsal); E. leg 5 (anterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 17, 2021].

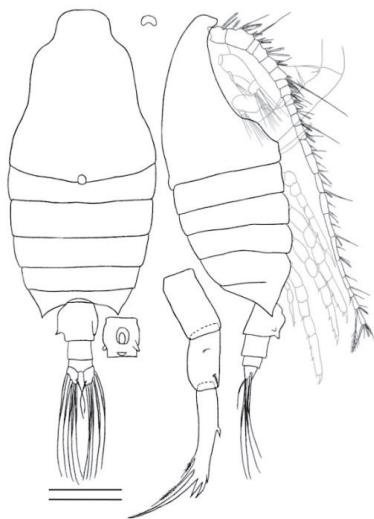
*Candacia elongata* (Boeck, 1872)*Candacia elongata* (Boeck, 1872)

Original. *C. elongata* (Boeck, 1872). Female, 3.82 mm, east of Taiwan, habitus (dorsal), leg 5; male, 3.17 mm, east of Taiwan, habitus (dorsal), leg 5.

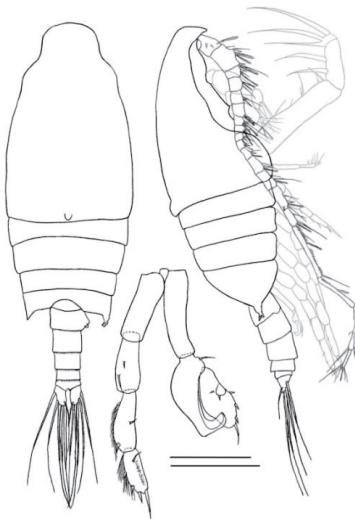
*Candacia ethiopica* (Dana, 1849) (Size: female, 1.93–3.03 mm; male, 1.96–2.93 mm)



Chen & Zhang



Female



Male

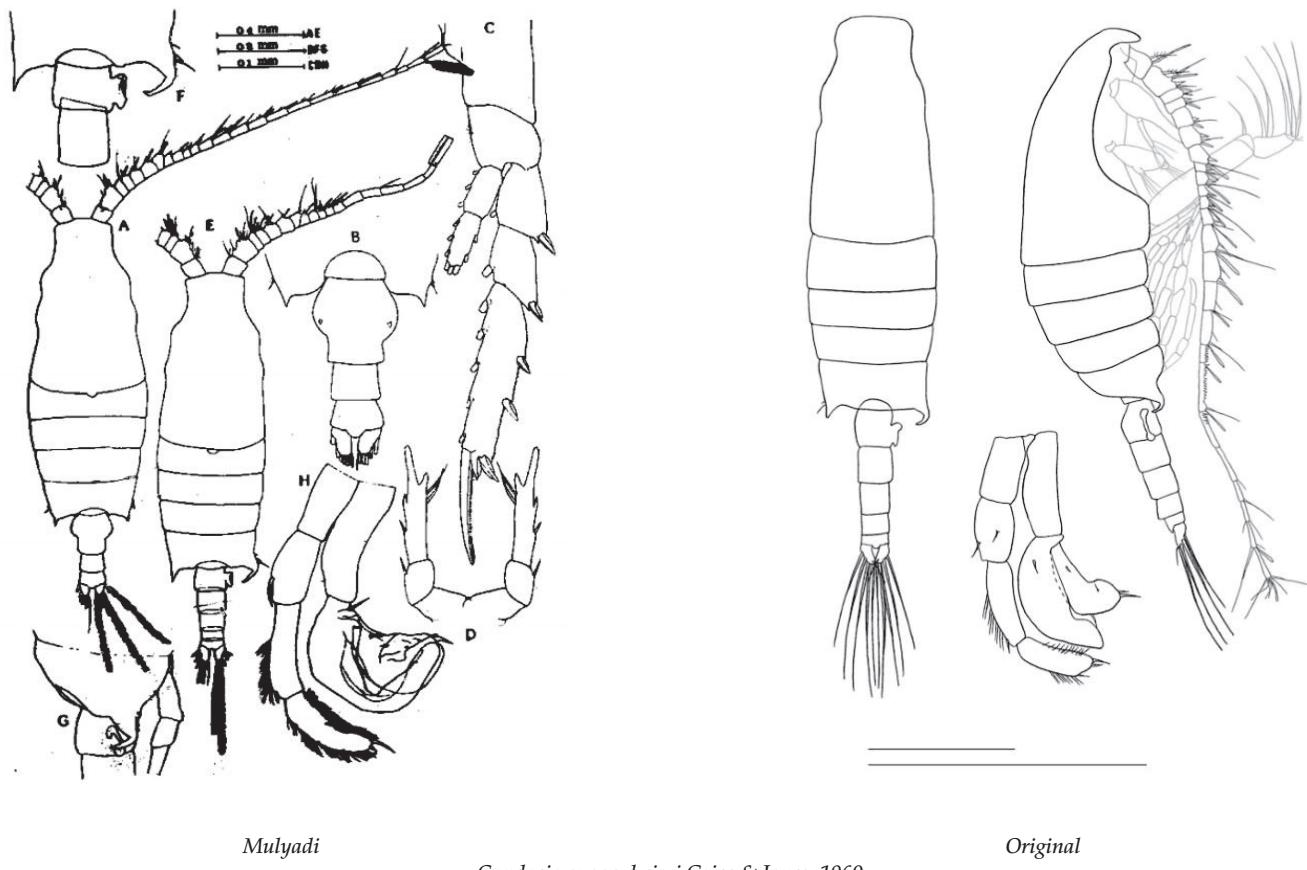
*Candacia ethiopica* (Dana, 1849)

Chen & Zhang, 1965: pl. 38. *C. ethiopica* (Dana, 1849), Female. 1. habitus (dorsal); 2/3. urosome (ventral/lateral); 4. leg 5. Male. 5. habitus (dorsal); 6. leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 27, 2021].

Original. Female, 2.56 mm, East China Sea (25°30'N 122°09'E); a/b. habitus (dorsal/lateral); c. rostrum (ventral); d. genital double-somite (ventral); e. leg 5 (posterior). Male, 2.32 mm, East China Sea (25°30'N 122°09'E); a/b. habitus (dorsal/lateral); c. leg 5 (posterior).

*Candacia guggenheimi* Grice & Jones, 1960 (Size: female, 1.86–2.06 mm; 1.80–2.00 mm)

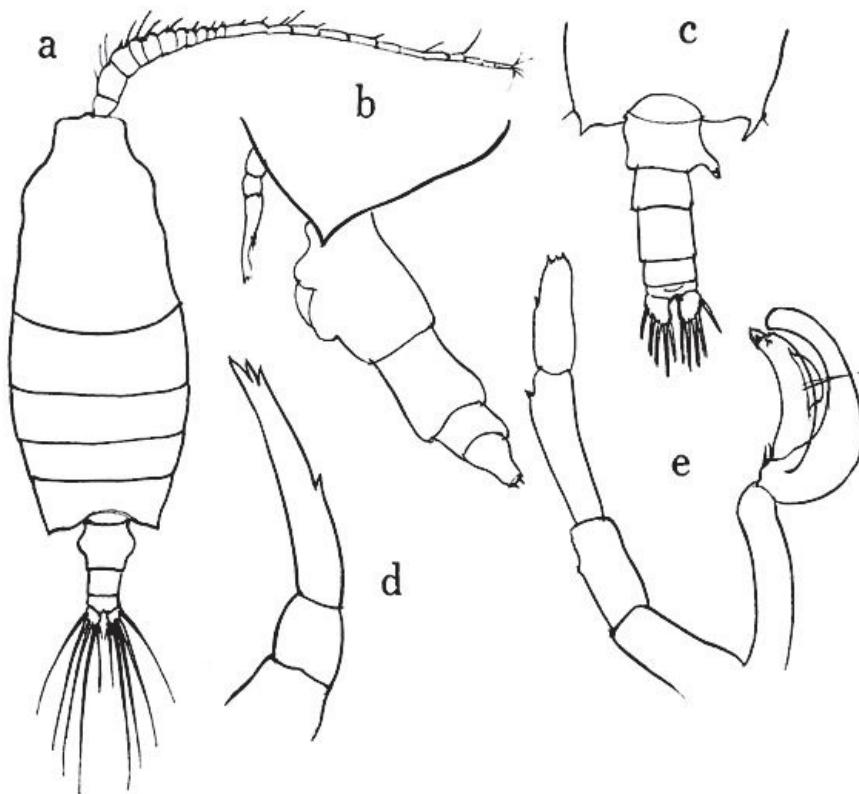


Mulyadi, 199: Fig. 9. *C. guggenheimi* Grice & Jones, 1960, Female. A. habitus (dorsal); B. pediger 5 & urosome (dorsal); C. leg. 3; D. leg 5. Male. E. habitus (dorsal); F. pediger 5 to urosomite 2 (dorsal); G. pediger 5 & genital somite (lateral); H. leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 17, 2021].

Original. Male, 1.96 mm, South China Sea (19°00'N 118°30'E): a/b. habitus (dorsal/lateral); c. leg 5 (posterior).

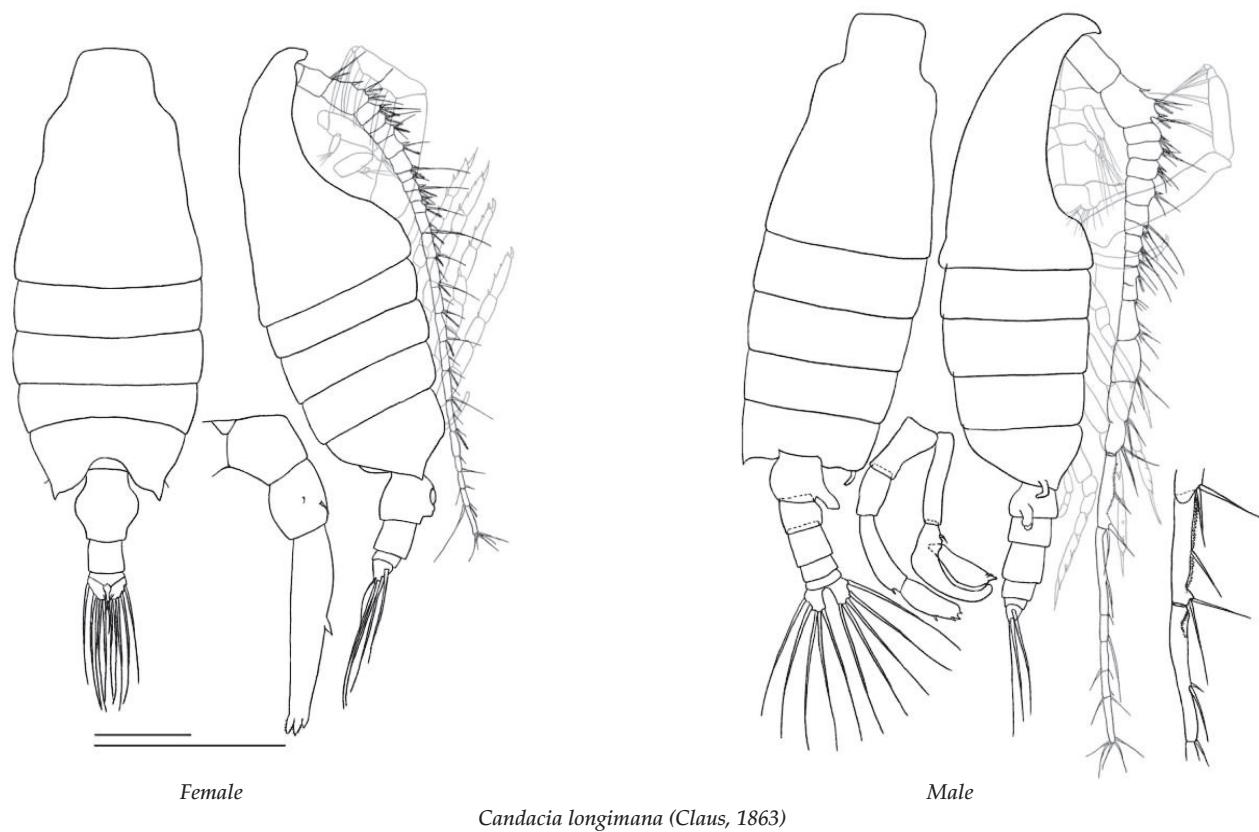
*Candacia longimana* (Claus, 1863) (Size: female, 2.68–3.90 mm; male, 2.40–3.72 mm)



*Candacia longimana* (Claus, 1863)

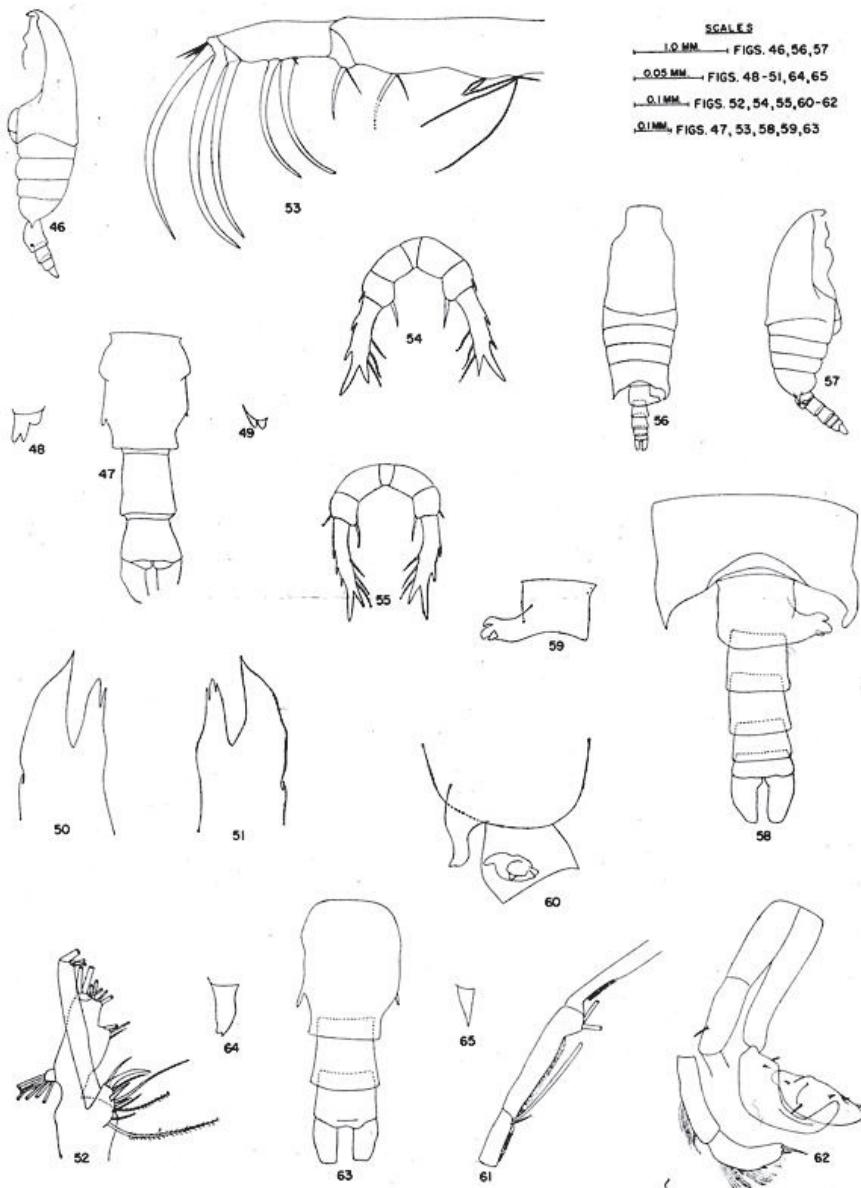
Tanaka, 1964: Fig. 227. *C. longimana* (Claus, 1863), Female. a. habitus (dorsal); b. pediger 5 & urosome (lateral); d. leg 5. Male. c. pediger 5 & urosome (dorsal); e. leg 5 (anterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 17, 2021].

*Candacia longimana* (Claus, 1863)

Original. *C. longimana* (Claus, 1863), Female, 2.80 mm, South China Sea (19°00'N 118°30'E): a/b. habitus (dorsal/lateral); c. leg 5 (posterior). Male, 2.80 mm, South China Sea (19°00'N 118°30'E): a/b. habitus (dorsal/lateral); c. leg 5 (posterior). Scales: a, b = 0.5 mm; c = 0.20 mm.

*Candacia norvegica* (Boeck, 1865) (Size: female, 2.28–3.63 mm; male, 2.60–3.25 mm)



*Candacia norvegica* (Boeck, 1865)

Grice & Jones, 1960. Figs. 46–65. *C. norvegica* (Boeck, 1865), Female. 46. habitus (lateral); 47. urosome (dorsal); 48/49. left/right spinous process on lateral margin of genital double-somite; 50/51. mandible gnathobase, biting blade; 52. maxillule; 53. maxilla; 54/55. leg 5; 63. urosome (dorsal); 64/65. left & right spinous processes of genital double-somite. Male. 56/57. habitus (dorsal/lateral); 58. pediger 4 to genital somite (dorsal); 59. genital somite (ventral). 60. pediger 4 to genital somite (lateral); 61. right antennule, segments 17–19; 62. leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://ceopodes.obs-banyuls.fr/en>. [Accessed May 18, 2021].

*Candacia pachydactyla* (Dana, 1849) (Size: female, 1.60–3.40 mm; male, 1.50–3.20 mm)

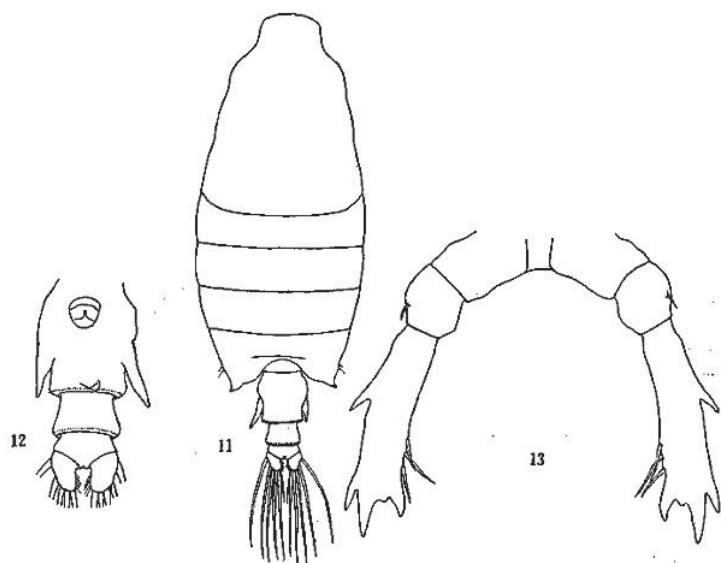


Plate 35

*Candacia pachydactyla* (Dana, 1849)

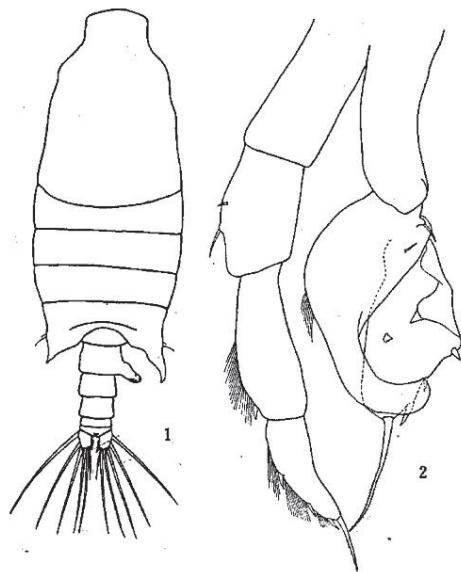
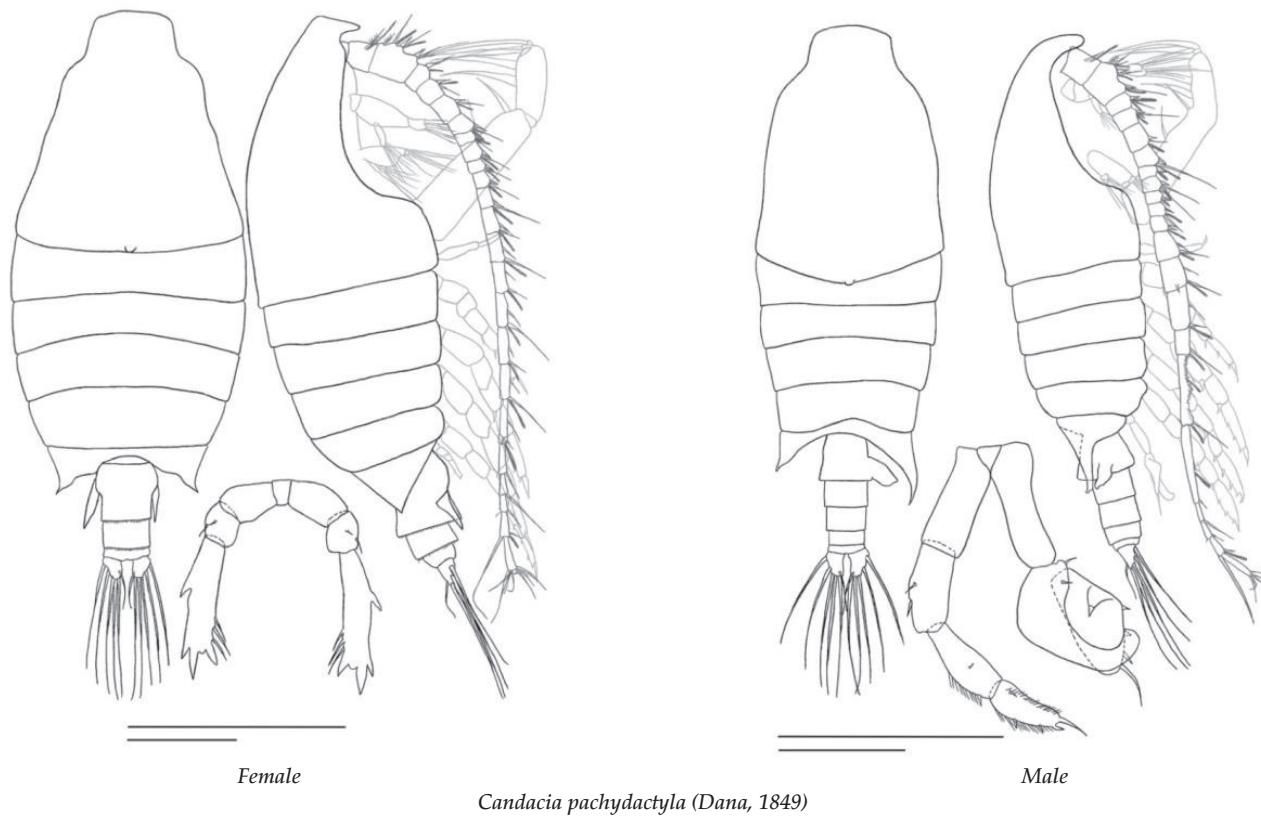


Plate 36

Chen & Zhang, 1965: pl. 35. Female. 11. habitus (dorsal); 12. urosome (ventral); 13. leg 5. Pl. 36. Male. 1. habitus (dorsal); 2. leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 18, 2021].

*Candacia pachydactyla* (Dana, 1849)

Original. *C. pachydactyla* (Dana, 1849), Female, 2.60 mm, East China Sea ( $25^{\circ}10'N$   $122^{\circ}00'E$ ): a/b. habitus (dorsal/lateral); c. leg 5 (posterior). Male, 2.44 mm, East China Sea ( $25^{\circ}10'N$   $122^{\circ}00'E$ ): a/b. habitus (dorsal/lateral); c. leg 5 (posterior).

*Candacia simplex* (Giesbrecht, 1889) (Size: female, 1.48–2.35 mm; male, 1.54–2.20 mm)

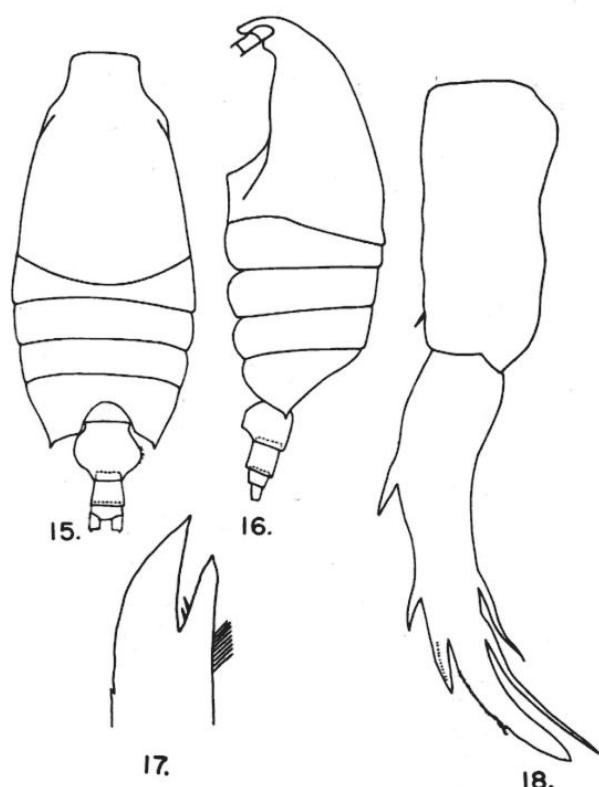


Plate 32

*Candacia simplex* (Giesbrecht, 1889)

Grice, 1962: pl. 32. *C. simplex* (Giesbrecht, 1889), Female. 15/16. habitus (dorsal/lateral); 17. mandible biting edge; 18. leg 5. pl. 33. Male. 1/2. habitus (dorsal/lateral); 3. antennule segments 17–21; 4. maxilla; 5. leg 5 (anterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 18, 2021].

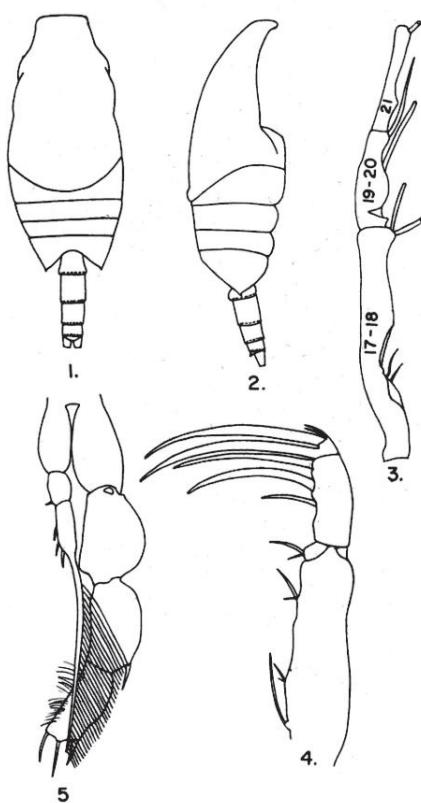
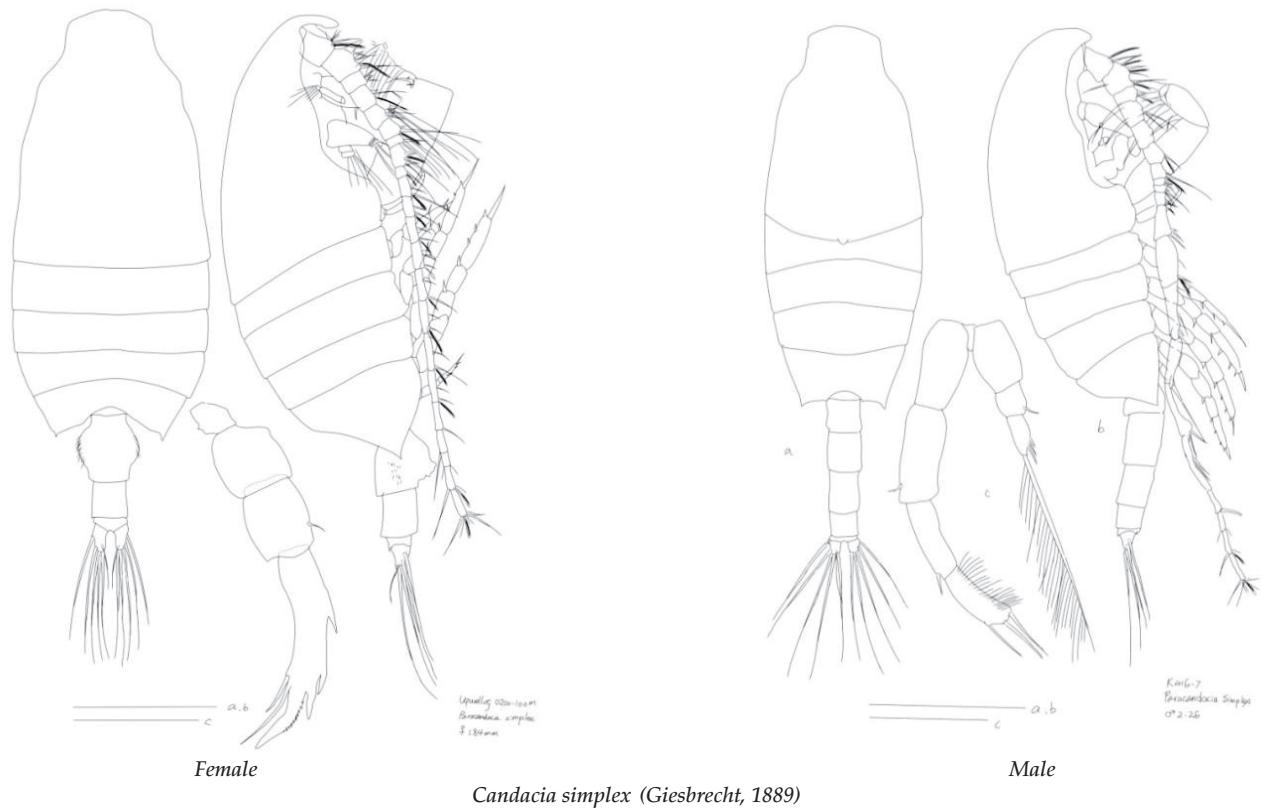
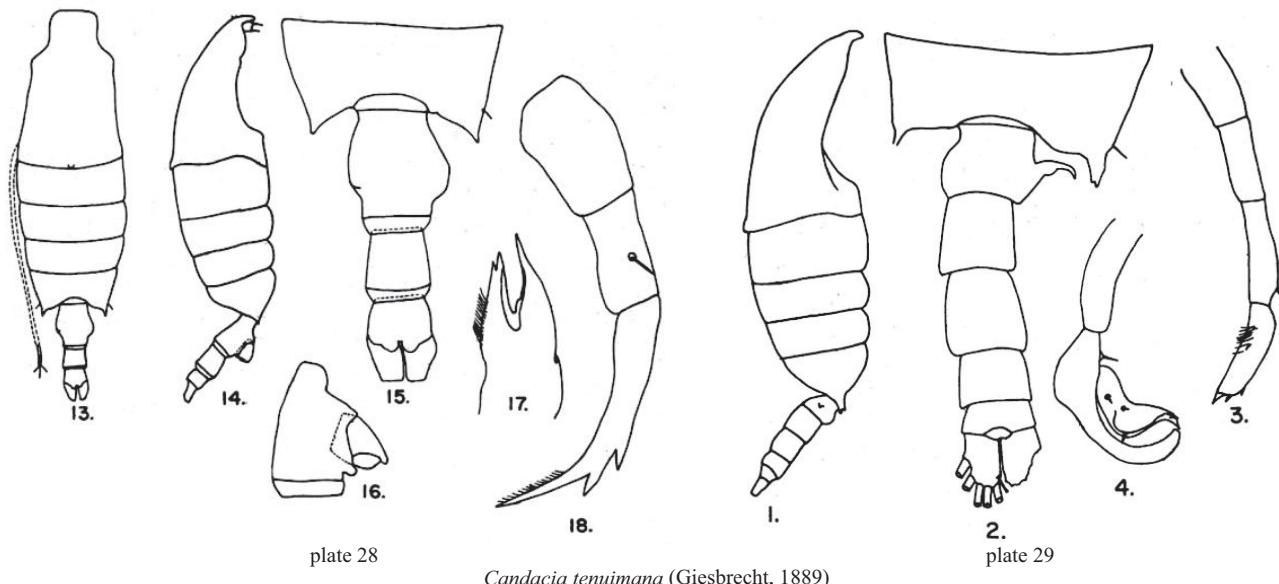


Plate 33

*Candacia simplex* (Giesbrecht, 1889)

Original. *C. simplex* (Giesbrecht, 1889), Female, 1.84 mm, East China Sea (25°25'N 122°15'E): a/b. habitus (dorsal/lateral); c. leg 5 (posterior). Male, 1.84 mm, East China Sea (25°25'N 122°15'E): a/b. habitus (dorsal/lateral); c. leg 5 (posterior).

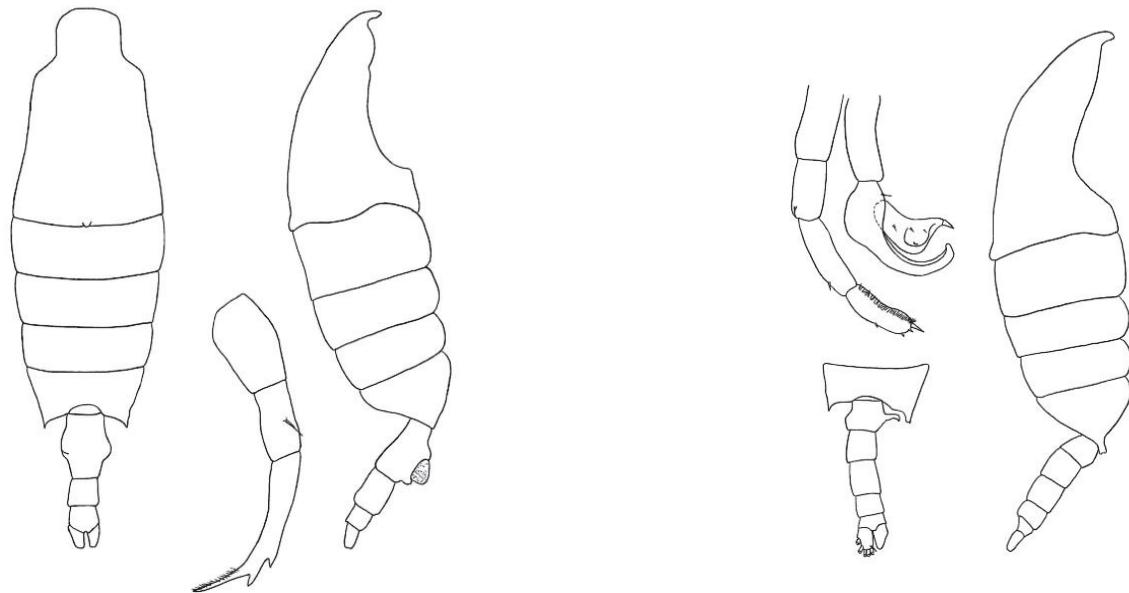
*Candacia tenuimana* (Giesbrecht, 1889) (Size: female, 1.90–2.40 mm; male, 2.00–2.25 mm)



*Candacia tenuimana* (Giesbrecht, 1889)

Grice, 1962: pl. 28. *C. tenuimana* (Giesbrecht, 1889), Female. 13/14. habitus (dorsal/lateral); 15. pediger 5 & urosome (dorsal); 16. genital double-somite (lateral); 17. mandibular biting edge; 18. leg 5. Pl. 29. Male. 1. habitus (lateral); 2. pediger 5 & urosome (dorsal); 3. left leg 5; 4. right leg 5.

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 18, 2021].

*Candacia tenuimana* (Giesbrecht, 1889)

Female

*Candacia tenuimana* (Giesbrecht, 1889)

Male

Original. *C. tenuimana* (Giesbrecht, 1889), female, 2.15 mm, South China Sea, habitus (dorsal/lateral), leg 5; male, 2.08 mm, South China Sea, habitus (lateral), pediger 5 and urosome, leg 5.

*Candacia truncata* (Dana, 1849) (Size: female, 1.50–2.32 mm; male, 1.60–2.42 mm)

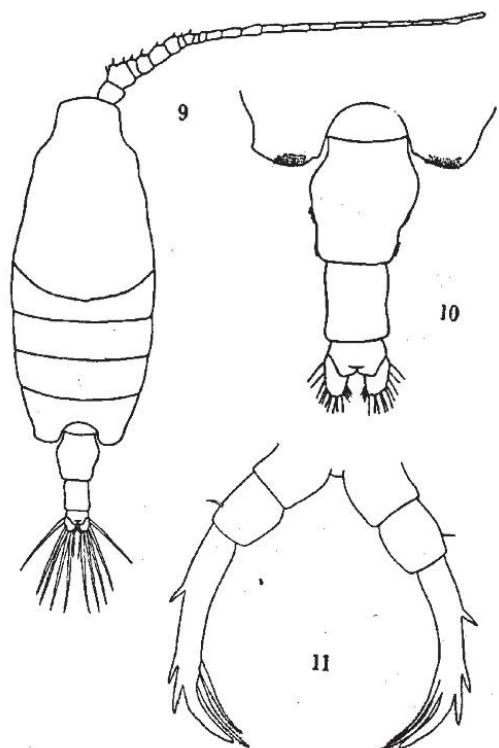


plate 36

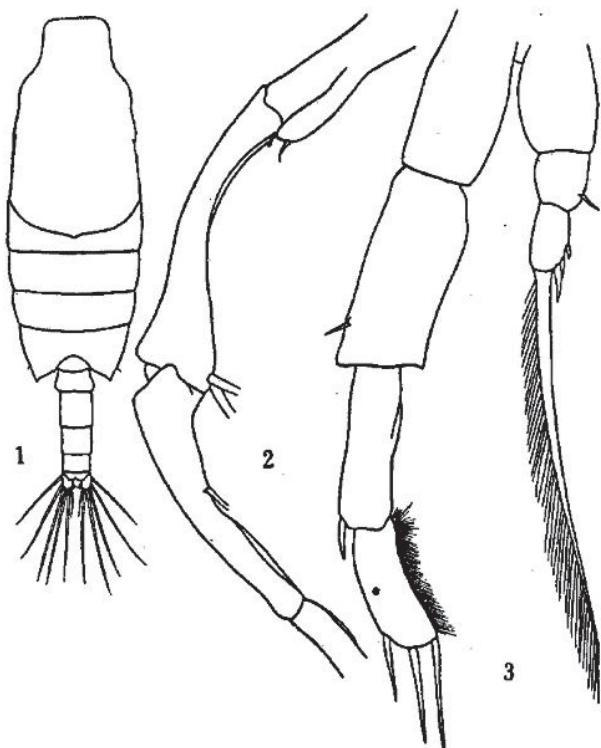
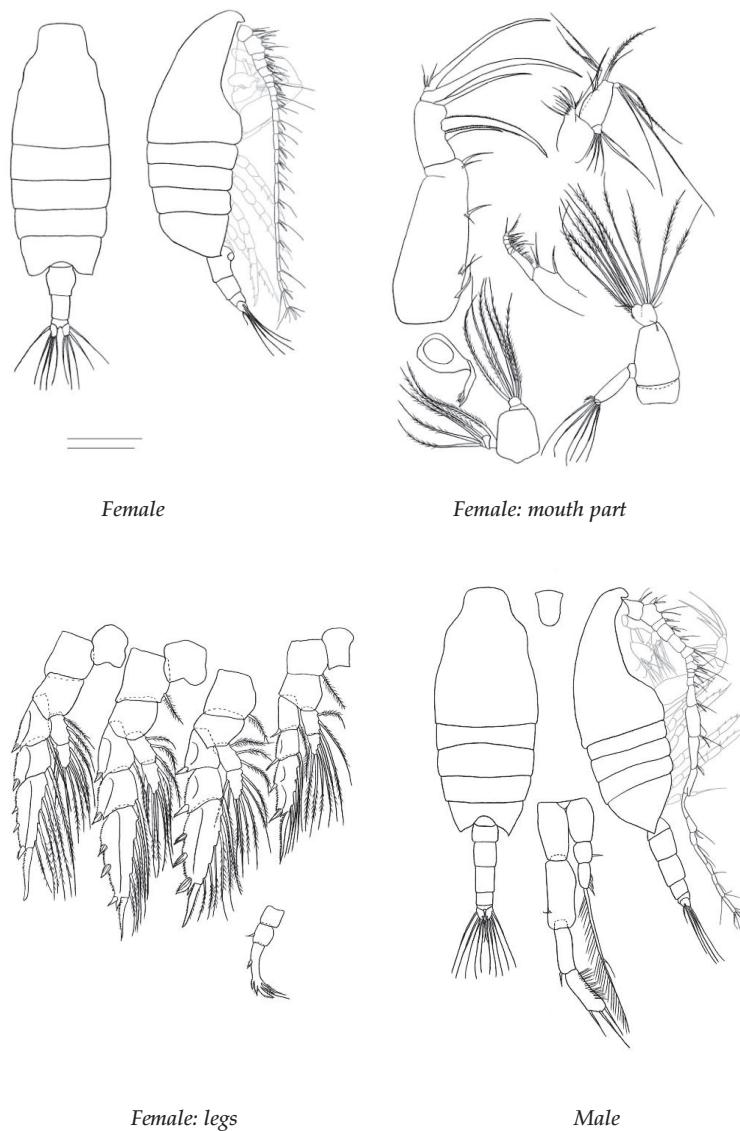


plate 37

*Candacia truncata* (Dana, 1849)

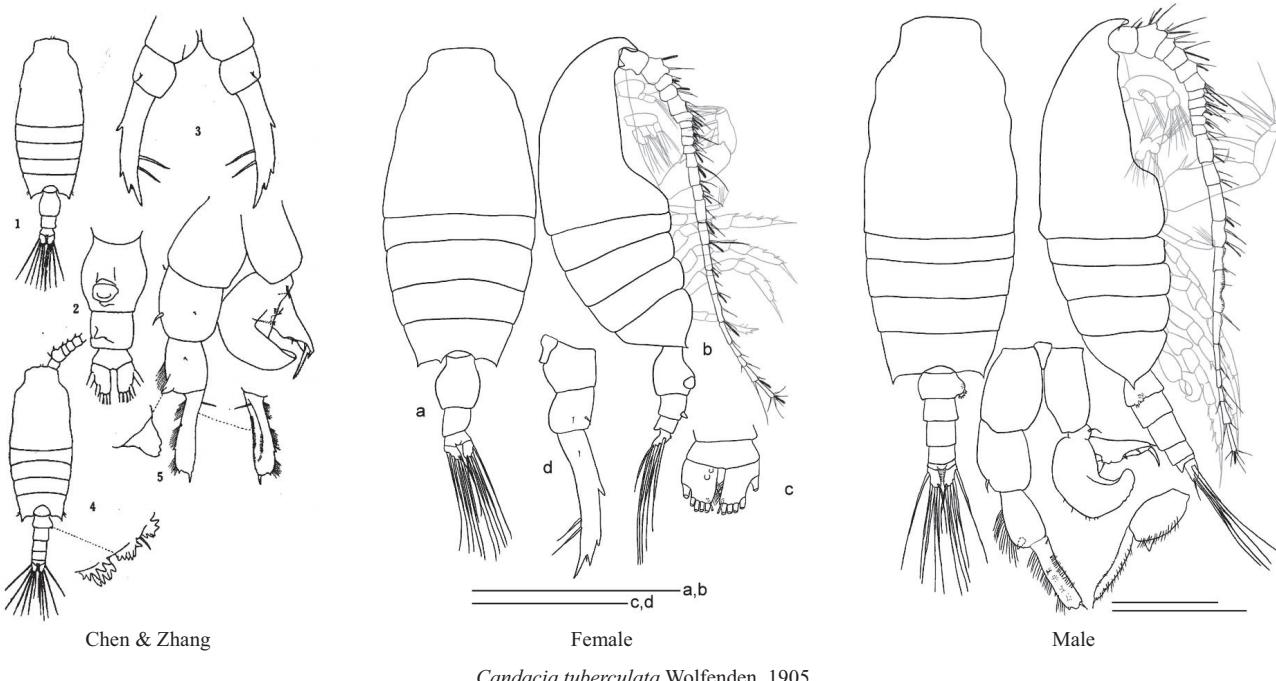
Chen & Zhang, 1965: pl. 36. *C. truncata* (Dana, 1849), Female. 9. Habitus (dorsal); 10. Pediger 5 & urosome (dorsal); 11. Leg 5. Pl. 37. Male. 1. Habitus (dorsal); 2. Right antennule (segments 16–19); 3. Leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 28, 2021].

*Candacia truncata* (Dana, 1849)

Original. *C. truncata* (Dana, 1849), Female, 2.10 mm, East China Sea ( $25^{\circ}40'N$ ,  $122^{\circ}51'E$ ): a/b. habitus (dorsal/lateral); Female: mouth part, c. right antenna (posterior); d. right mandible (posterior); e. right mandibular gnathobase; f. right maxillule (posterior); g. right maxilla (posterior); h. right maxilliped (posterior); Female: legs, i-m. right leg 1–5 (posterior). Male, 2.06 mm, East China Sea ( $26^{\circ}10'N$ ,  $120^{\circ}49'E$ ): n/o. habitus (dorsal/lateral); p. rostrum (ventral); q. leg 5 (posterior).

*Candacia tuberculata* Wolfenden, 1905 (Size: female, 1.56–2.40 mm; male, 1.60–2.29 mm)



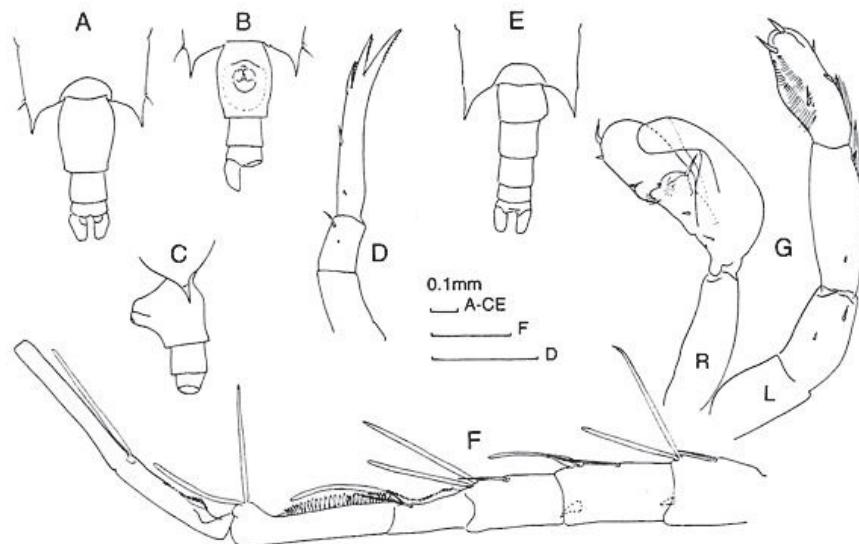
*Candacia tuberculata* Wolfenden, 1905

Chen & Zhang, 1965: pl. 35. Female. 1. habitus (dorsal); 2. urosome (ventral). 3. leg 5. Male. 4. habitus (dorsal); 5. leg 5 (posterior).

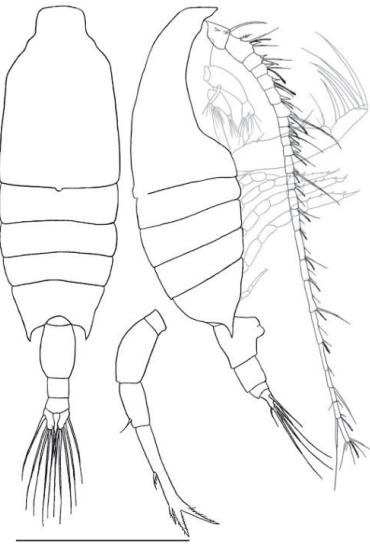
Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 28, 2021].

Original. *C. tuberculata* Wolfenden, 1905, Female, 1.94 mm, South China Sea: a/b. habitus (dorsal/lateral); c. caudal rami; d. leg 5 (posterior). Male, 1.76 mm, South China Sea: a/b. habitus (dorsal/lateral); c. leg 5 (posterior); d. left leg 5, segments 3/4 (anterior).

*Candacia varicans* (Giesbrecht, 1892) (Size: female, 1.98–2.55 mm; male, 1.91–2.45 mm)



Bradford-Grieve



Original

*Candacia varicans* (Giesbrecht, 1892)

Bradford-Grieve, 1999: Fig. 126. Female. A/B/C. pediger 5 & urosome (dorsal/ventral/lateral); D. leg 5. Male. E. pediger 5 & urosome (dorsal); F. segments of right geniculate antennule; G/leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 28, 2021]

Original. *C. varicans* (Giesbrecht, 1892), Female, 2.38 mm, South China Sea ( $21^{\circ}45'N$   $122^{\circ}00'E$ ): a/b. habitus (dorsal/lateral); c. leg 5 (posterior). Male, 2.18 mm, Pacific Ocean ( $0^{\circ}0'N$   $149^{\circ}33'W$ ): a/b. habitus (dorsal/lateral).

*Candacia worthingtoni* Grice, 1981 (Size: female, 1.50–2.40 mm; male, 1.70–1.90 mm)

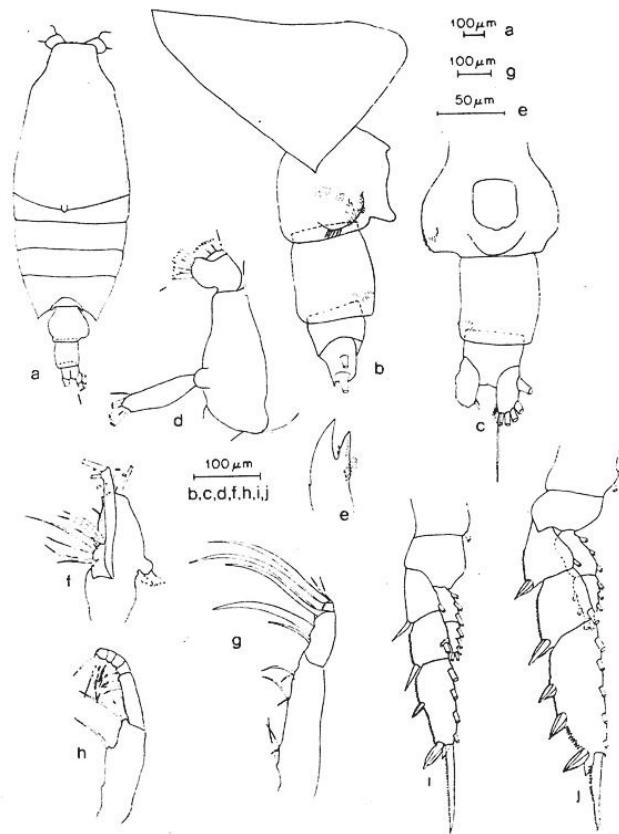


Fig. 1

*Candacia worthingtoni* Grice, 1981

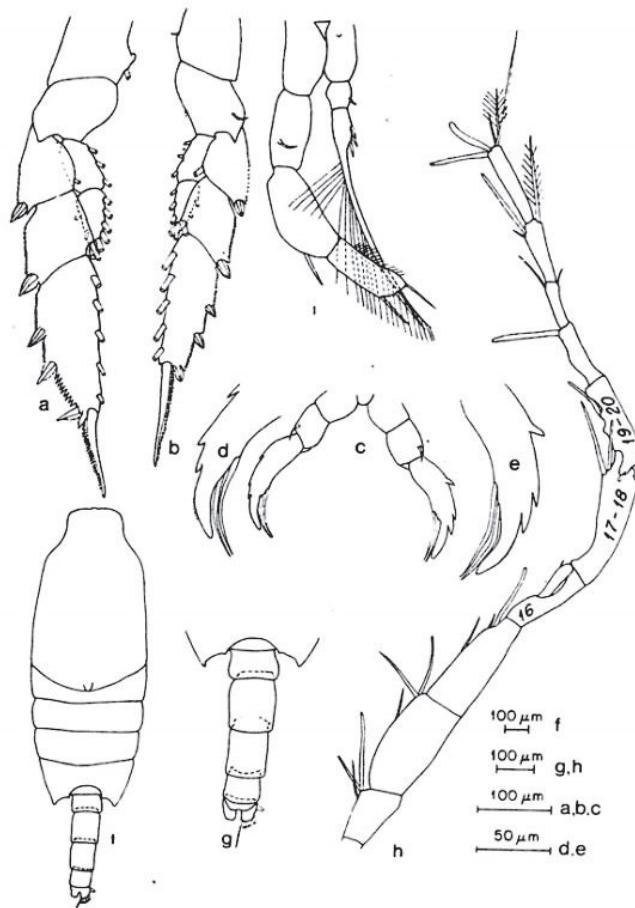


Fig. 2

*Candacia worthingtoni* Grice, 1981

Grice, 1981: Fig. 1. Female. a. habitus (dorsal); b/c. urosome (lateral/ventral); d. antenna; e. mandible cutting edge; f. maxillule; g. maxilla; h. maxilliped; i/j. legs 1 & 2. Fig. 2. Female. a/b. legs 3/4; c. leg 5 (posterior); d/e. terminal part of left/right leg 5. Male. f. habitus (dorsal); g. urosome (dorsal); h. antennule, distal end; i. leg 5 (posterior).

Adapted from Razouls C., de Bovée F., Kouwenberg J. and Desreumaux N., 2005–2020. Diversity and Geographic Distribution of Marine Planktonic Copepods. Sorbonne University, CNRS. Available at <http://copepodes.obs-banyuls.fr/en>. [Accessed May 18, 2021].