

**THE TAXONOMY AND DISTRIBUTION
OF
AUSTRALIAN TERRESTRIAL TARDIGRADES**

By

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VOLUME 2 of 2

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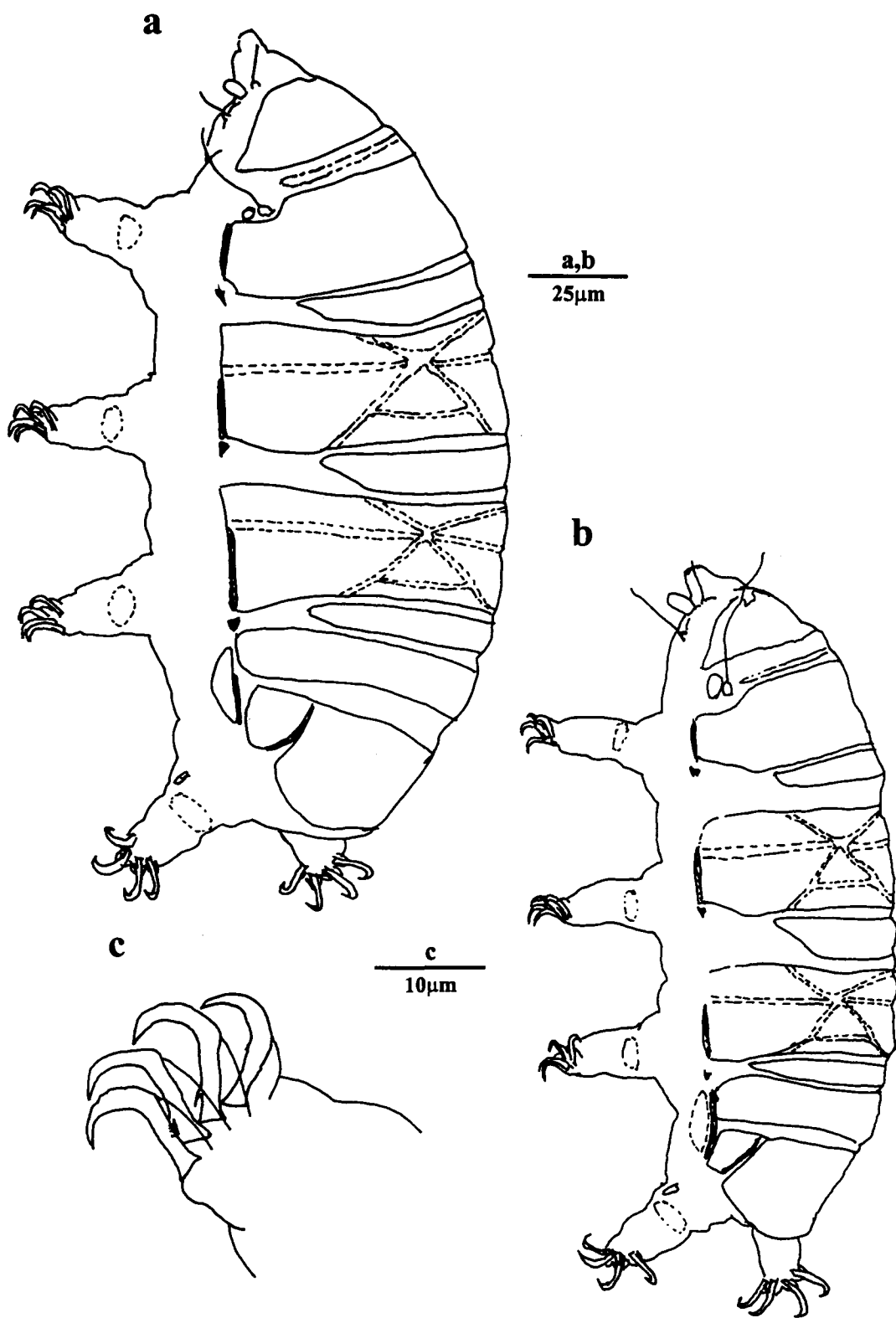


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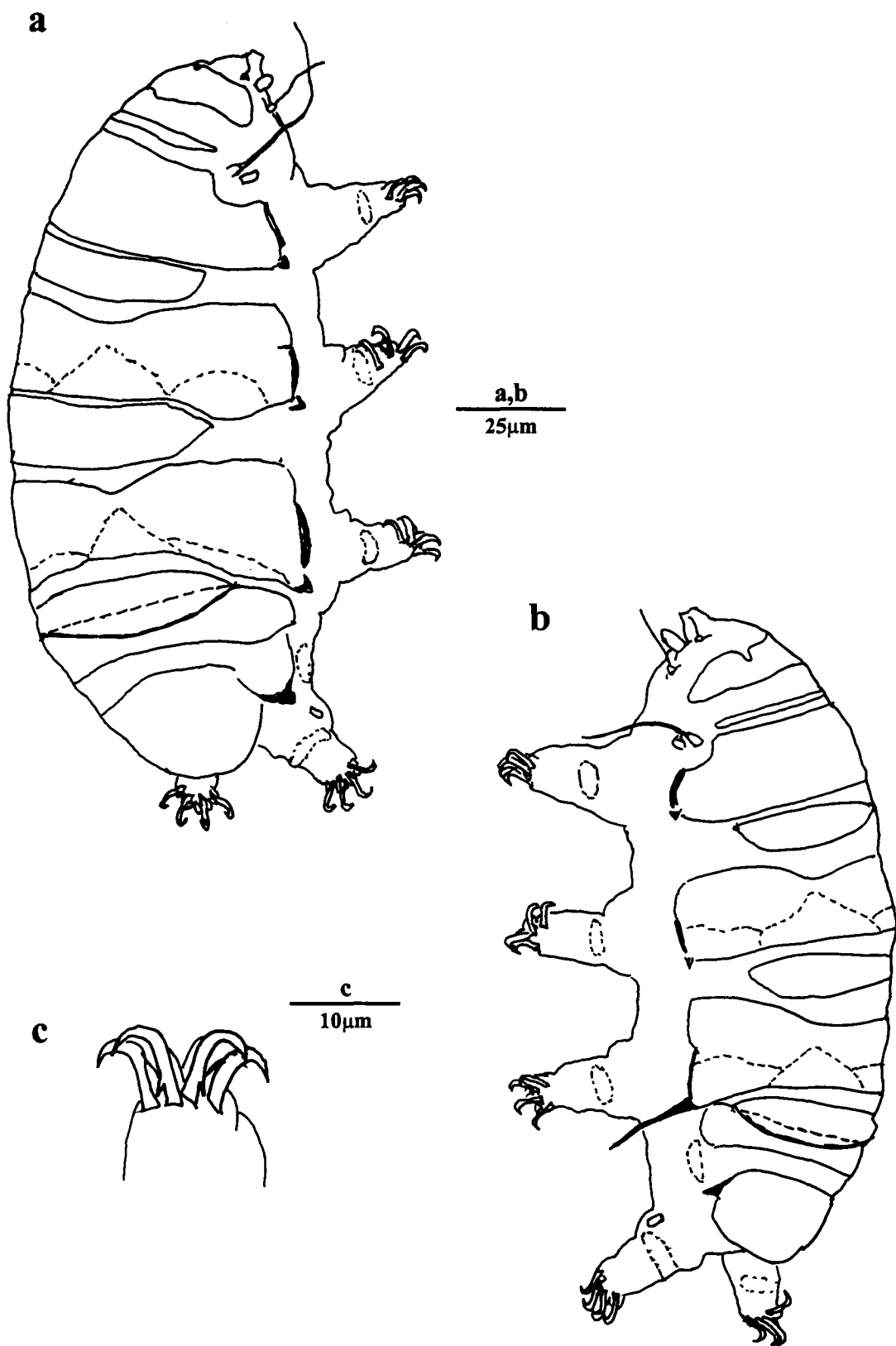


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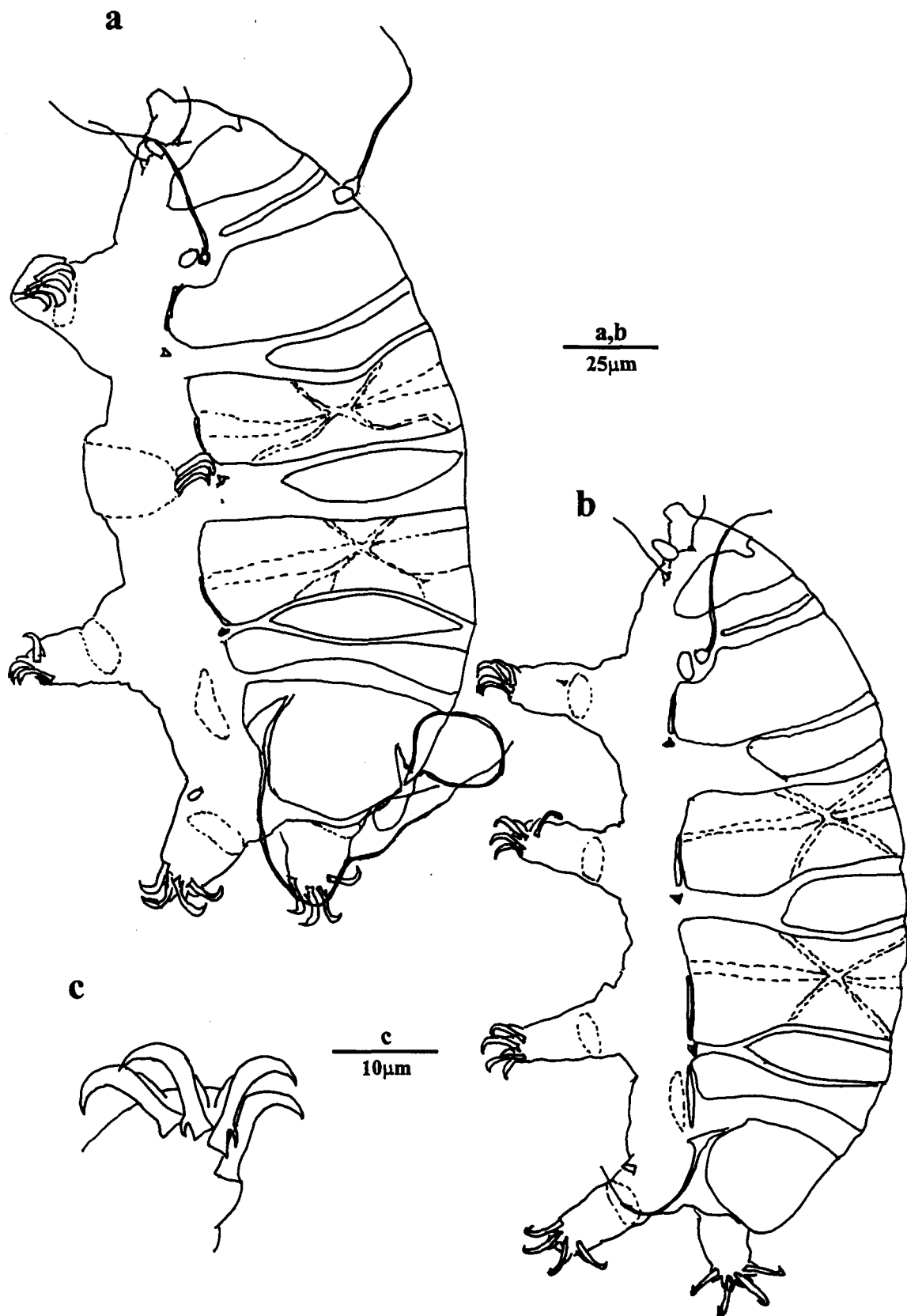


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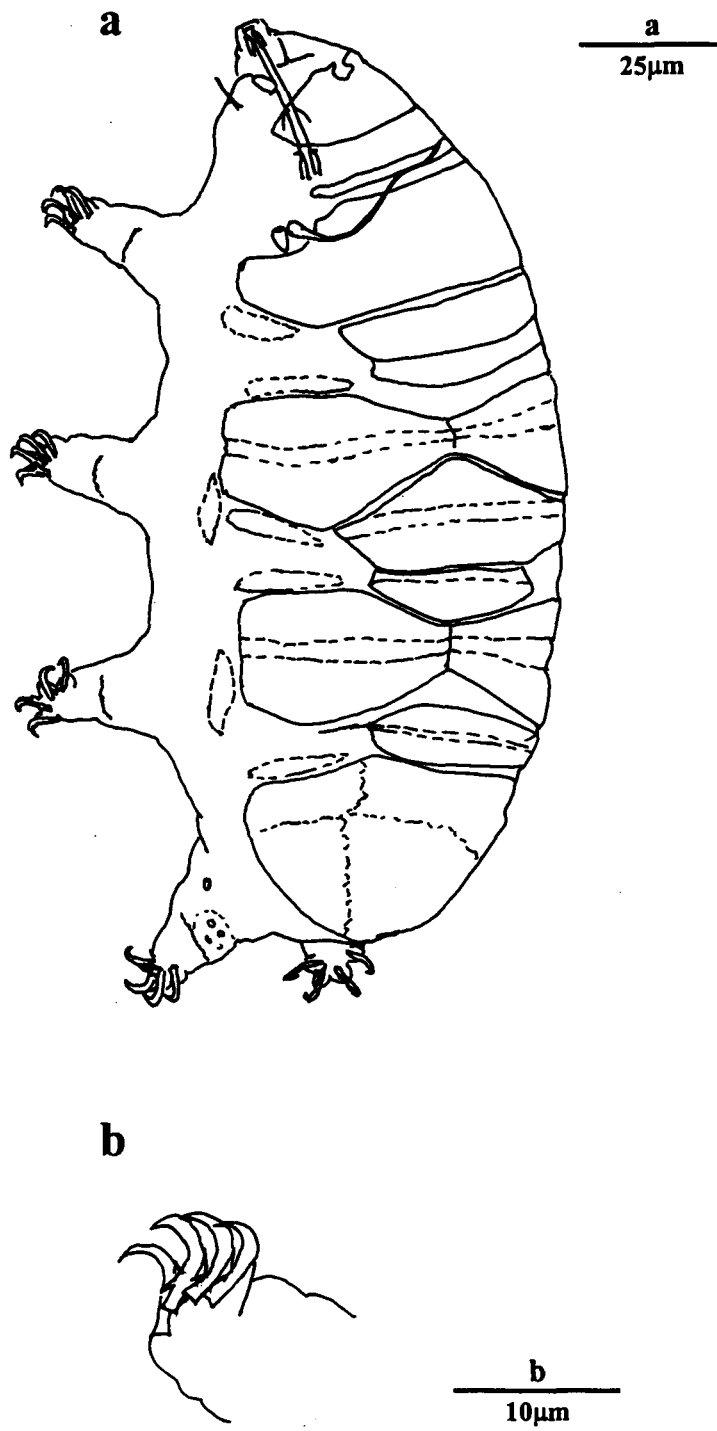


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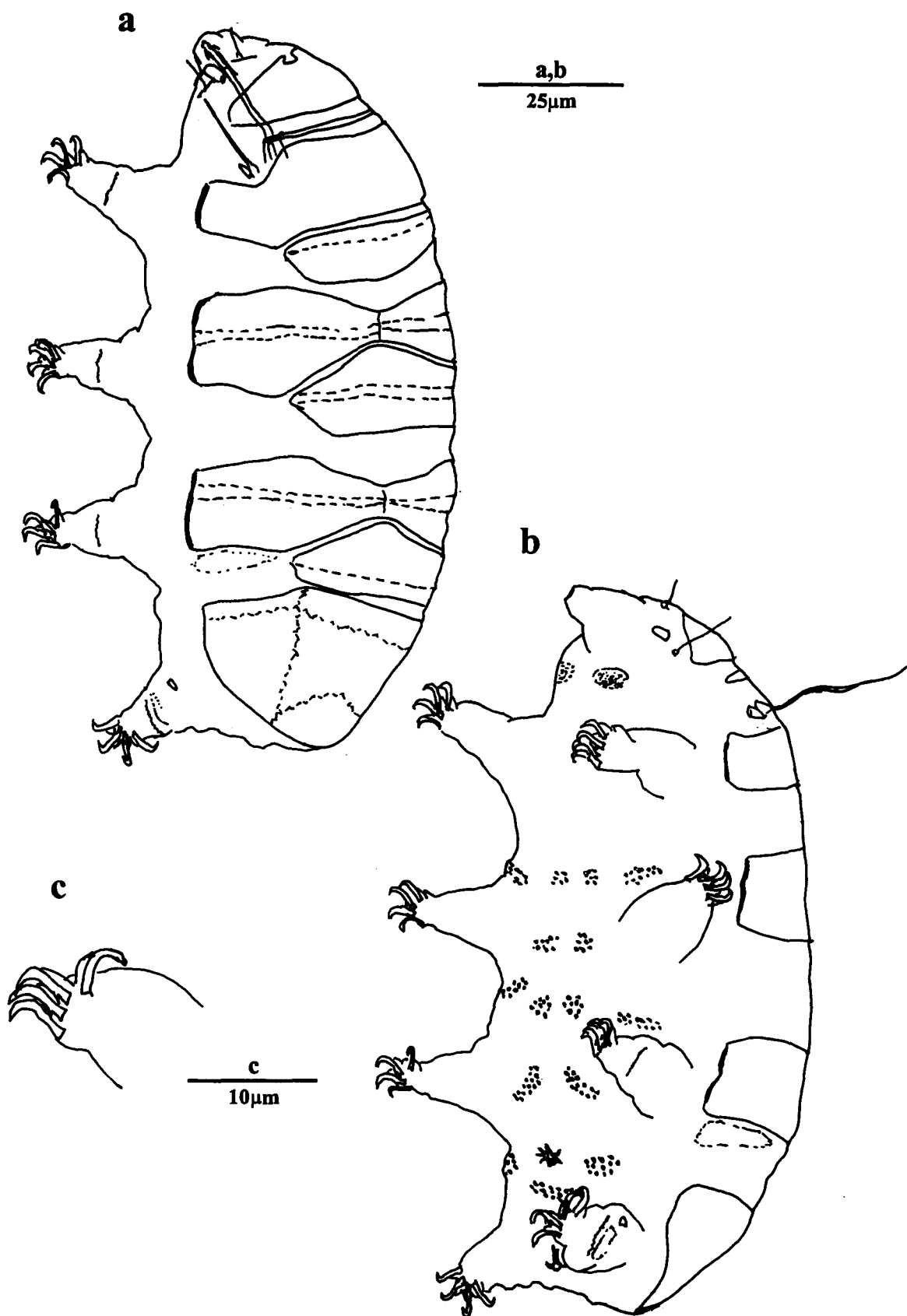


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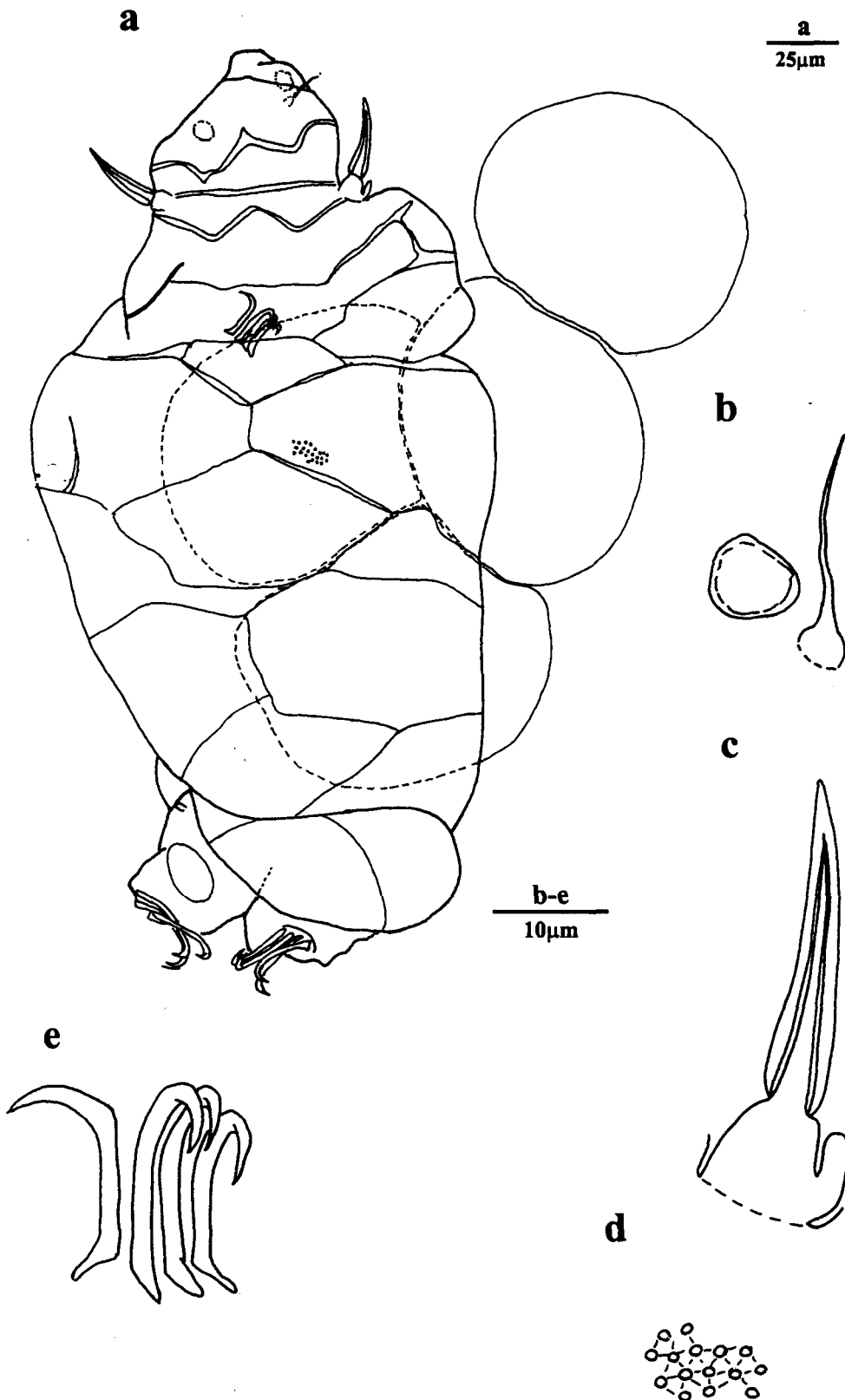


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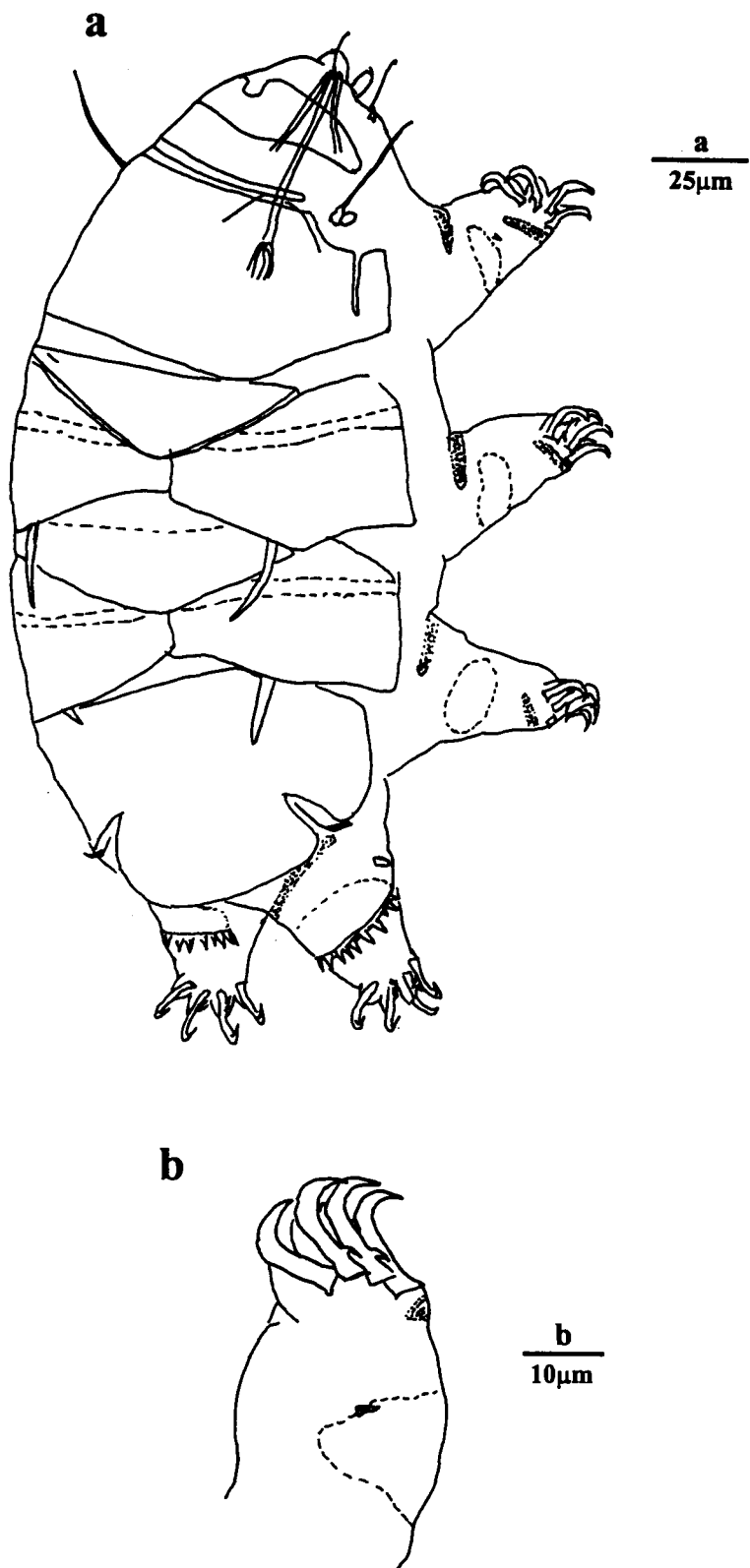


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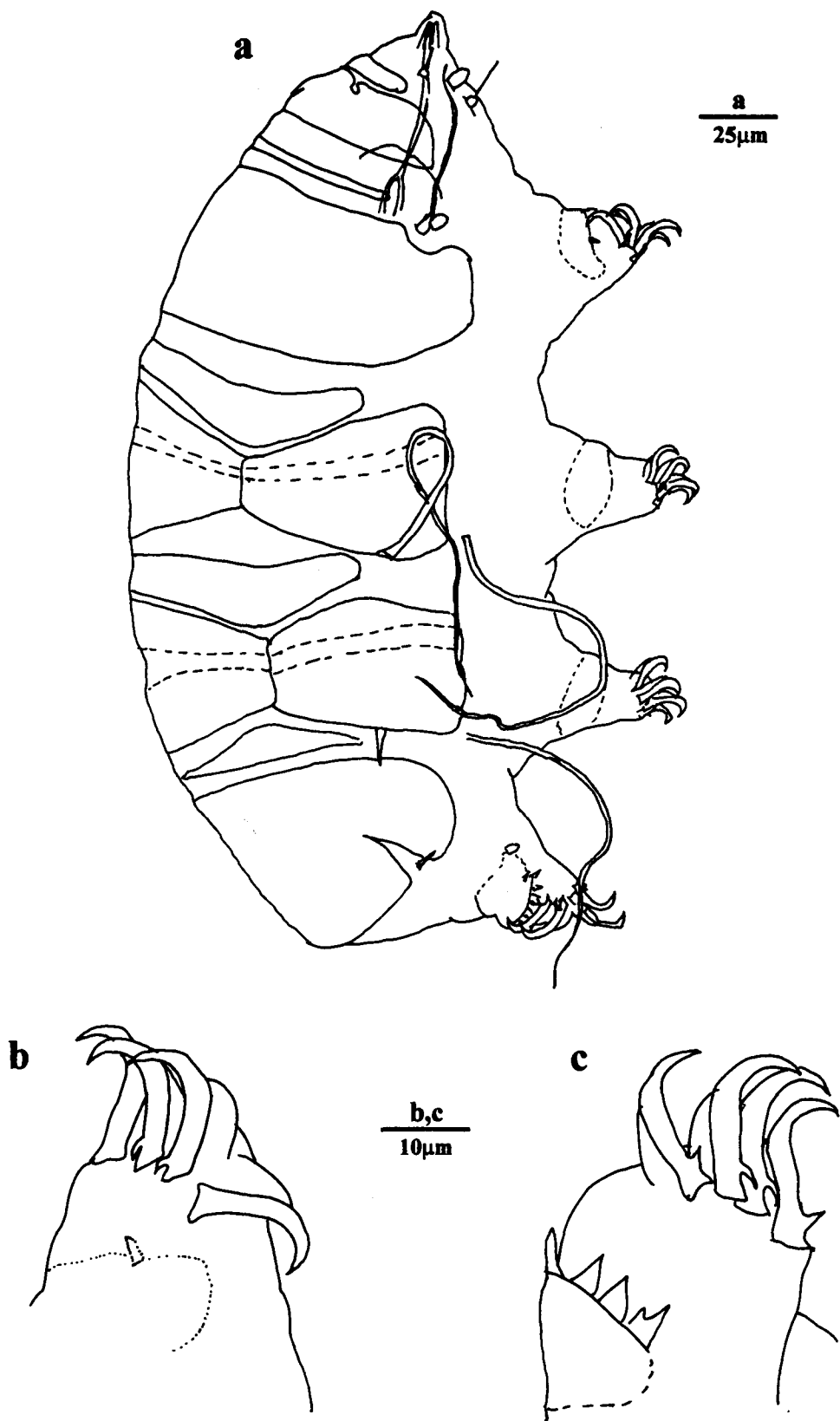


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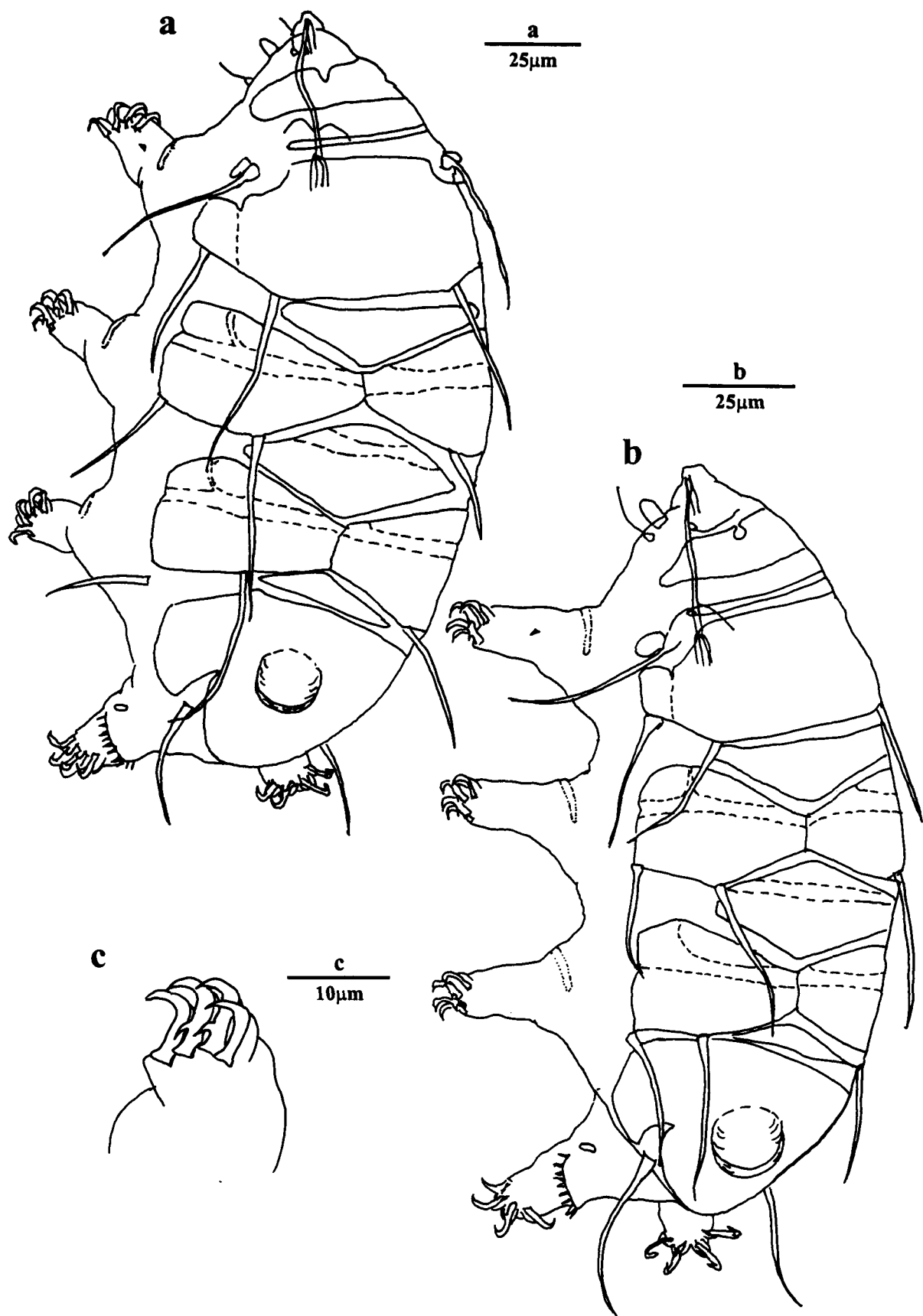


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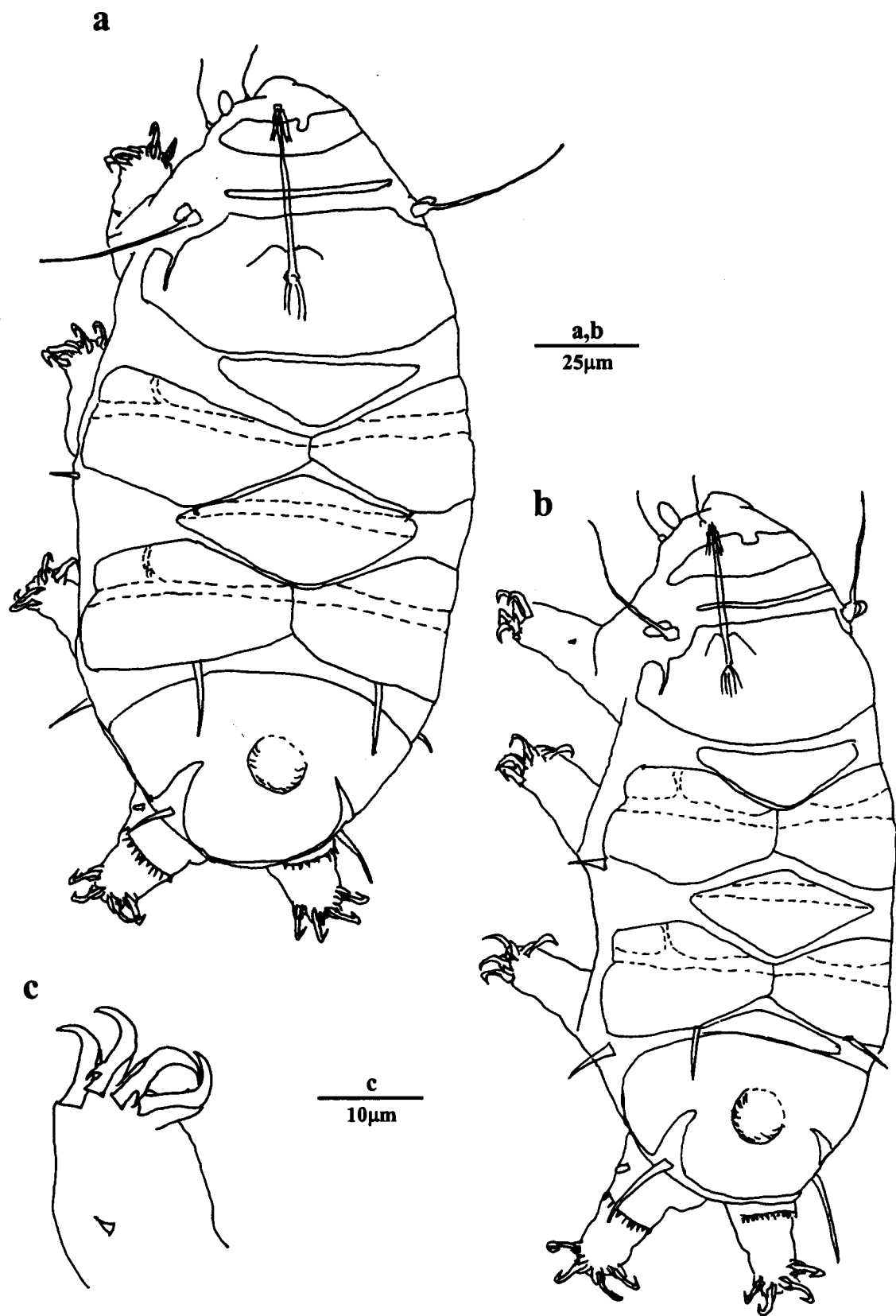


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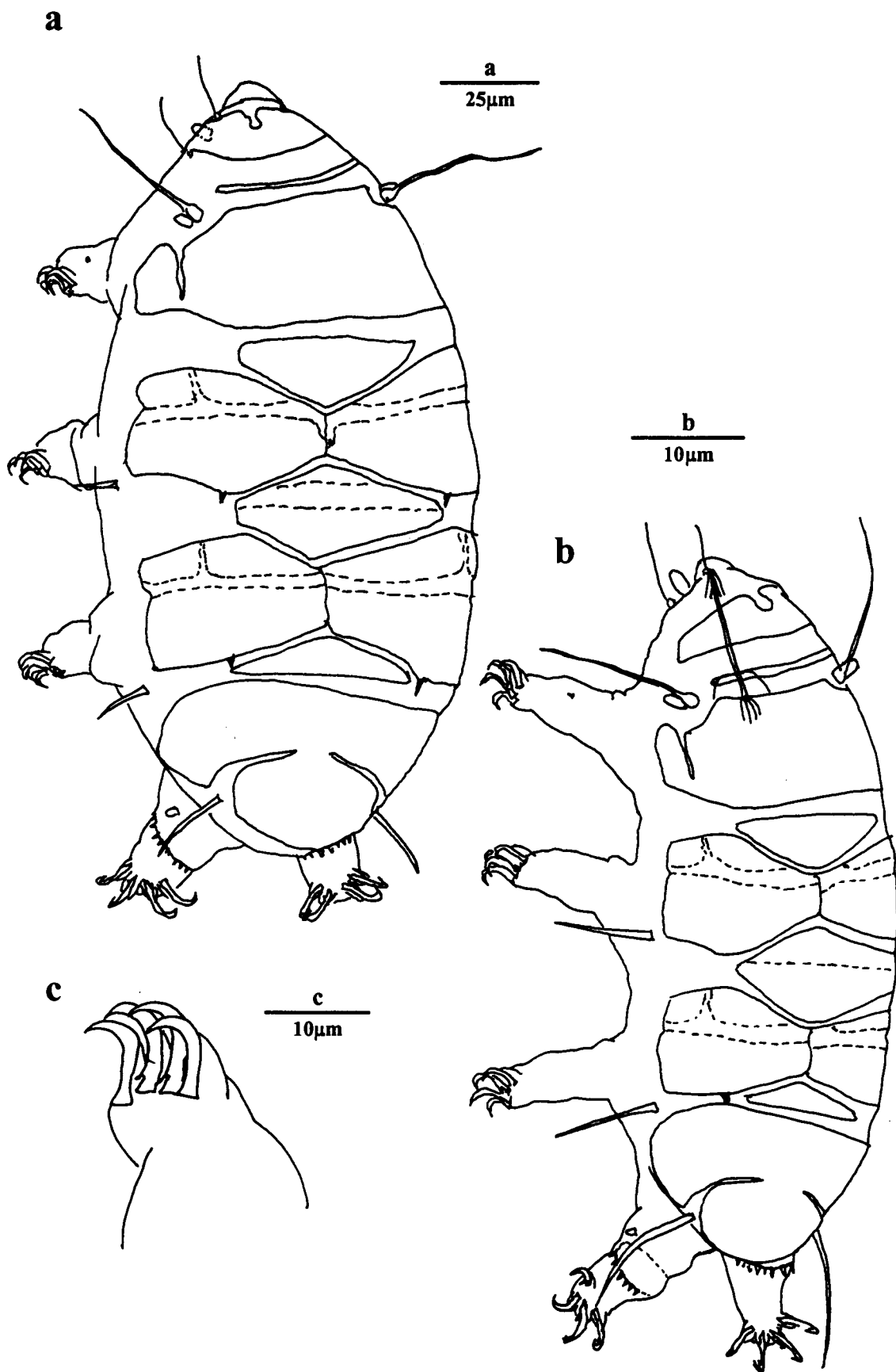


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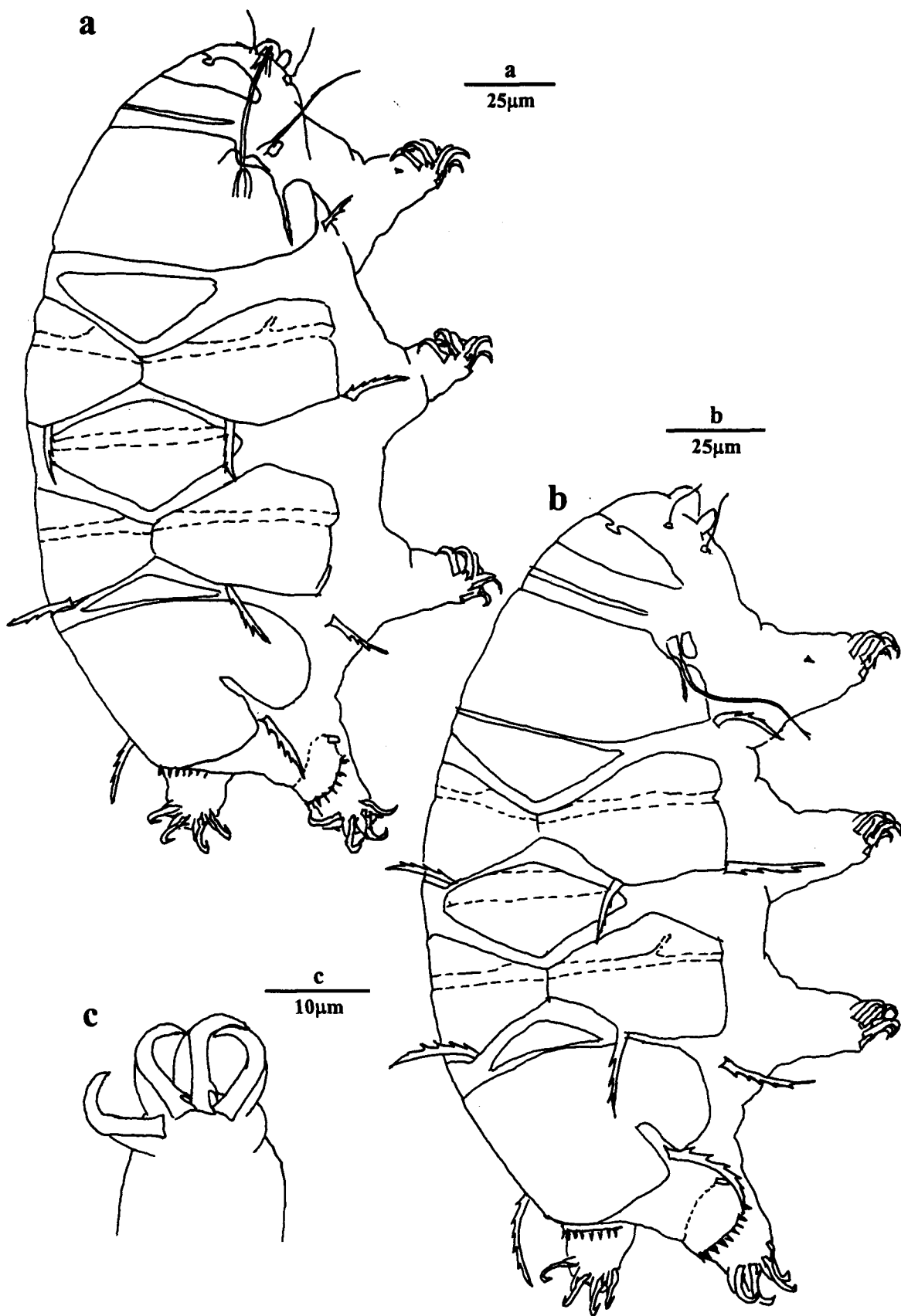


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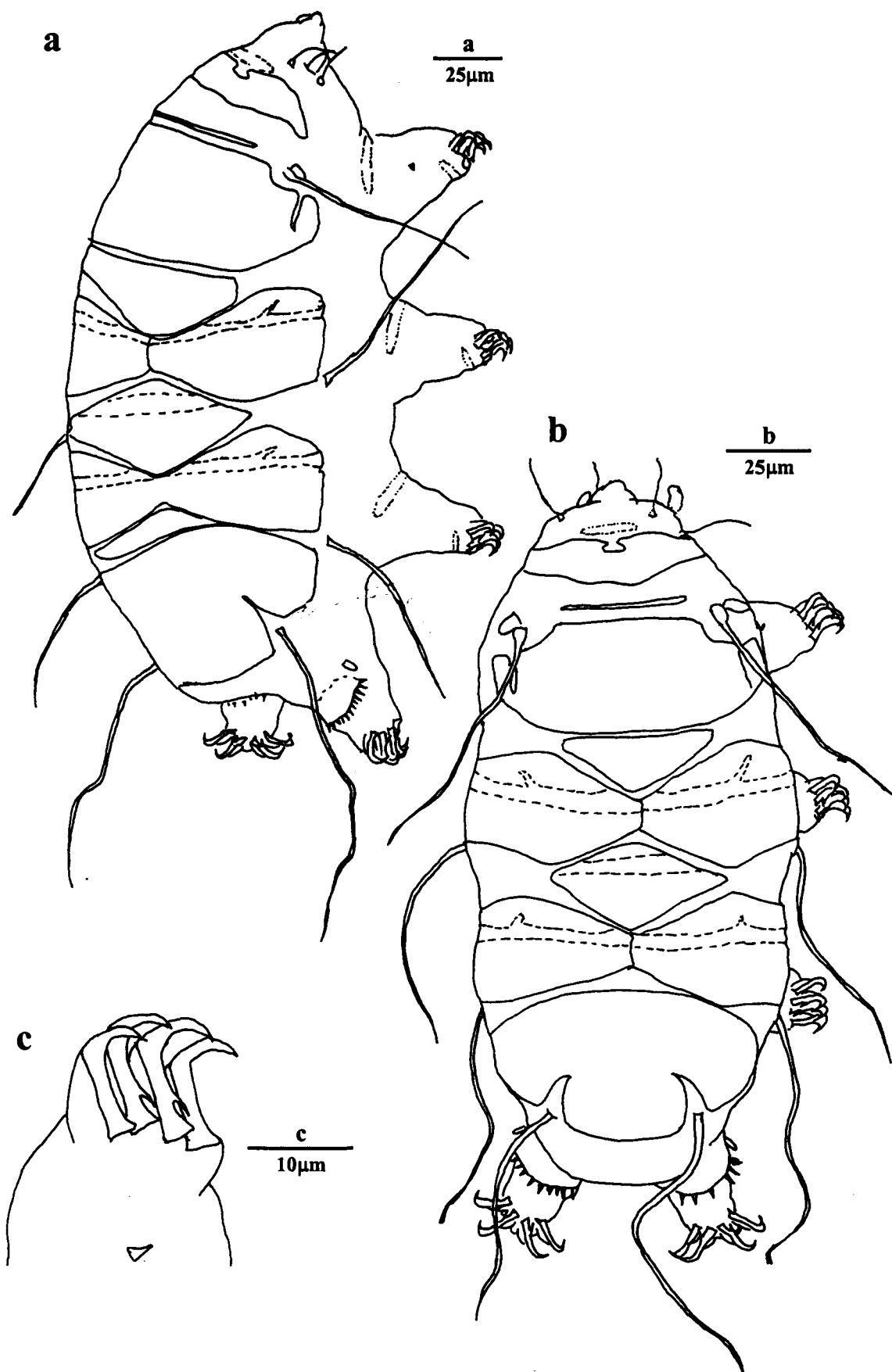


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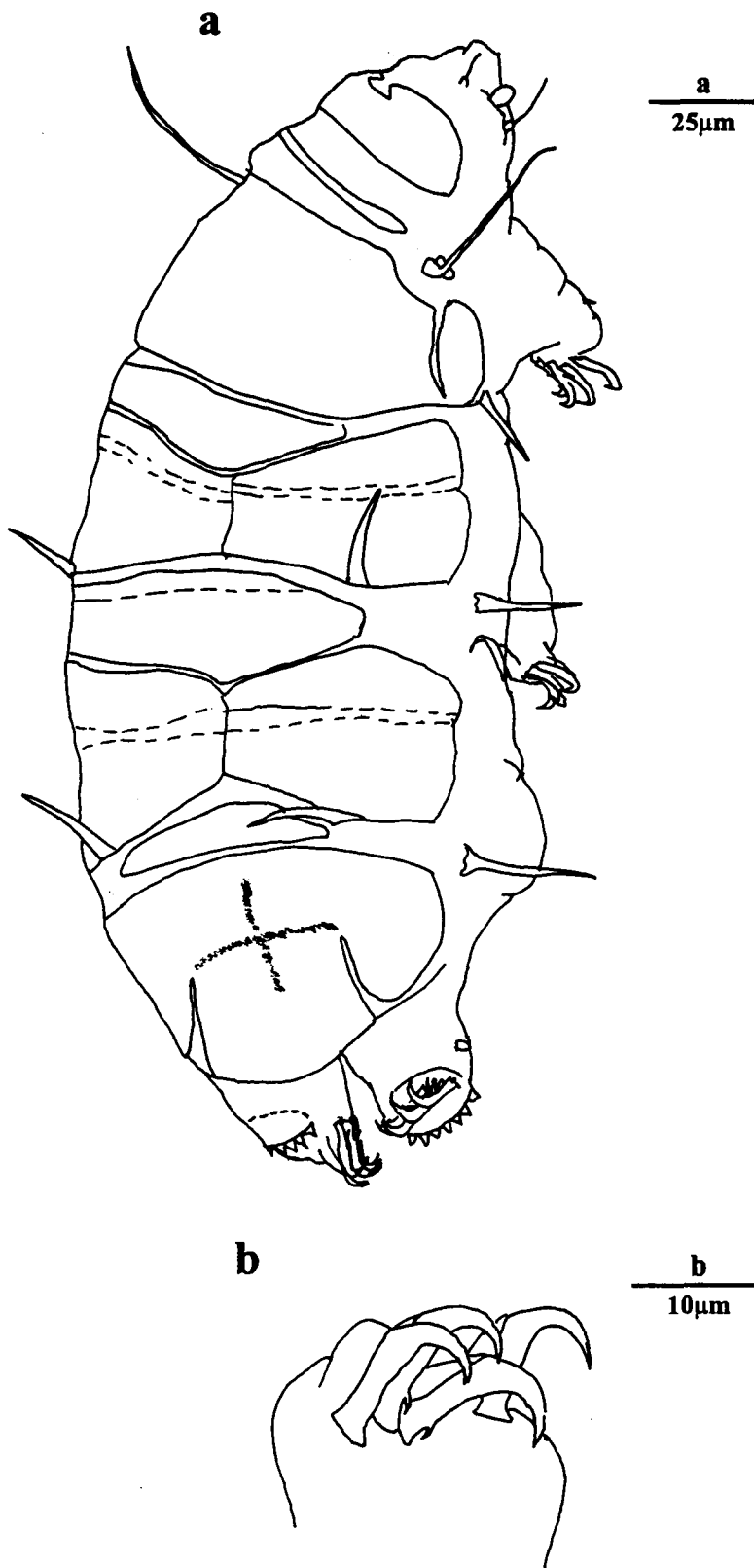


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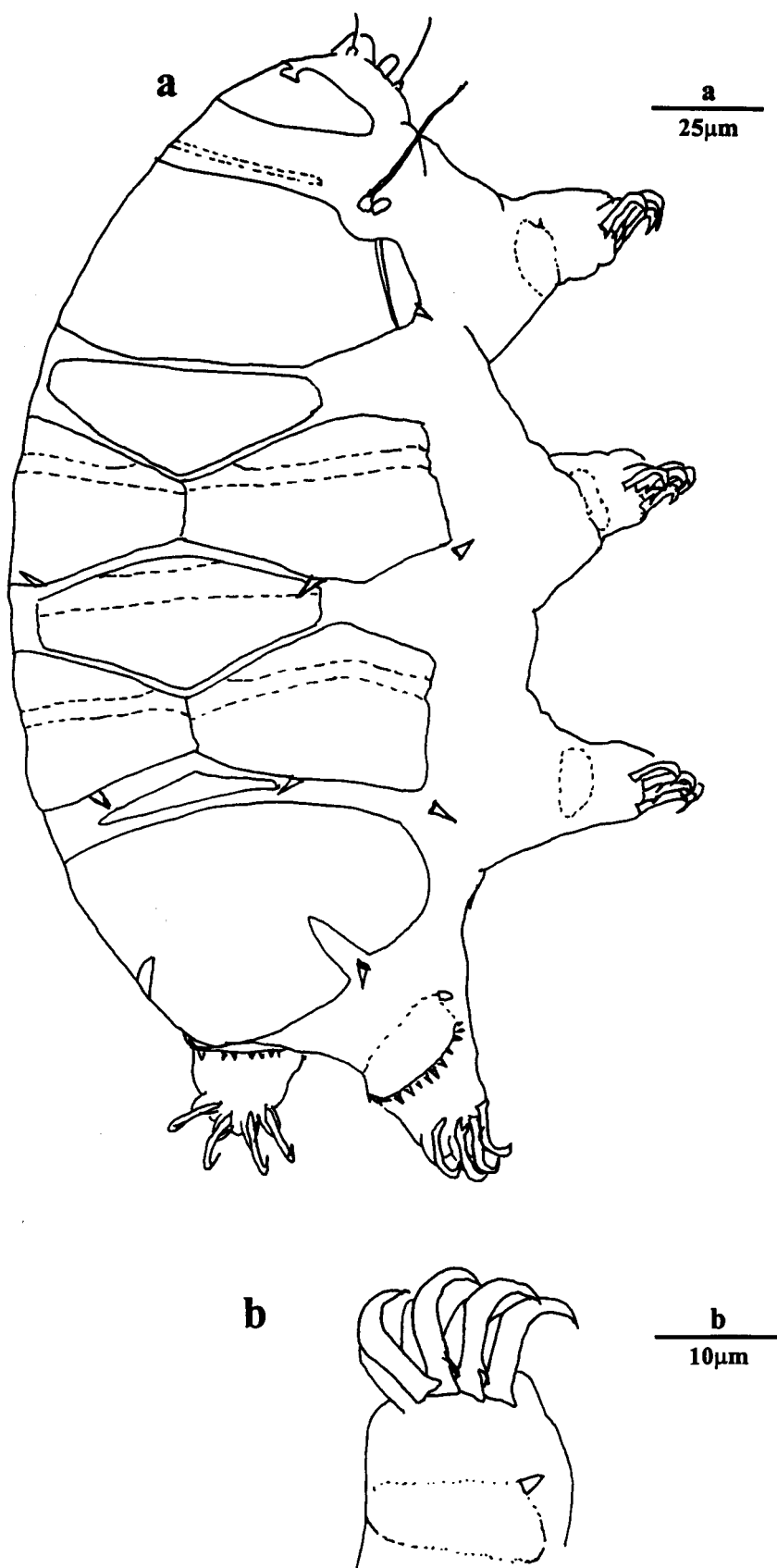


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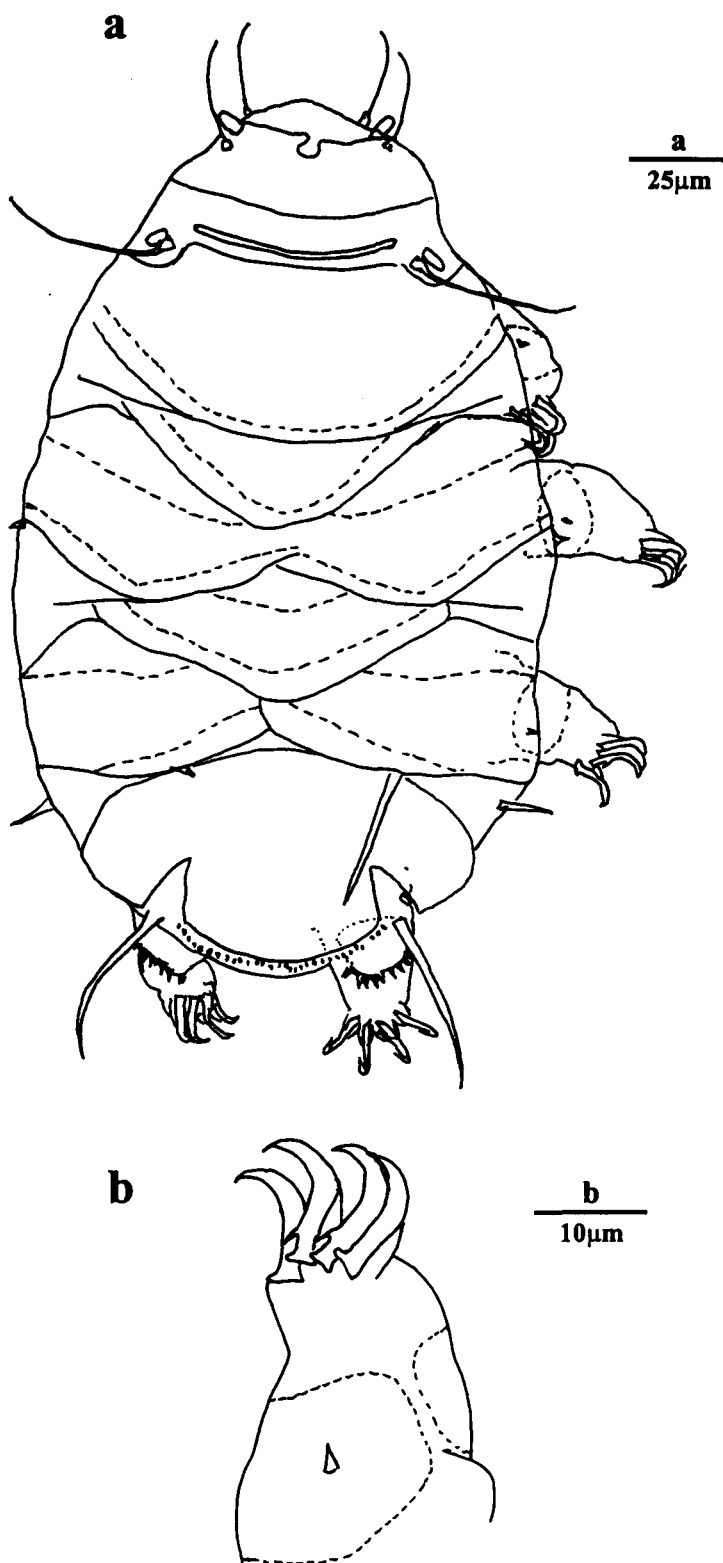


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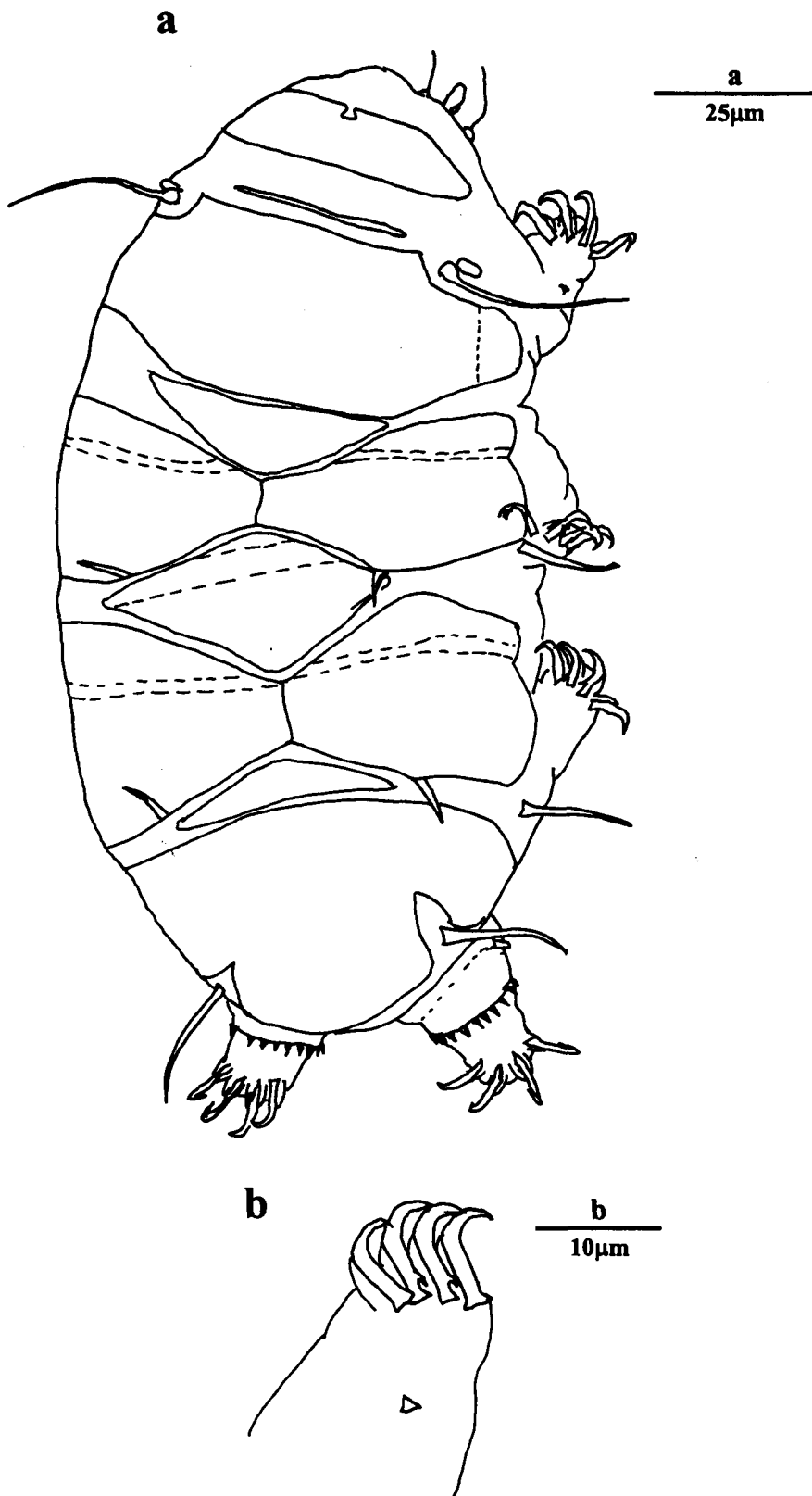


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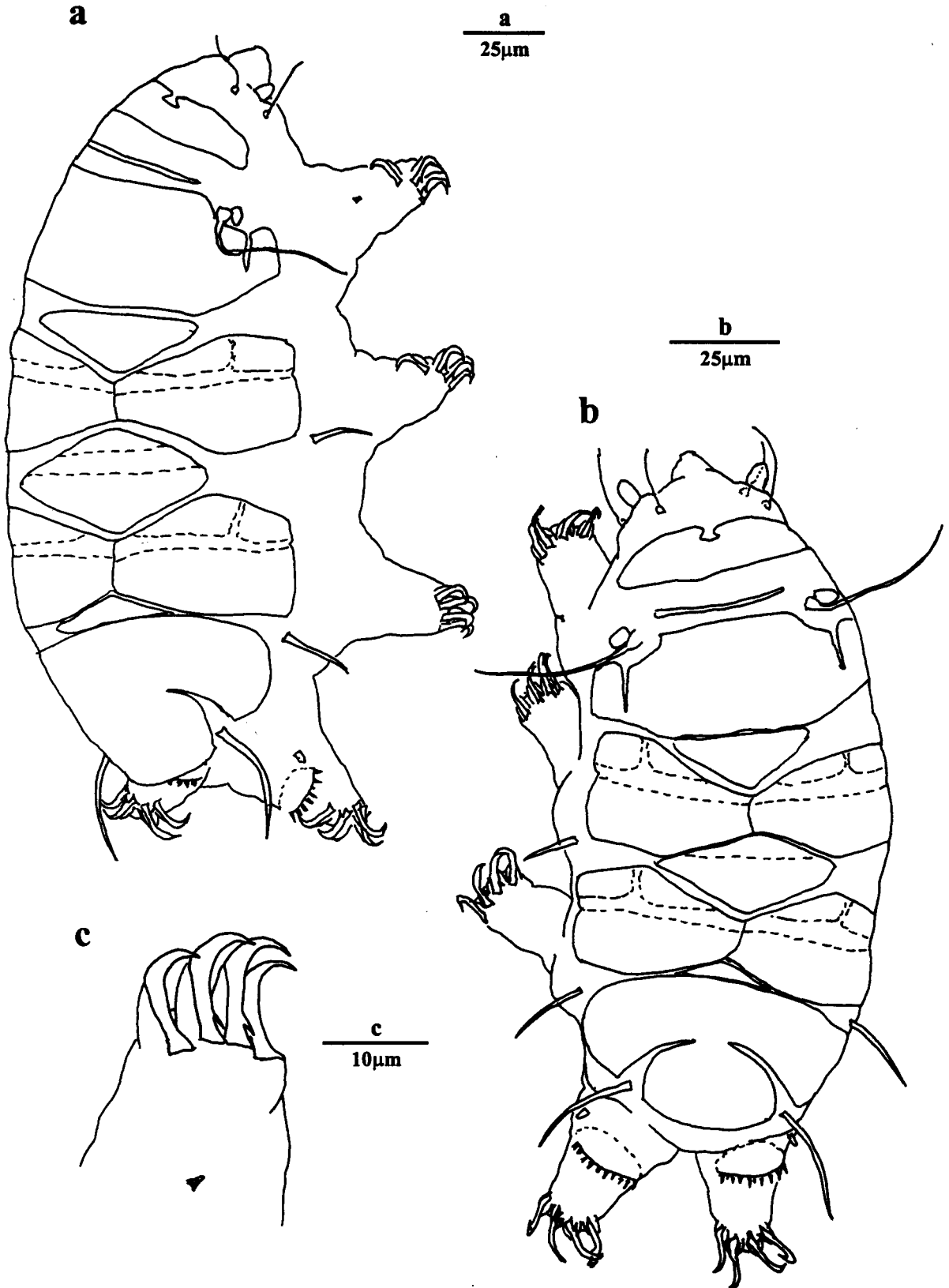


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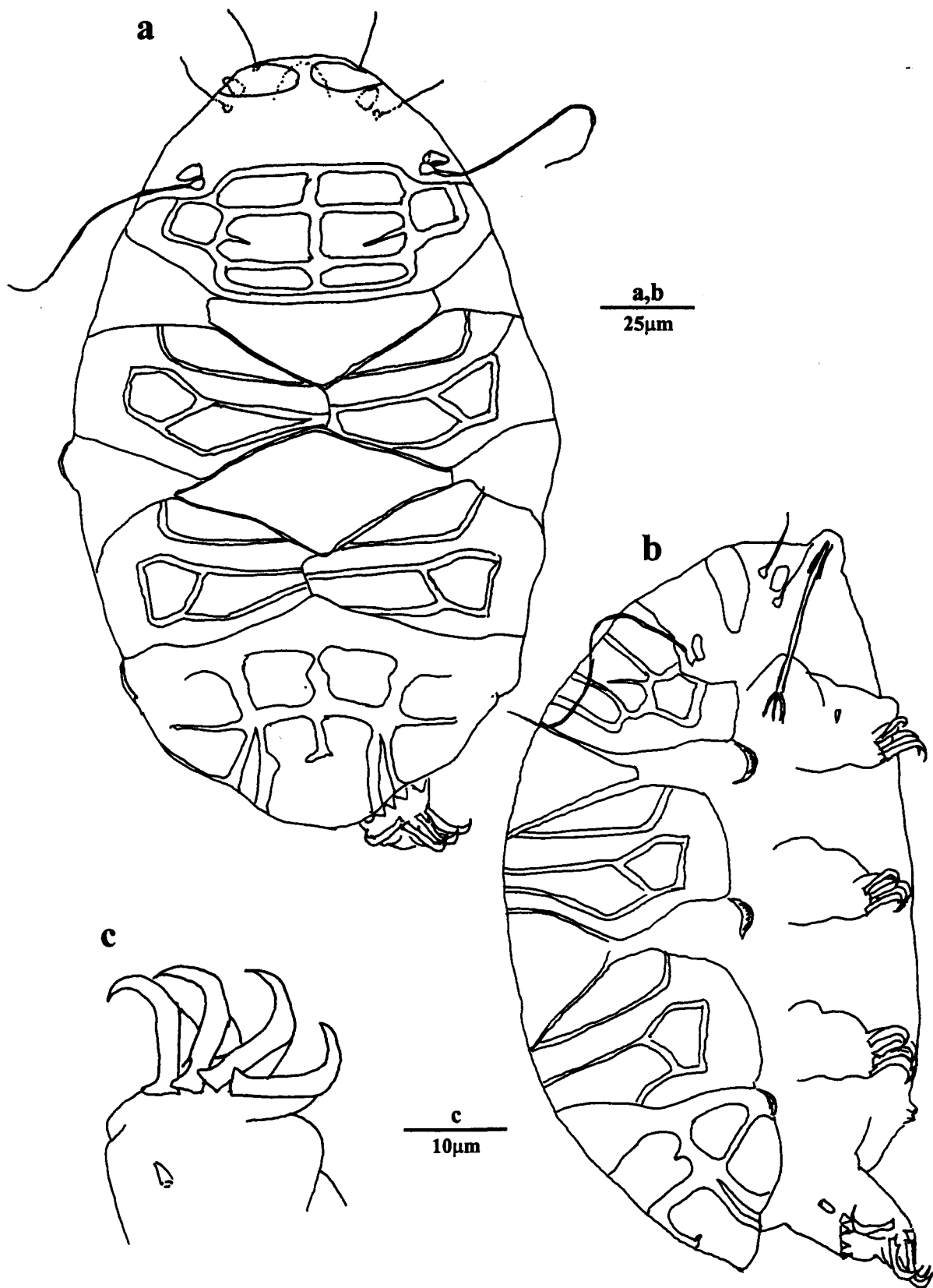


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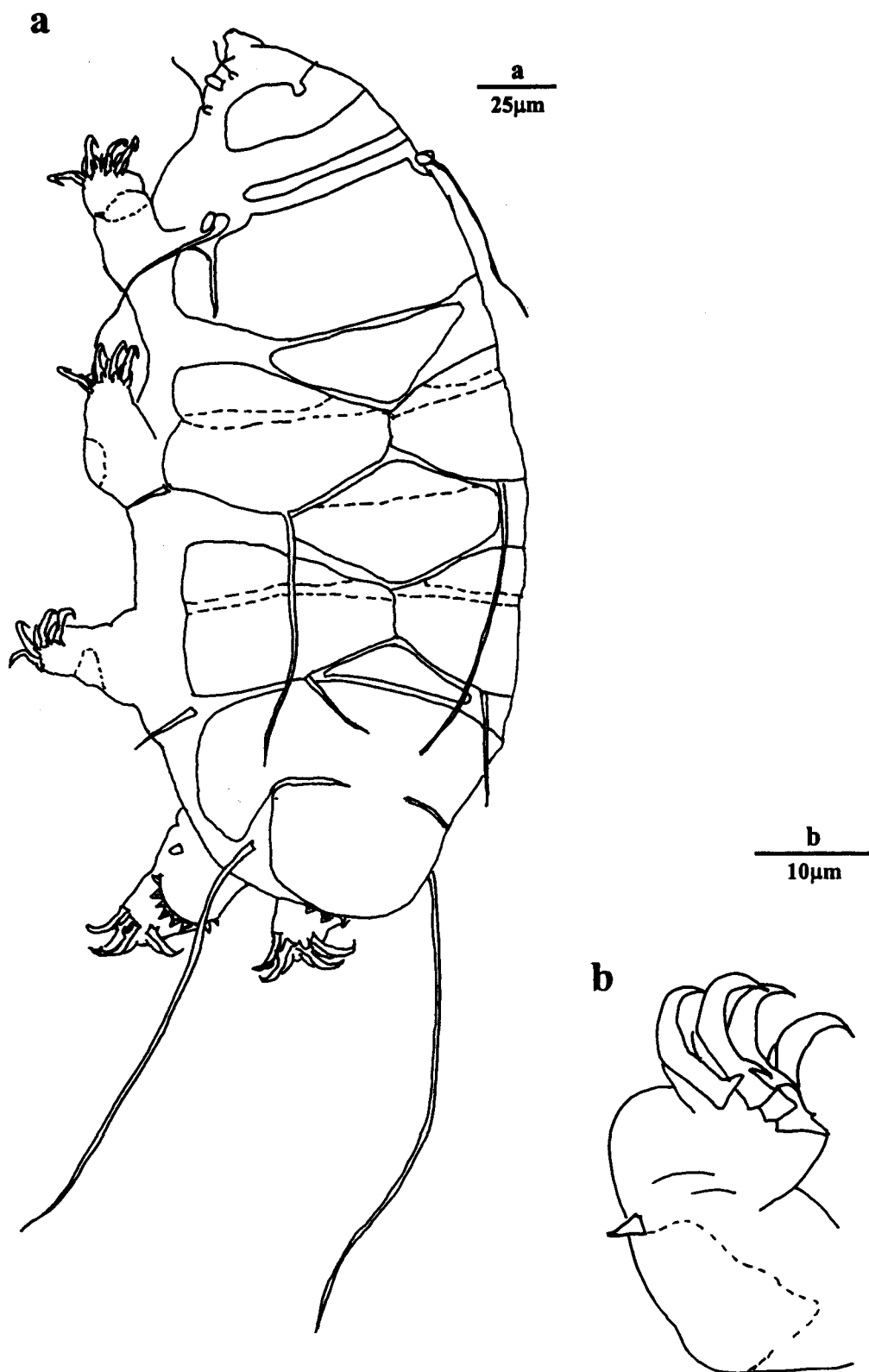


Figure 22: *Echiniscus velaminis* Murray, 1910. a. habitus (dorsolateral view); b. claws of first leg.

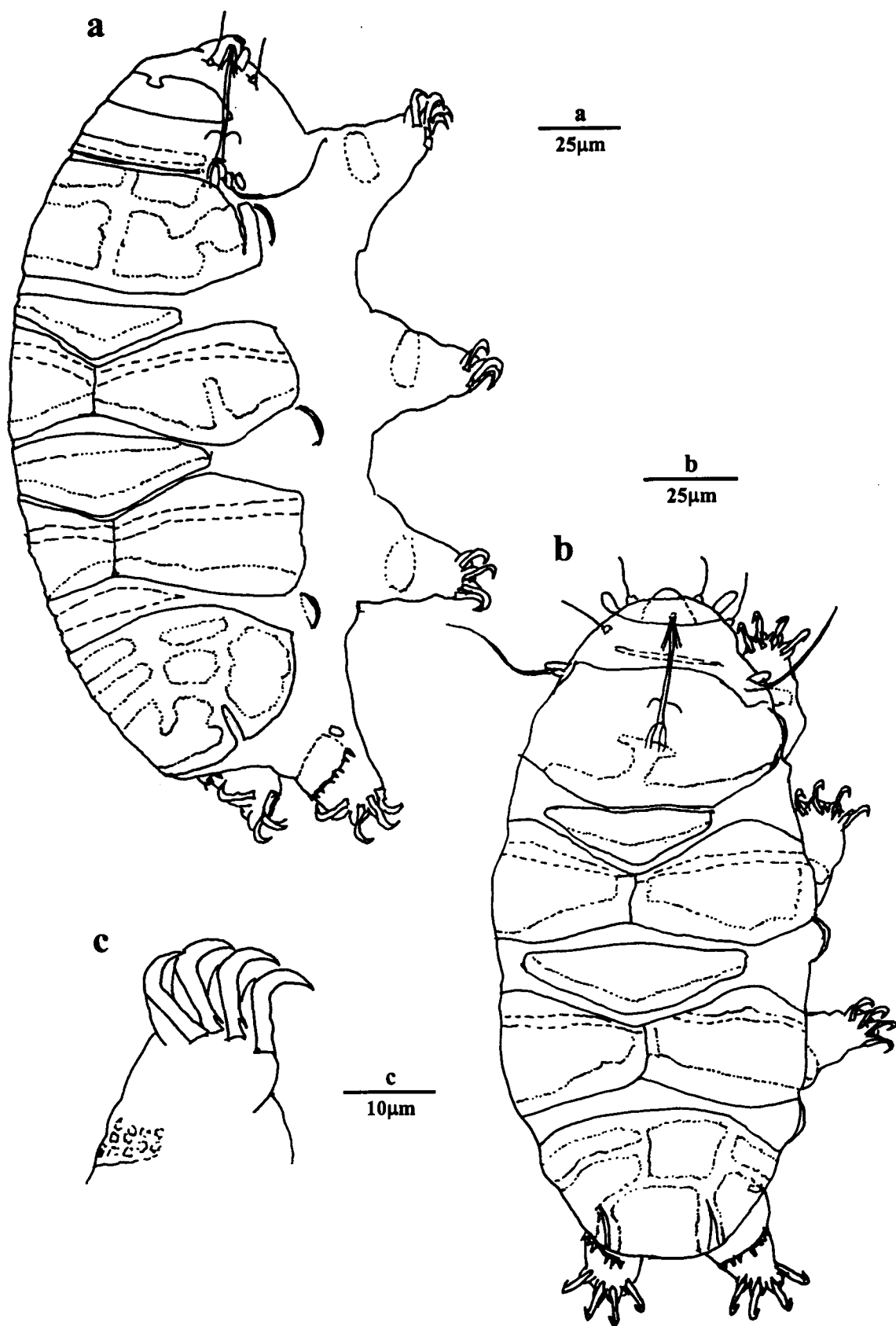


Figure 23: *Echiniscus vinculus* Horning, Schuster & Grigarick, 1978. a. habitus, female (dorsolateral view); b. habitus, male (dorsal view), c. claws of second leg.

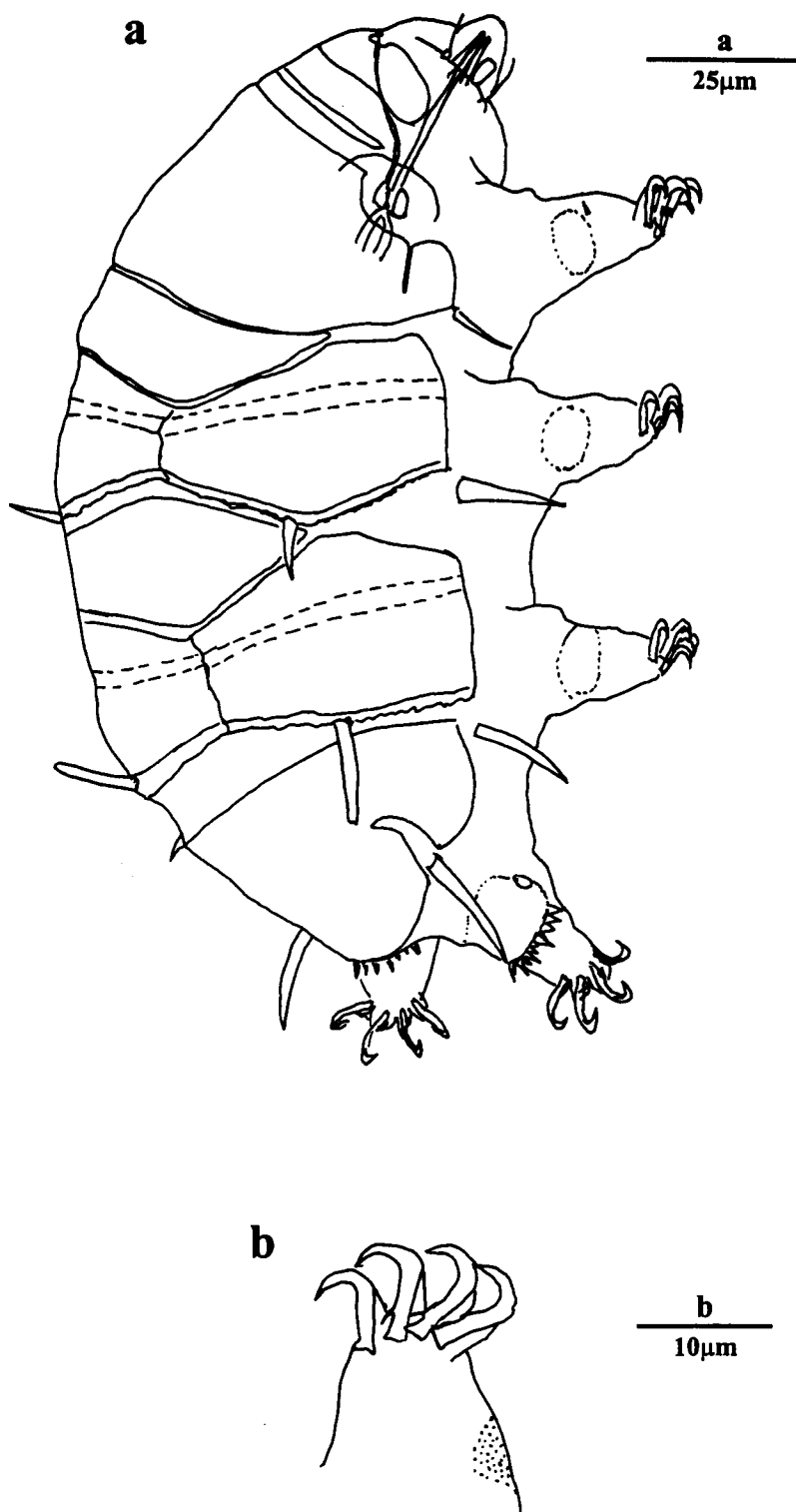


Figure 24: *Echiniscus virginicus* Riggin, 1962. a. habitus (dorsolateral view); b. claws of third leg.

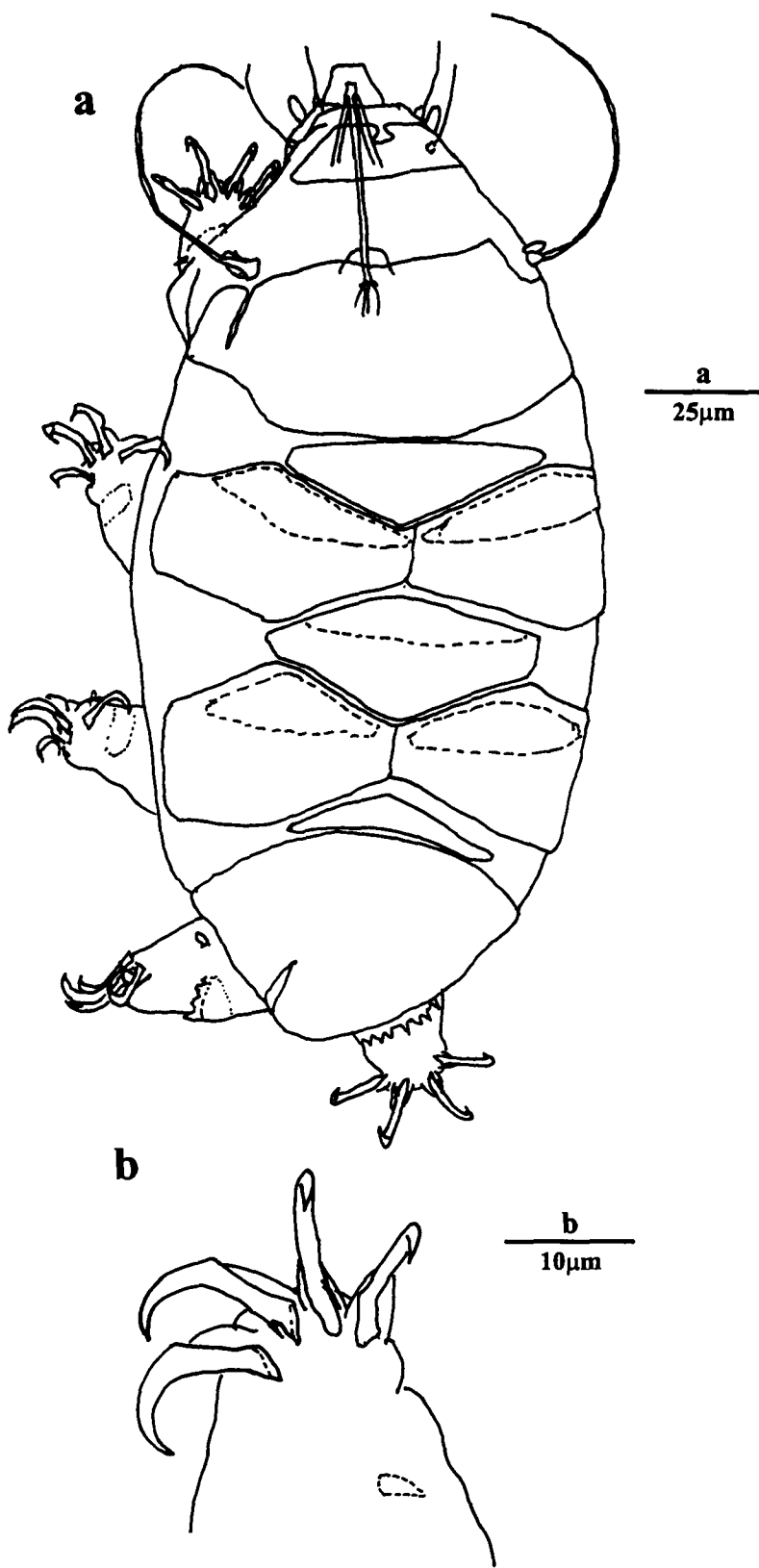


Figure 25: *Echiniscus viridissimus* Peterfi, 1956. a. habitus (dorsal view); b. claws of first leg.

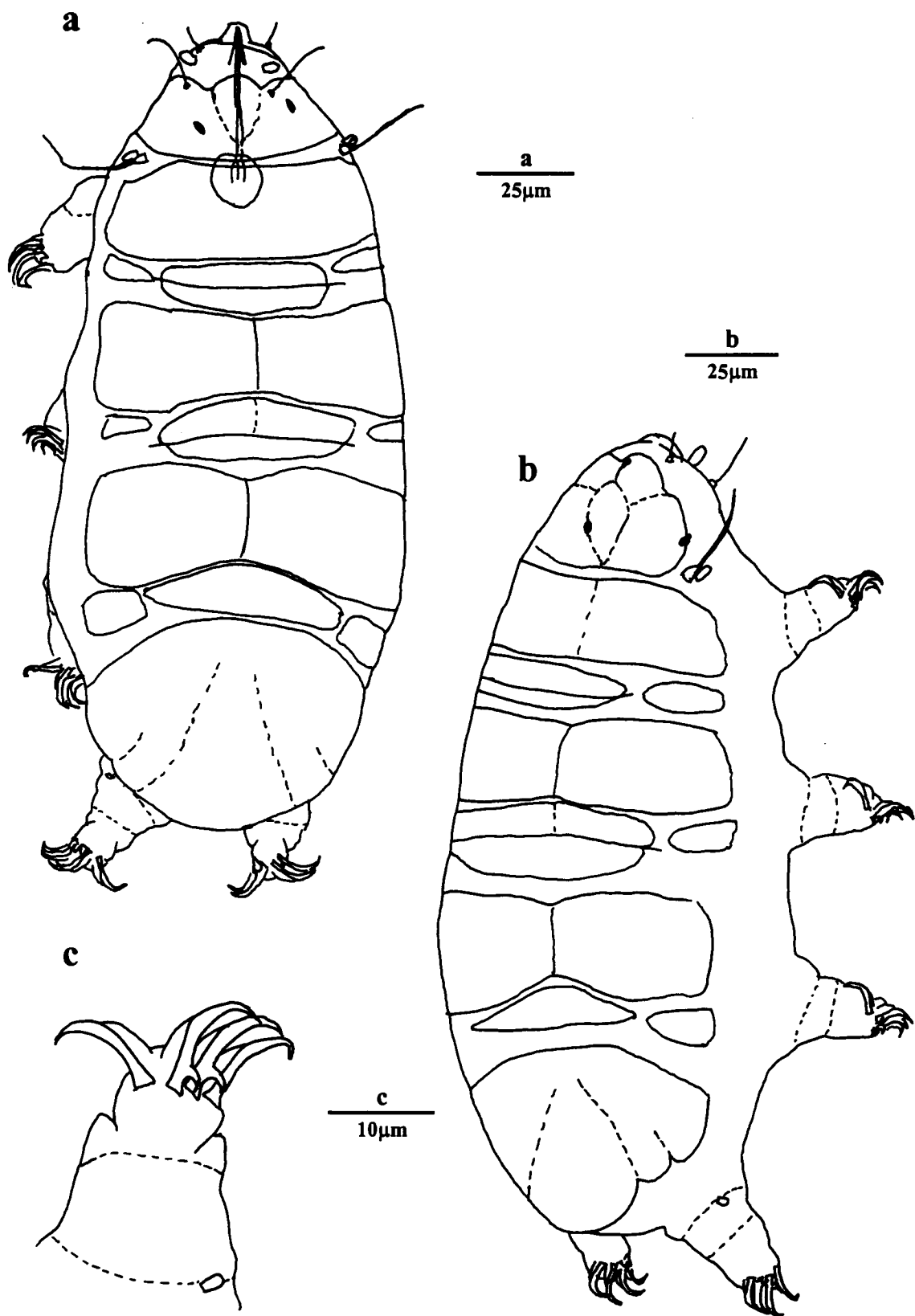


Figure 26: *Hypechiniscus exarmatus* (Murray, 1907). a. habitus, female (dorsal view); b. habitus, male (dorsolateral view); c. claws of fourth leg.

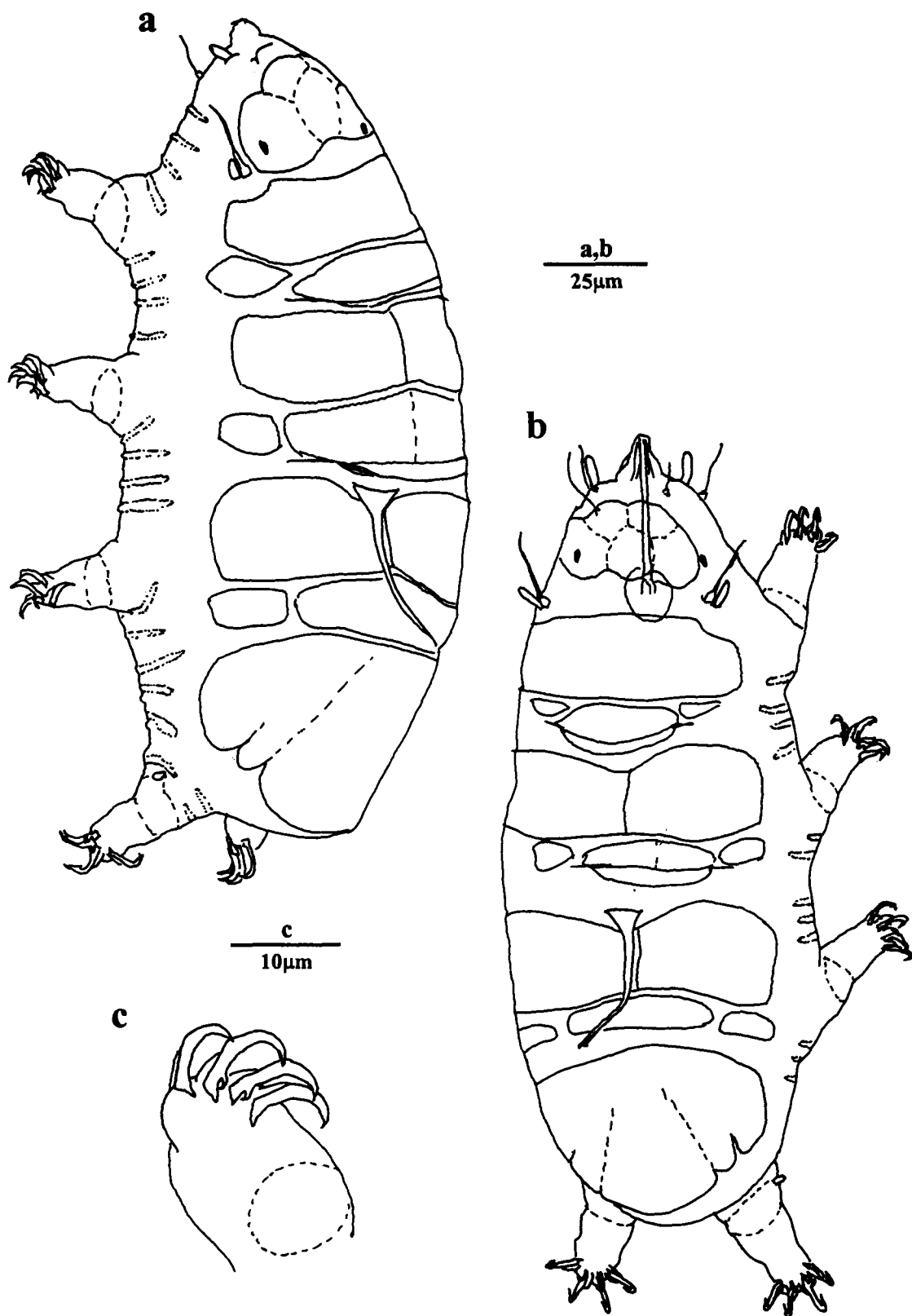


Figure 27: *Hypechiniscus gladiator* (Murray, 1905). a. habitus, female (dorsolateral view); b. habitus, male (dorsolateral view); c. claws of third leg.

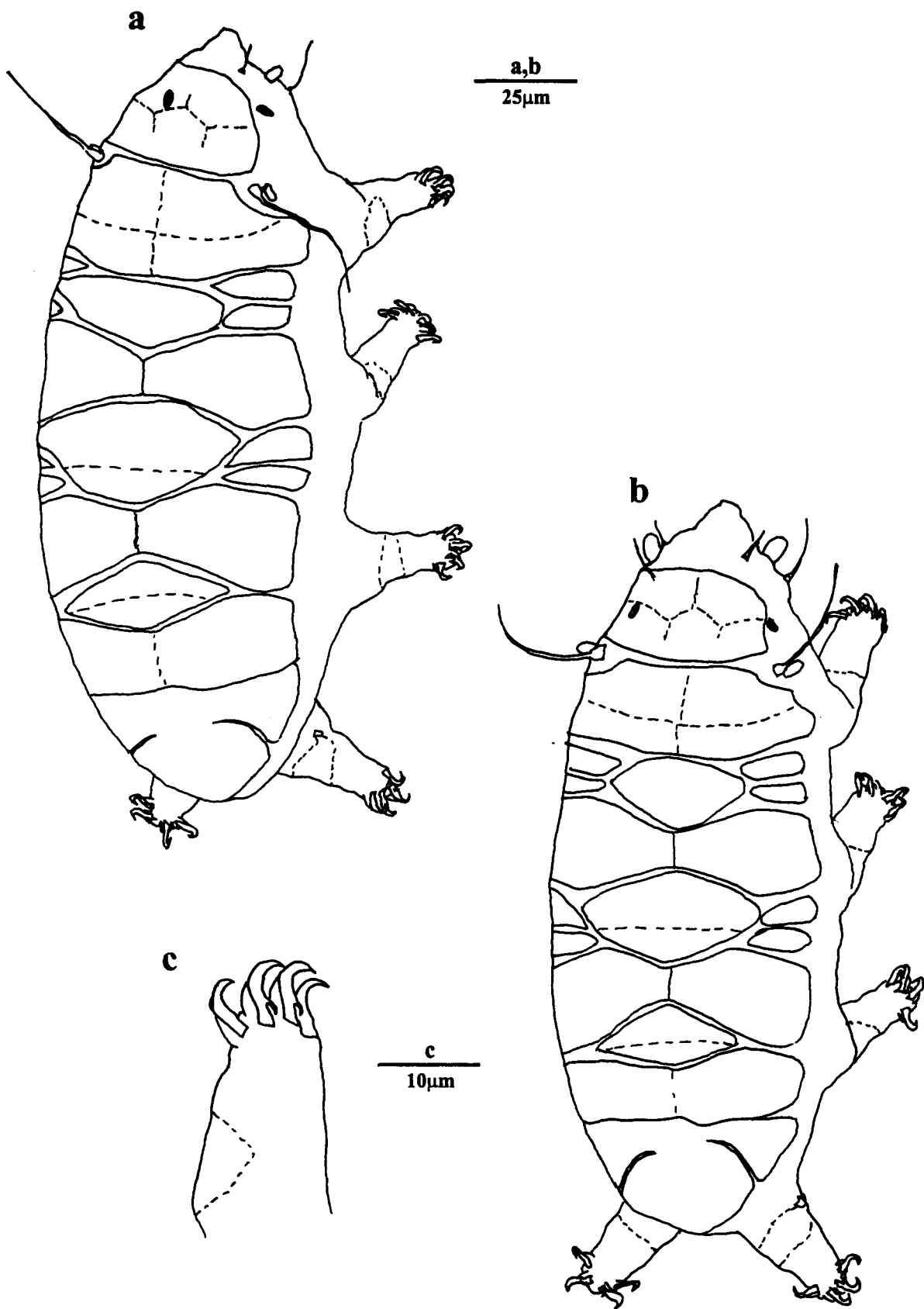


Figure 28: *Pseudechiniscus australis* sp. n. a. habitus, female (dorsolateral view); b. habitus, male (dorsolateral view); c. claws of first leg.

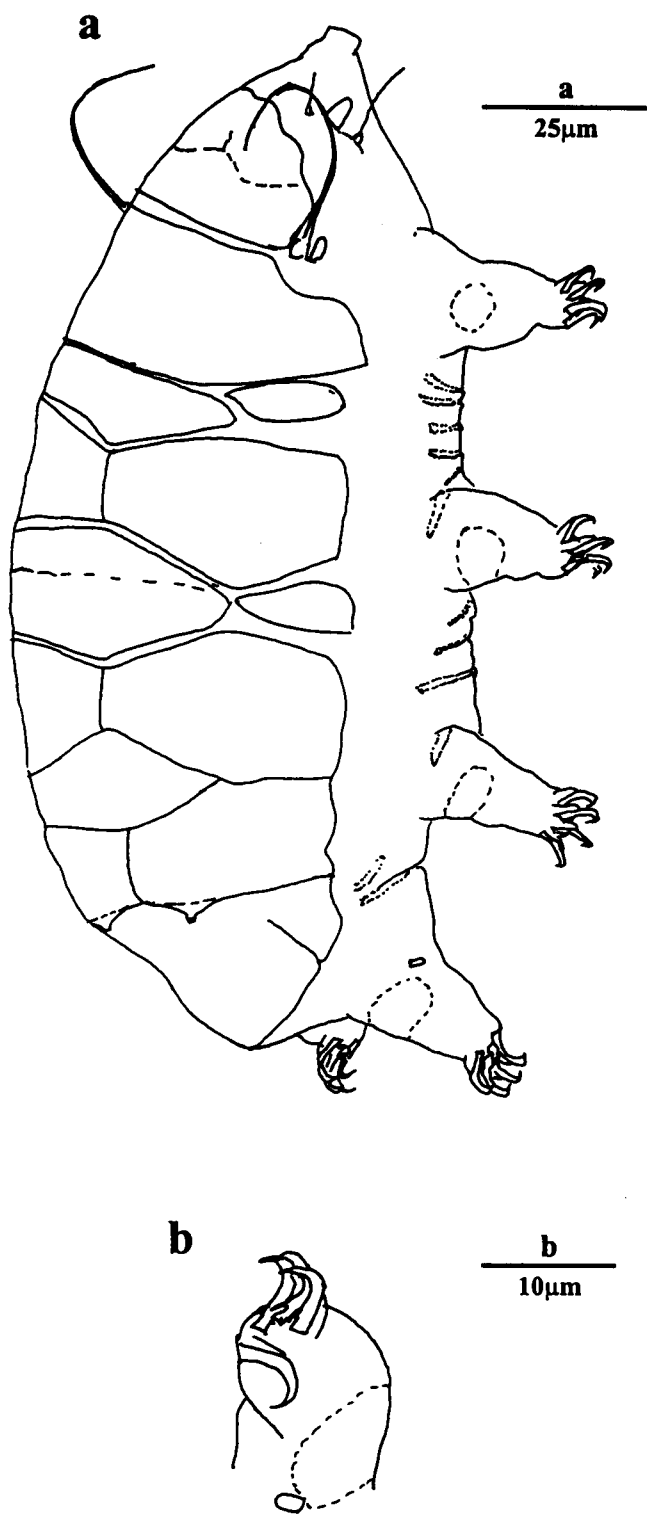


Figure 29: *Pseudechiniscus ficus* sp. n. a. habitus (dorsolateral view); b. claws of fourth leg.

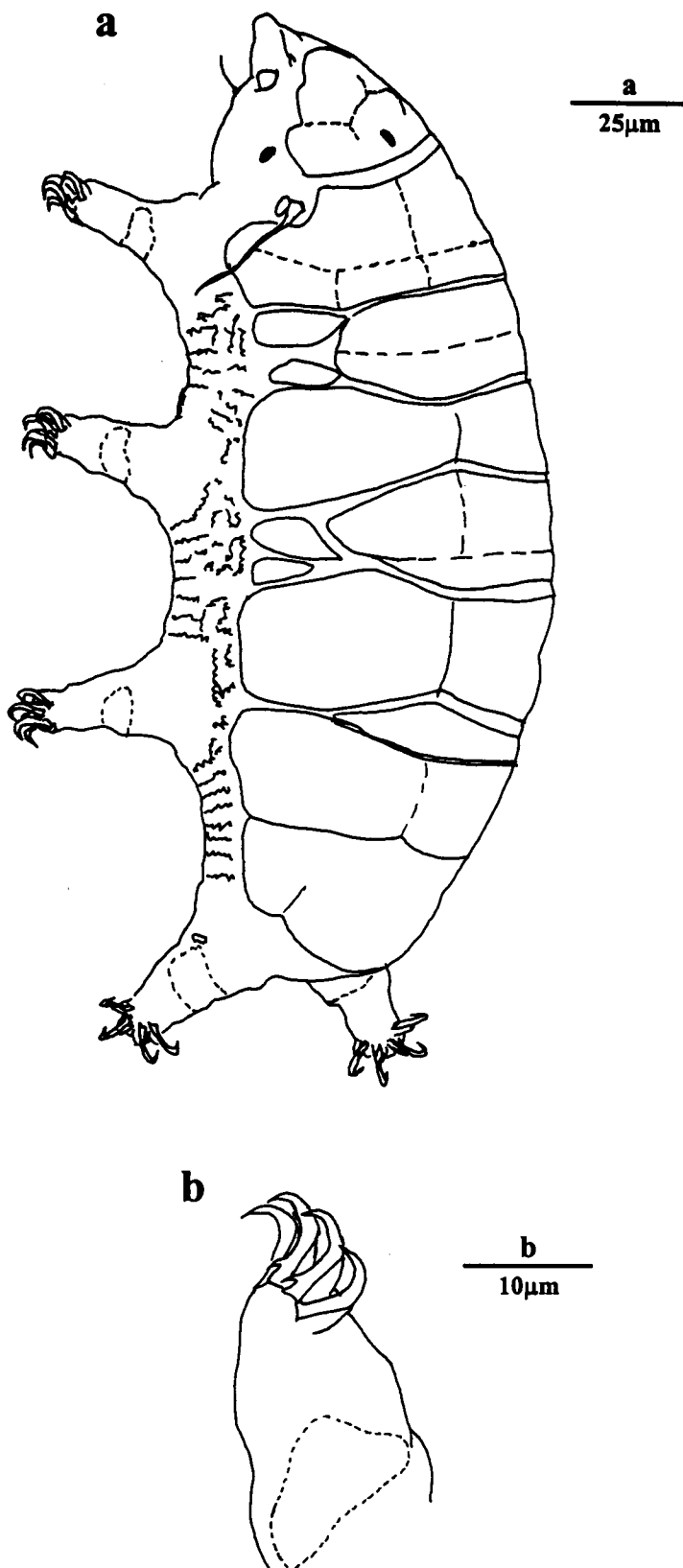


Figure 30: *Pseudechiniscus jiroveci* Bartos, 1963. a. habitus (dorsolateral view); b. claws of first leg.

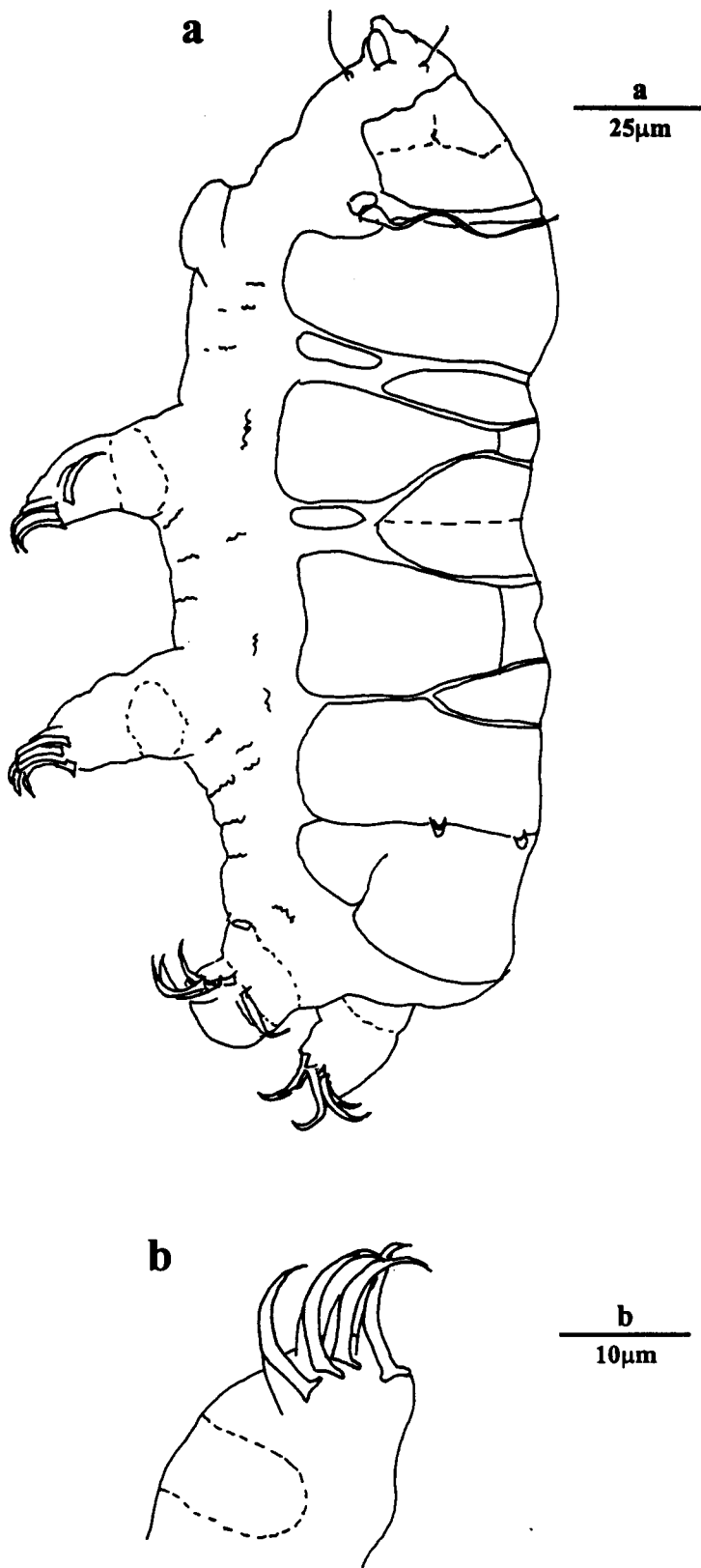


Figure 31: *Pseudechiniscus longiunguis* sp. n. a. habitus (dorsolateral view); b. claws of second leg.

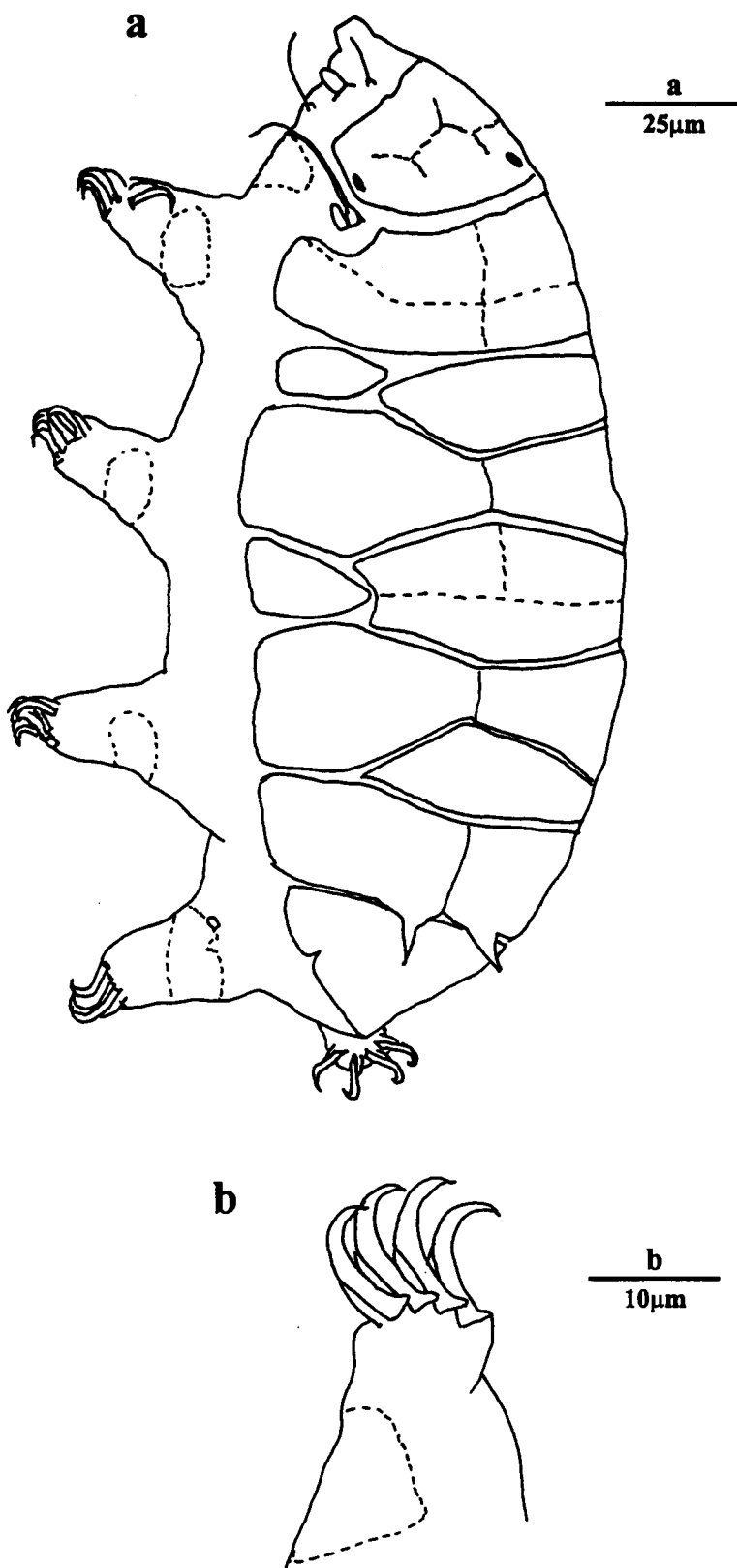


Figure 32: *Pseudechiniscus novaezeelandiae* (Richters, 1908). a. habitus (dorsolateral view); b. claws of first leg.

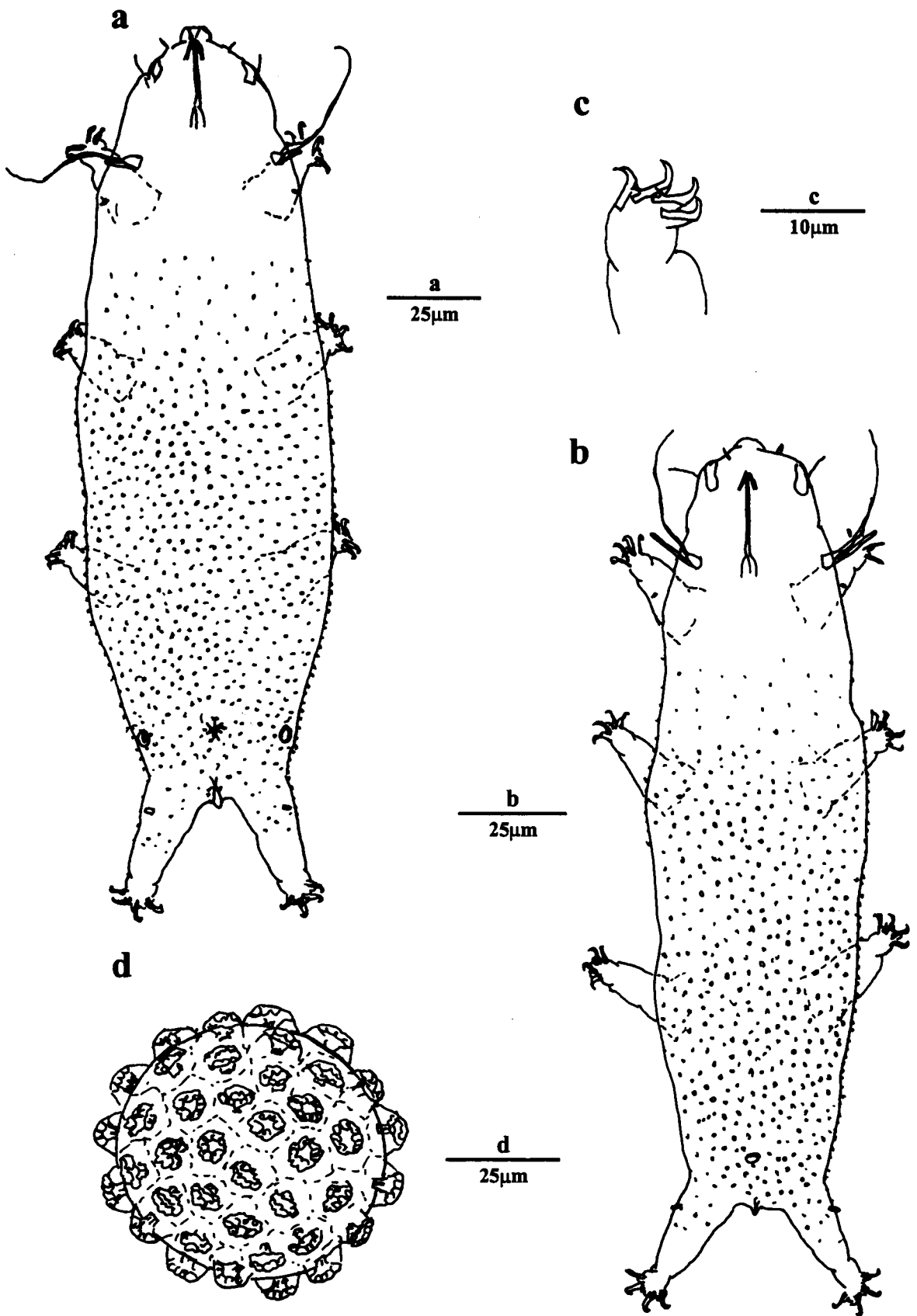


Figure 33: *Oreella mollis* Murray, 1910. a. habitus, female (dorsal view); b. habitus, male (dorsal view); c. claws of fourth leg; d. egg.

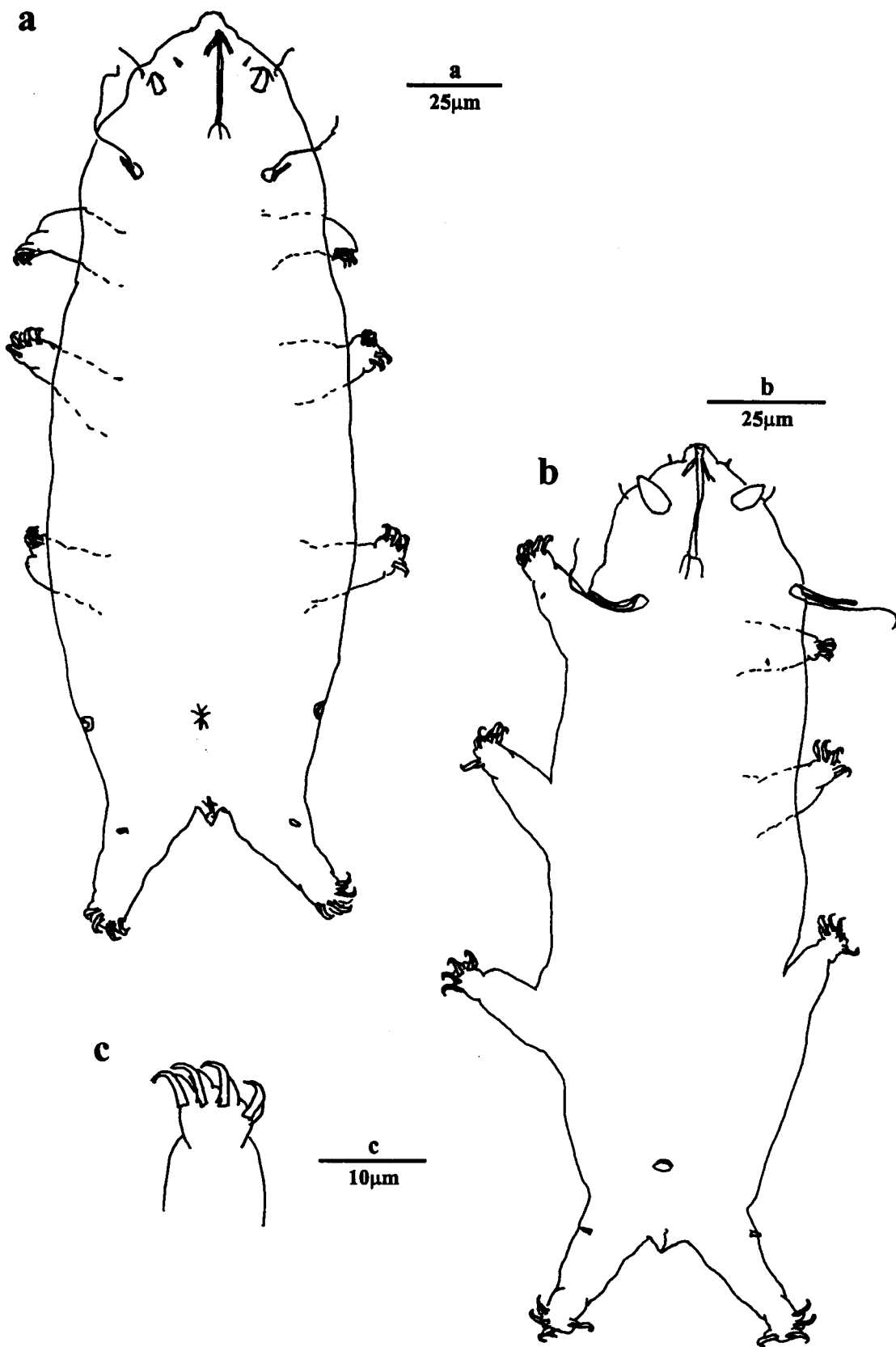


Figure 34: *Oreella reinhardti* sp. n. a. habitus, female (dorsal view); b. habitus, male (dorsal view); c. claws of third leg.

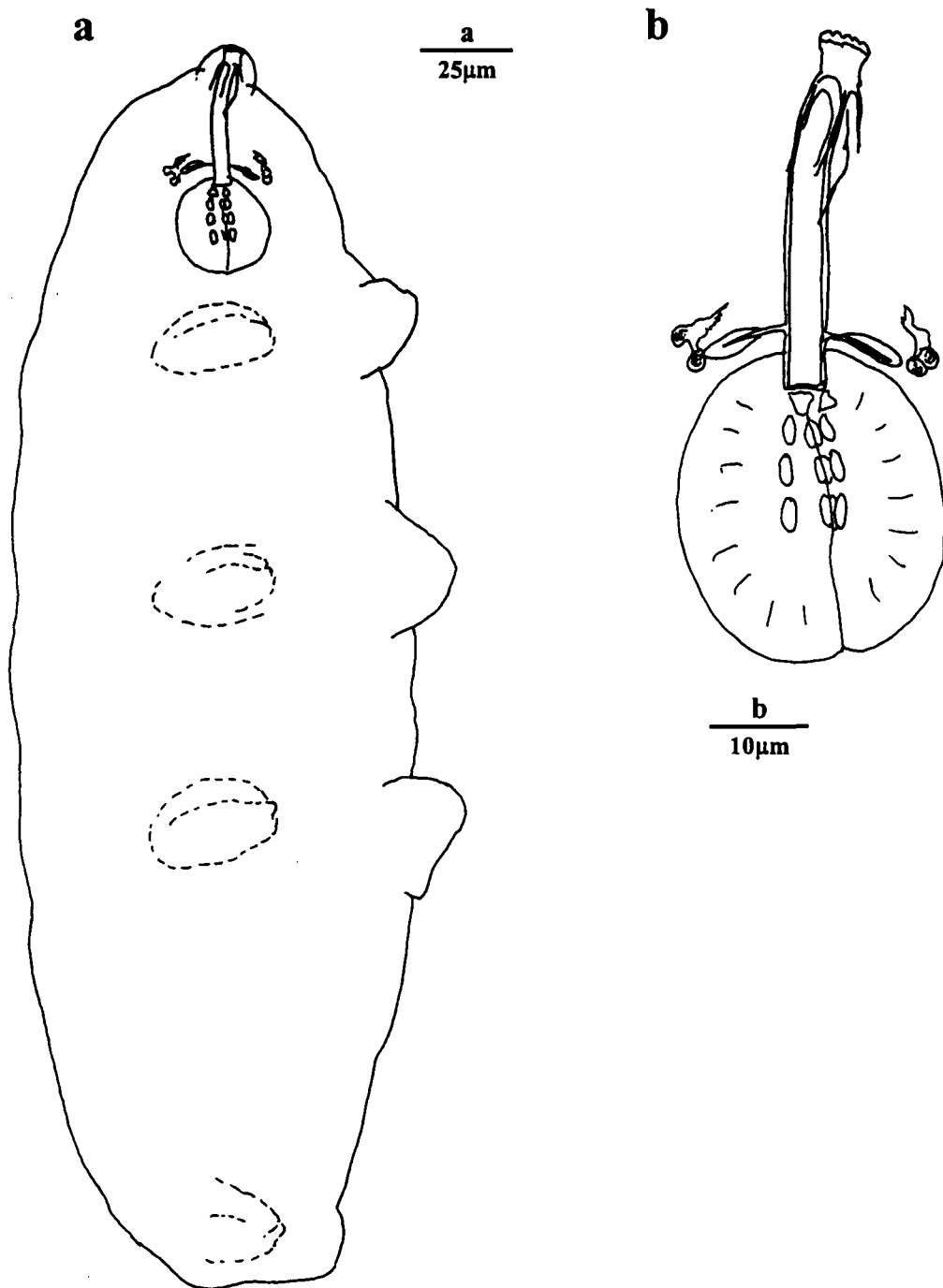


Figure 35: *Apodibius serventyi* Morgan & Nicholls 1986. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view).

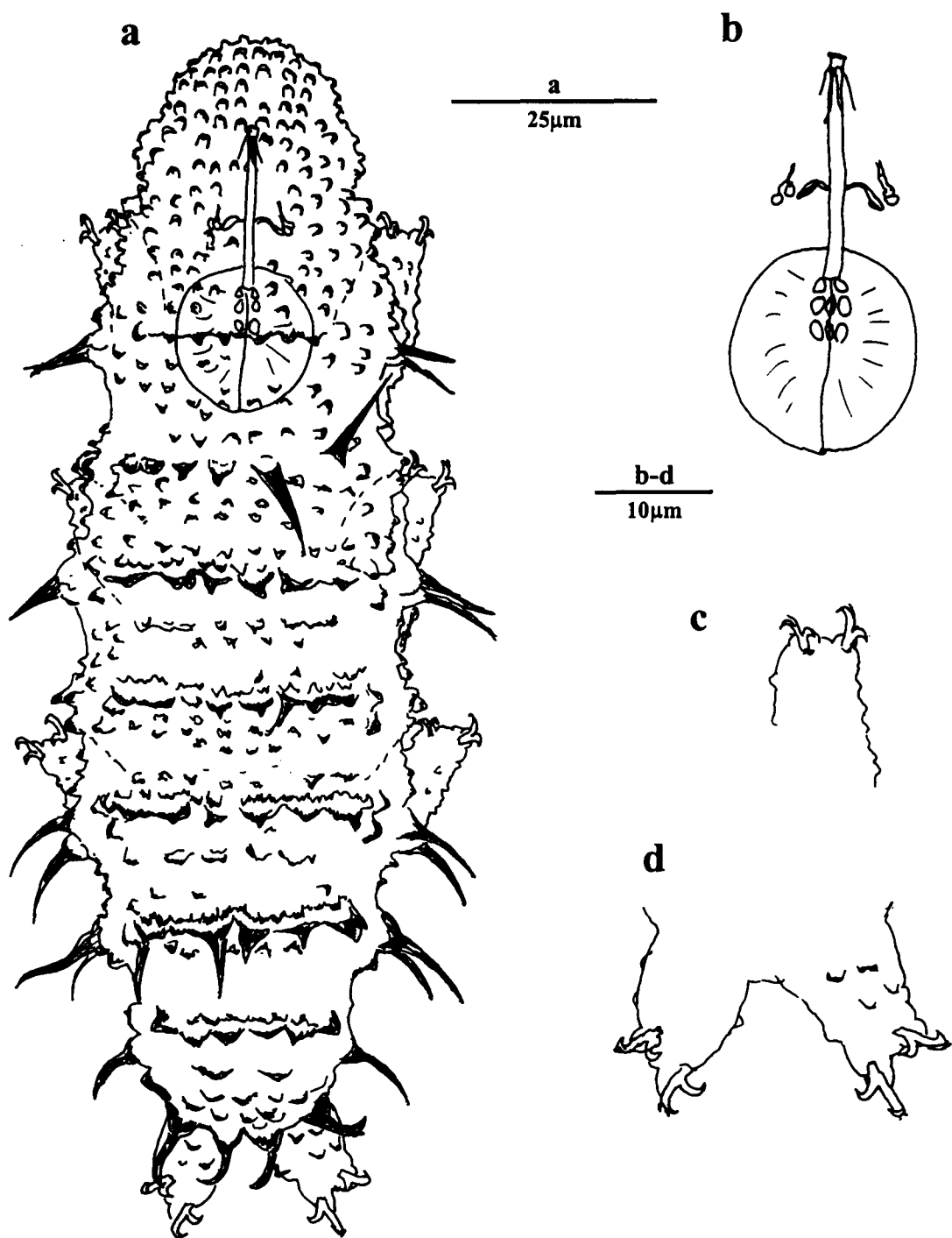


Figure 36. *Calohypsibius ornatus* (Richter, 1900). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first pair of legs; d. claws of fourth pair of legs.

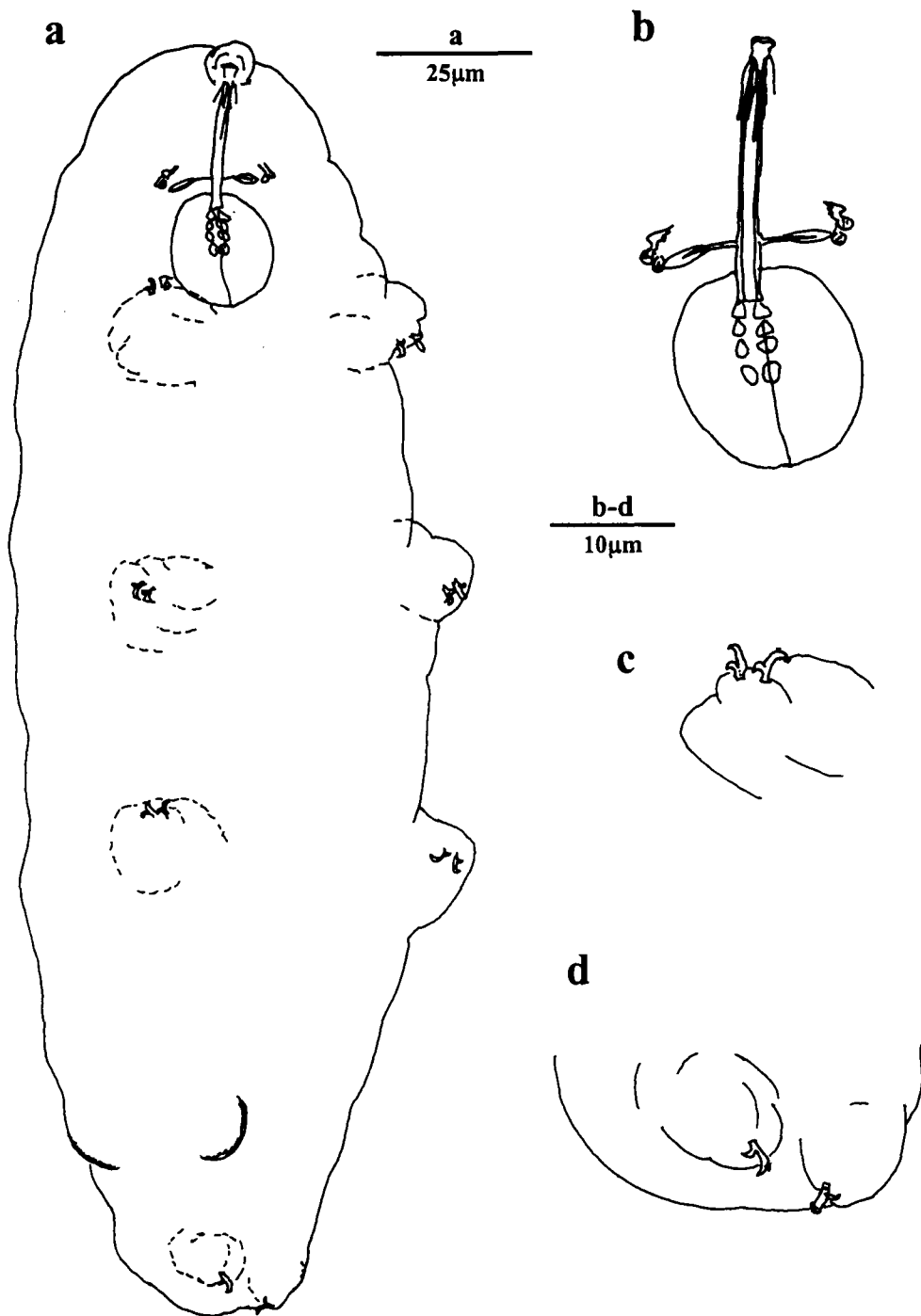


Figure 37: *Parhexapodibius australis* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

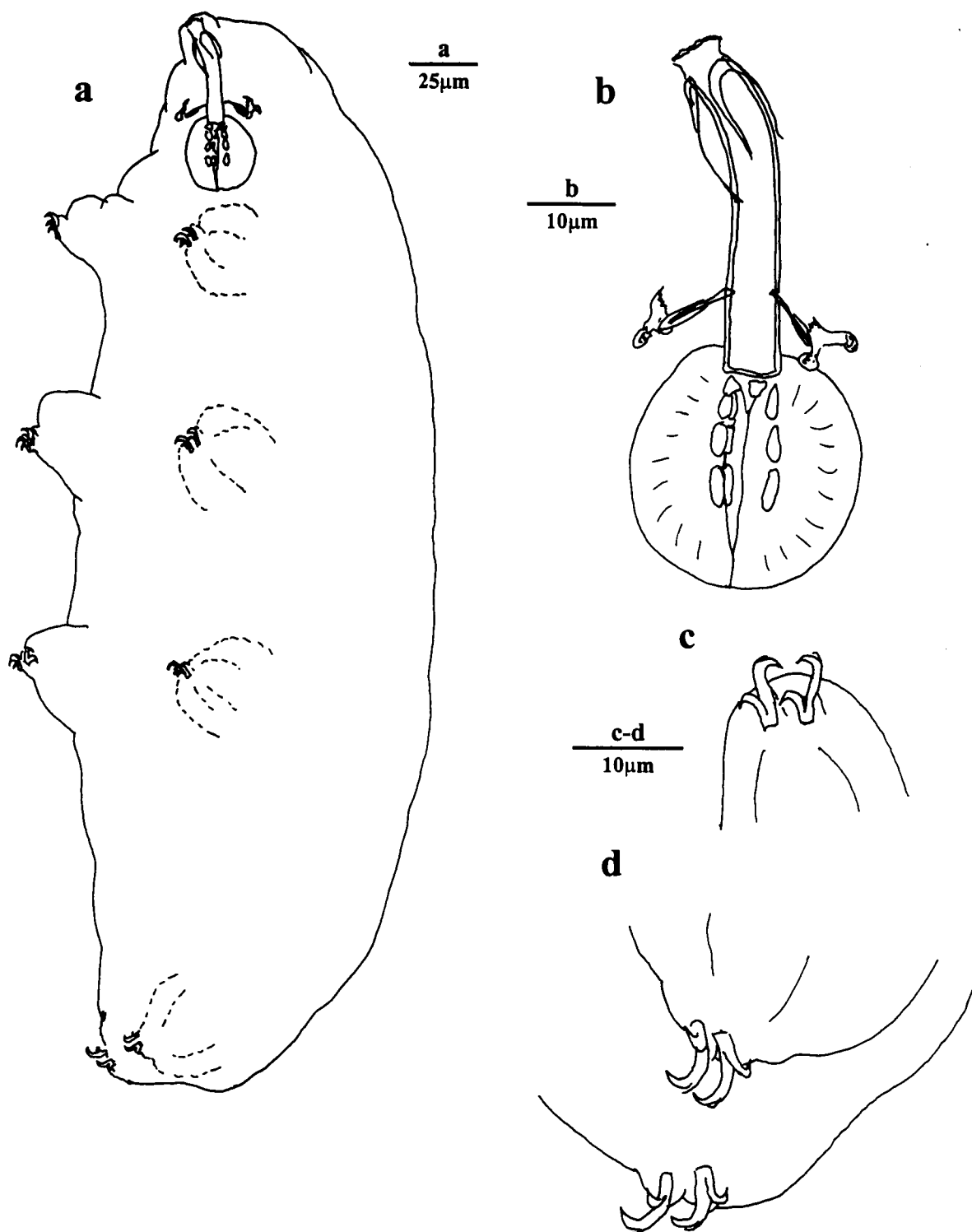


Figure 38: *Parhexapodibius lagrecai* (Binda & Pilato, 1969). a. habitus (dorso-lateral view); b. buccopharyngeal apparatus (ventro-lateral view); c. claws of first leg; d. claws of fourth pair of legs.

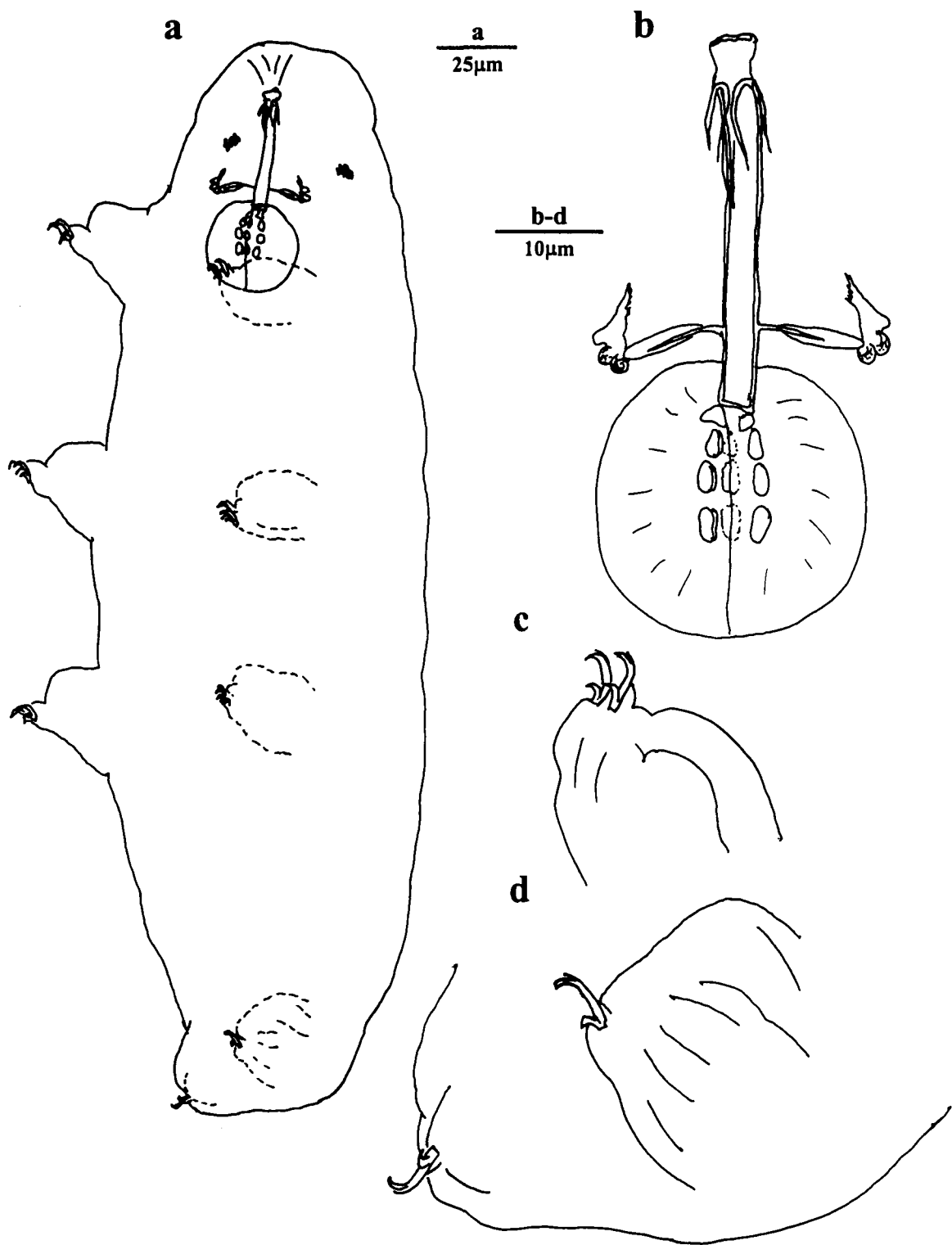


Figure 39: *Parhexapodibius pilatoi* (Bernard, 1977). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs.

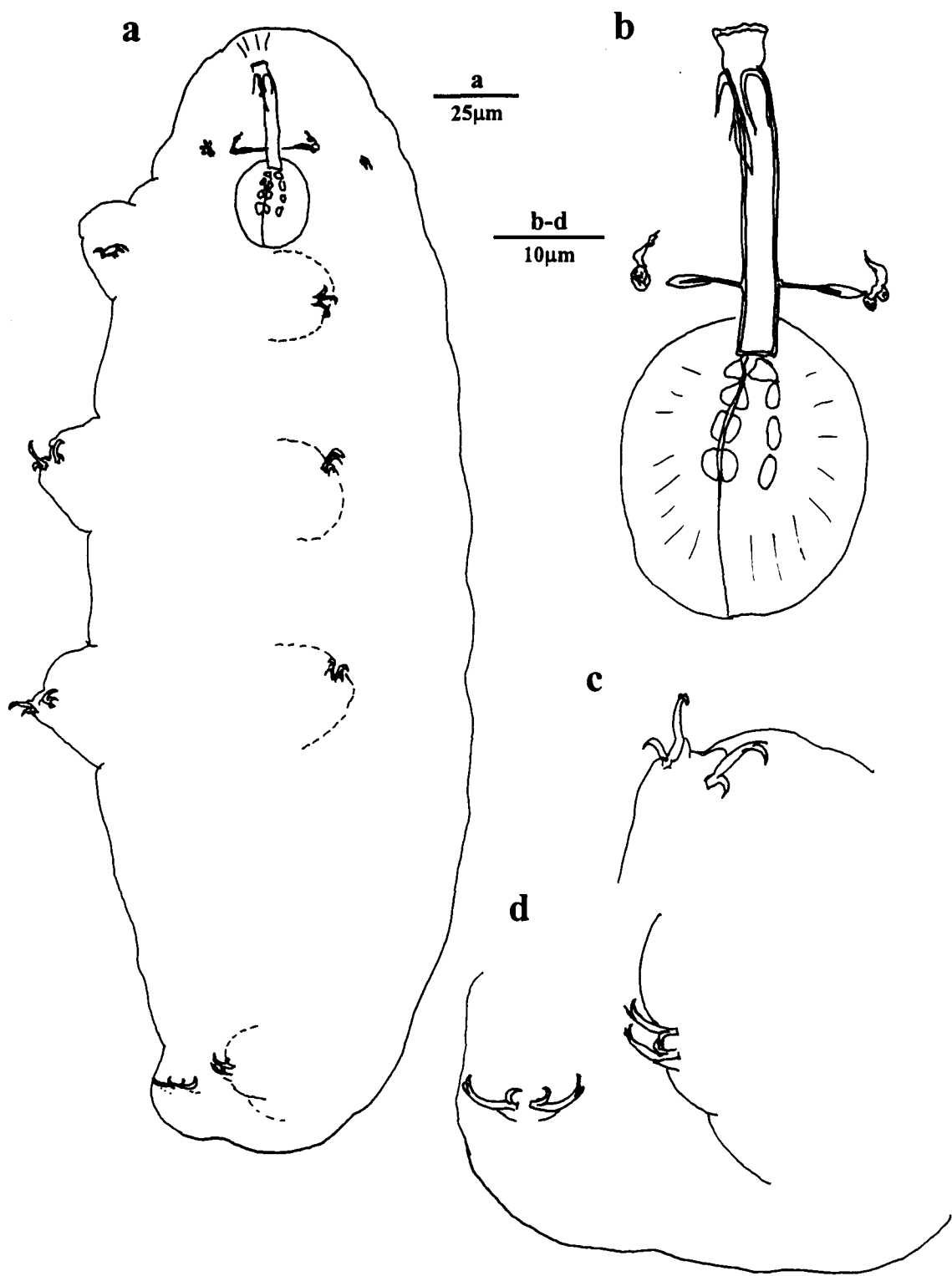


Figure 40: *Parhexapodibius ramazzotti* Manicardi & Bertolani, 1987. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of second leg; d. claws of fourth pair of legs.

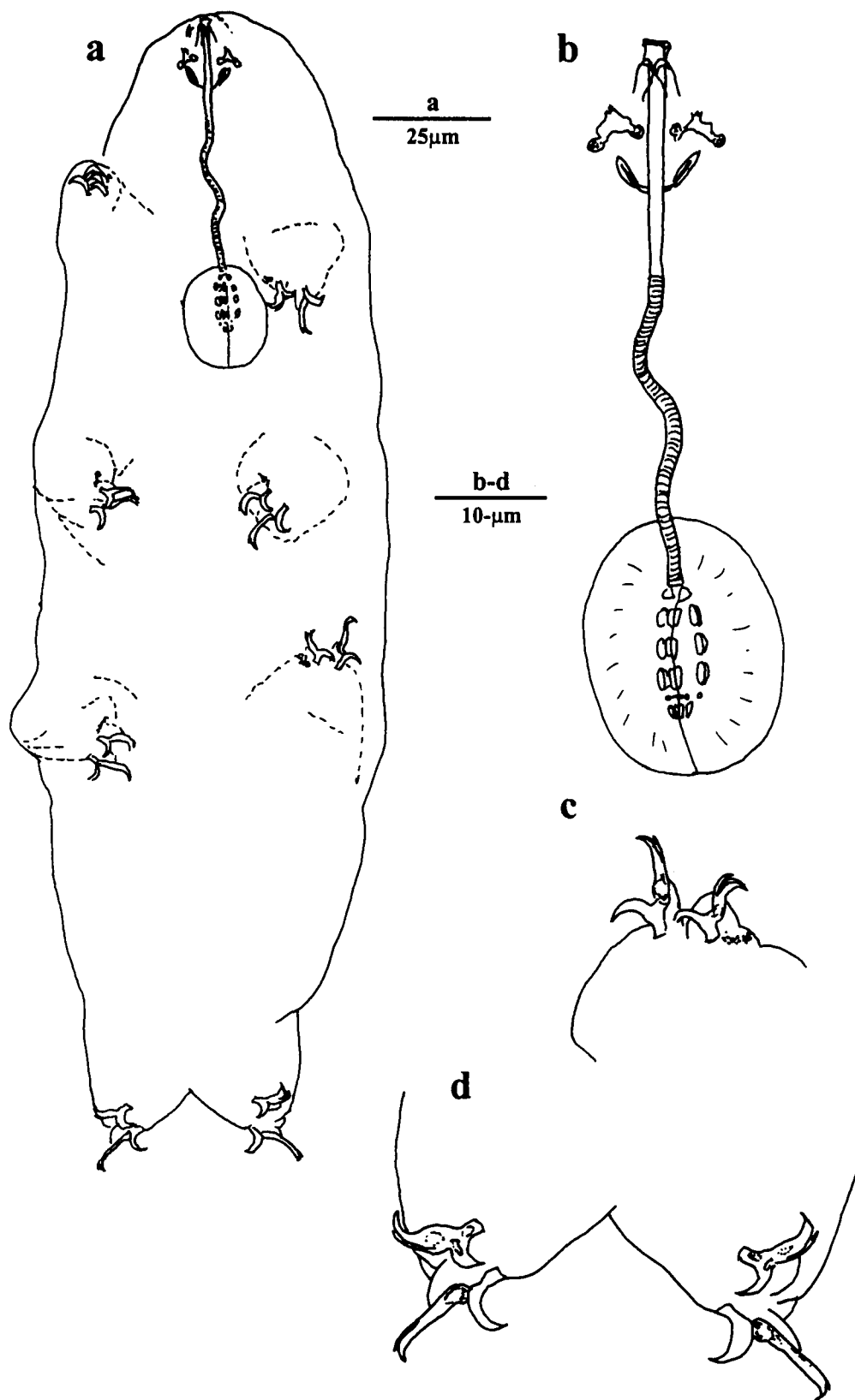


Figure 41: *Diphascon (Adropion) gordonense* Pilato, Claxton & Horning, 1991. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

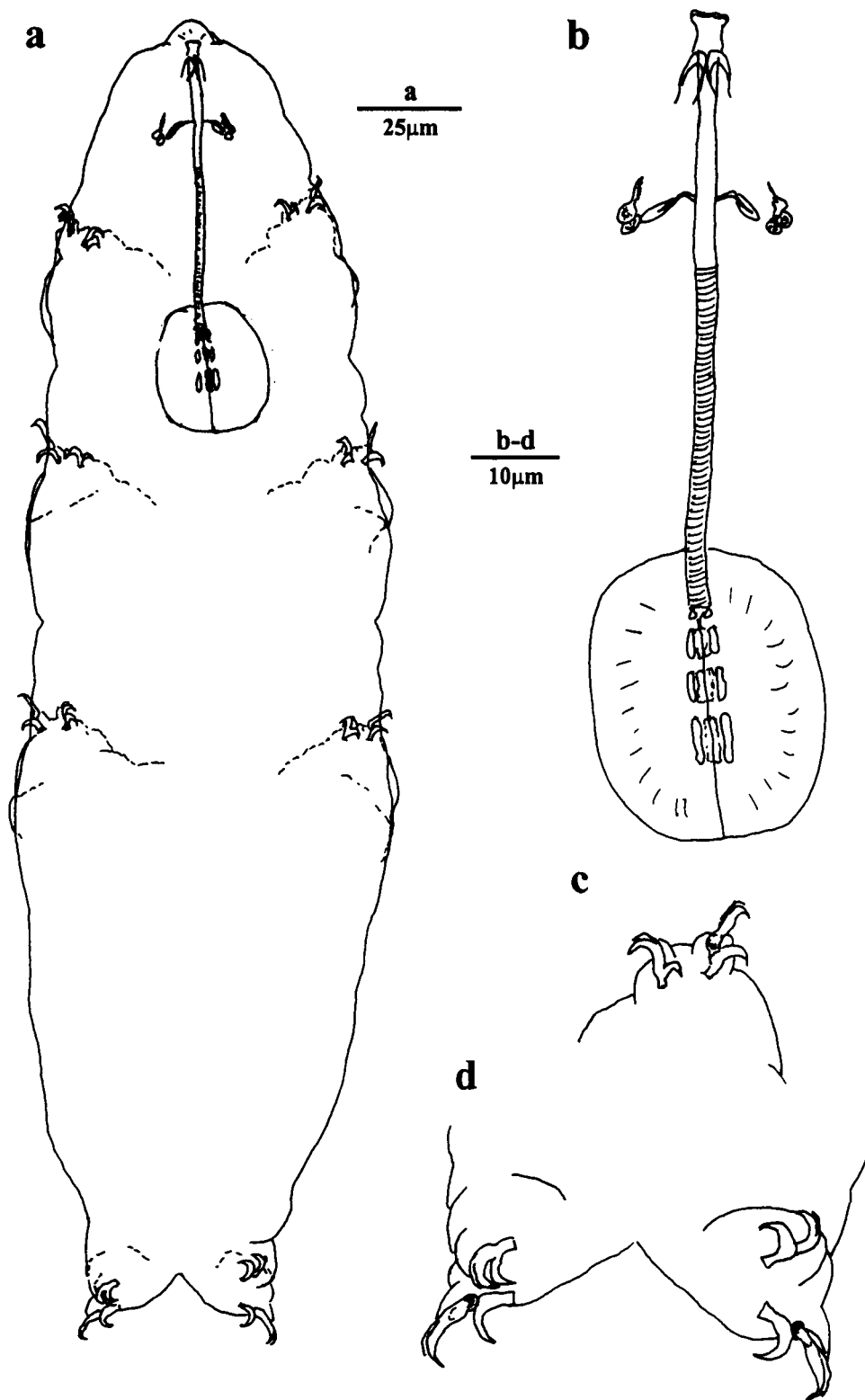


Figure 42: *Diphascon (A) prorsirostre* Thulin, 1928. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

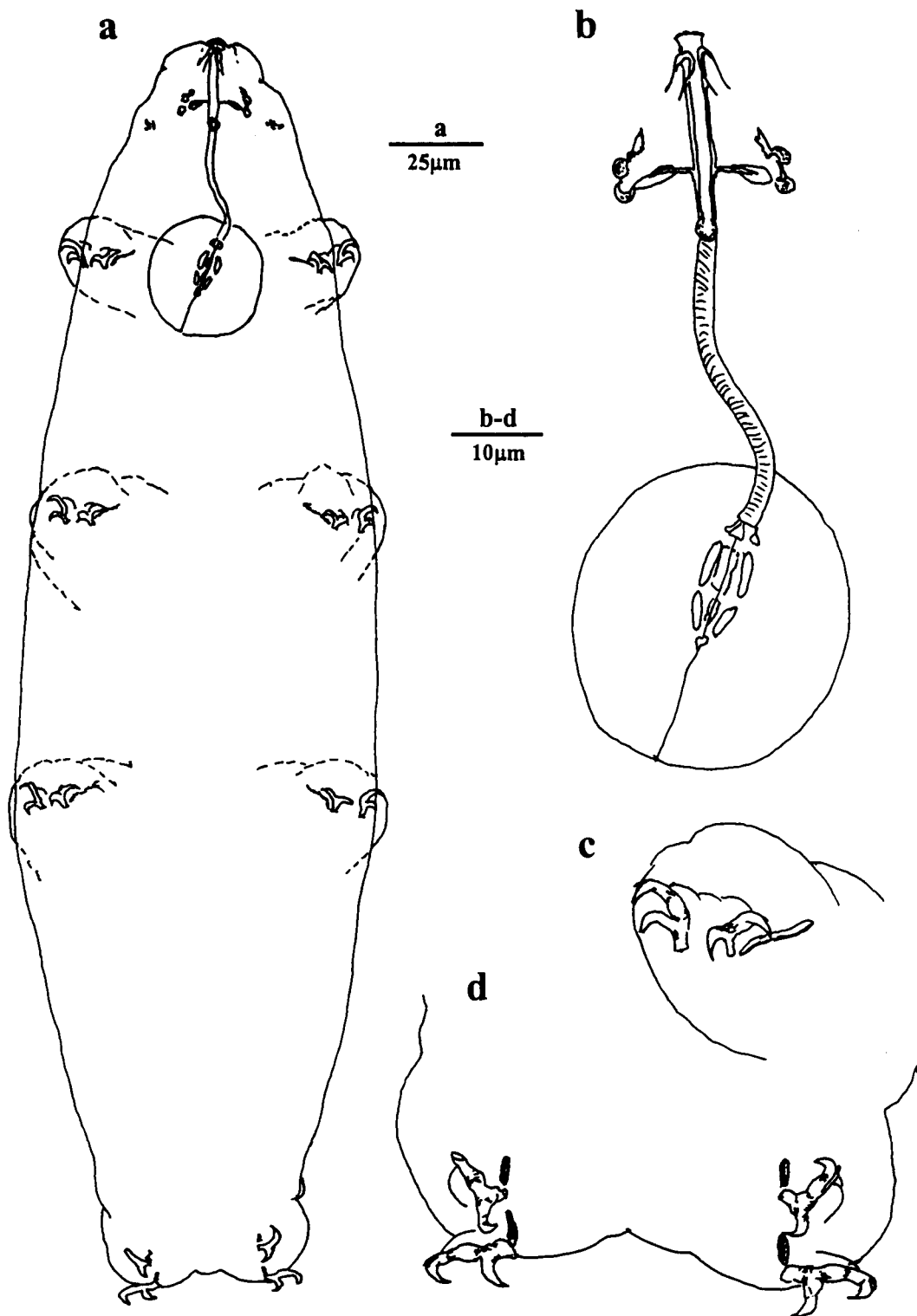


Figure 43: *Diphascon (Diphascon) brevipes* (Marcus, 1936). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs.

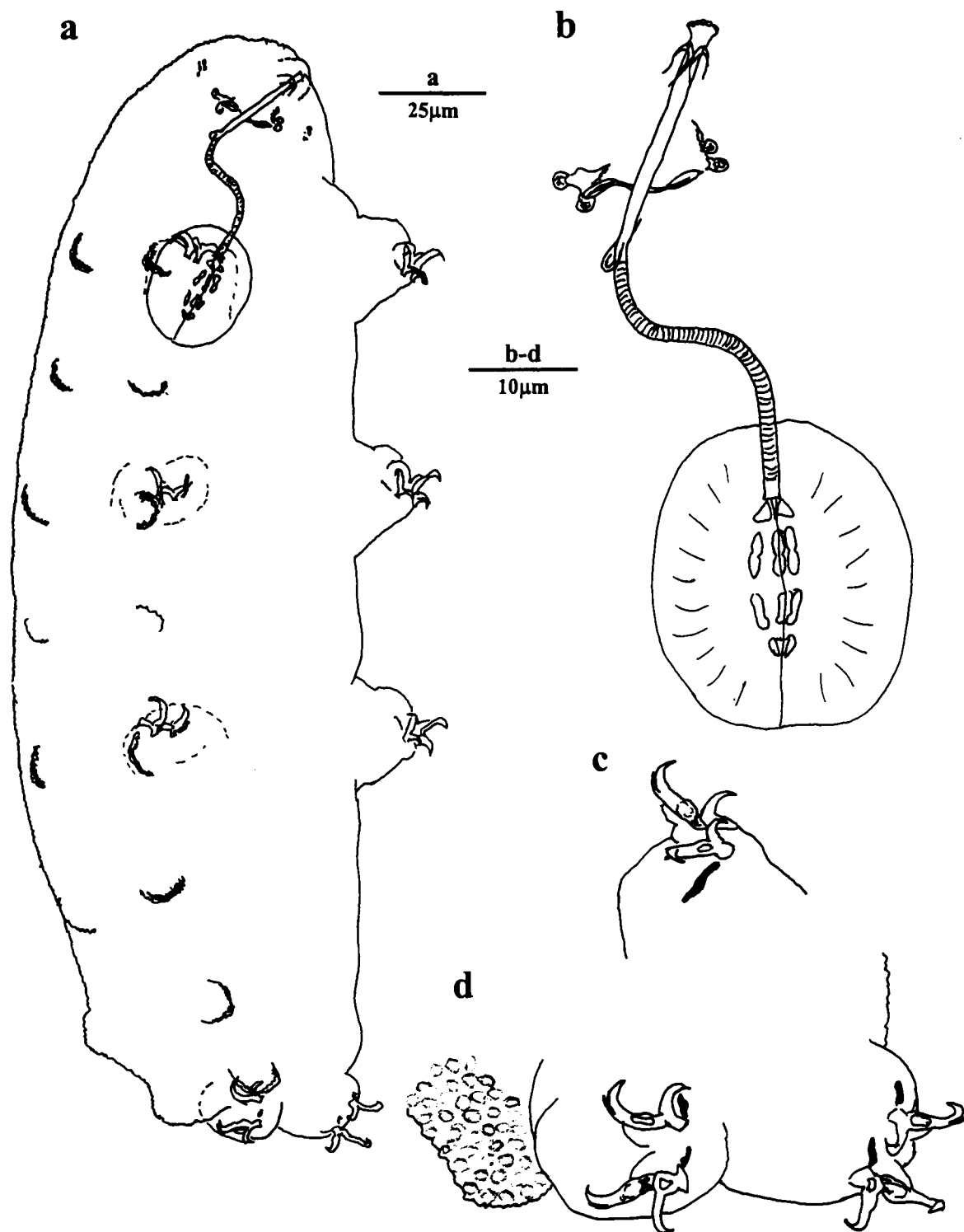


Figure 44: *Diphascon (D) bullatum* Murray, 1905. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs.

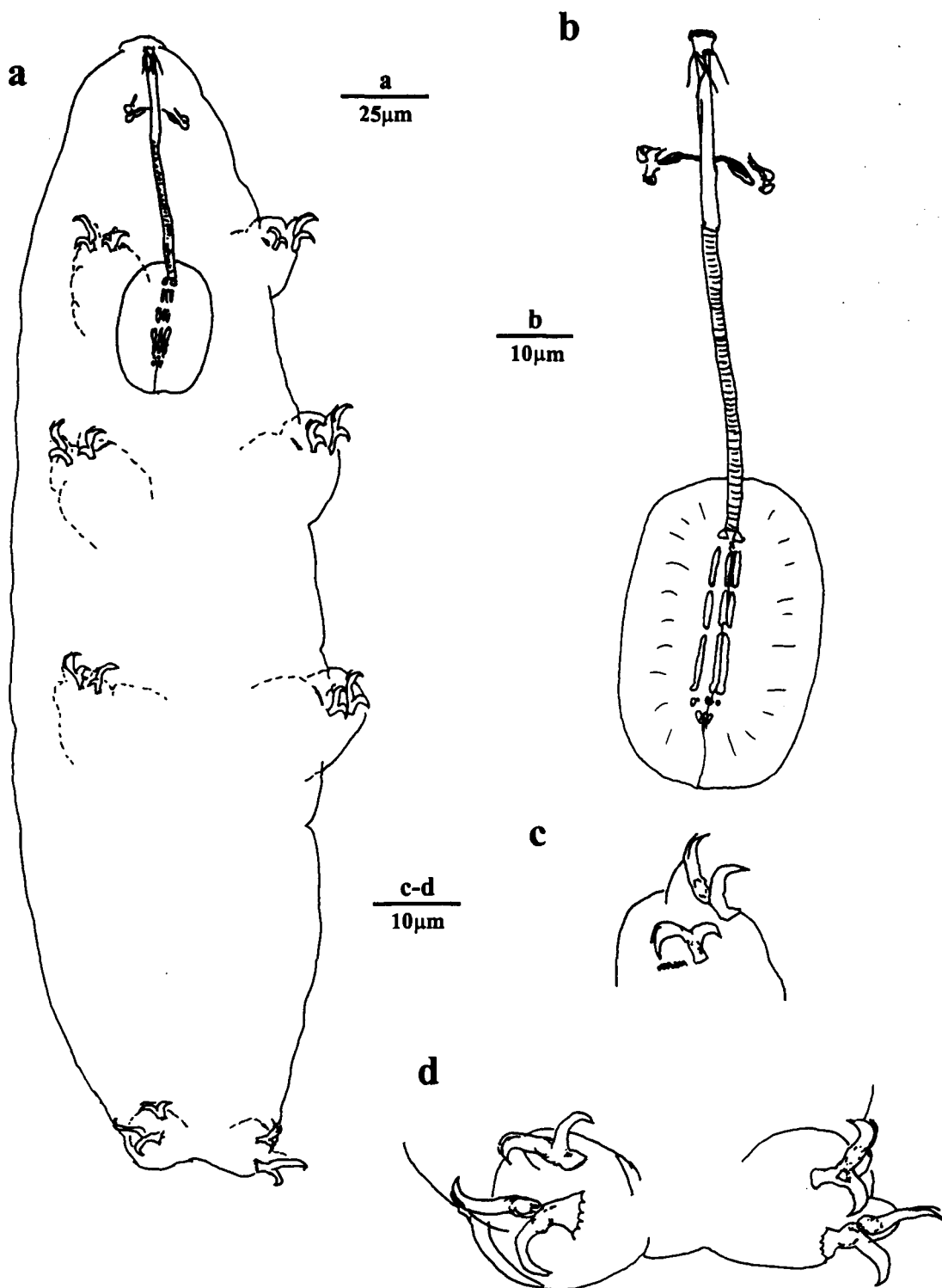


Figure 45: *Diphascon (D) higginsi* Binda, 1971. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

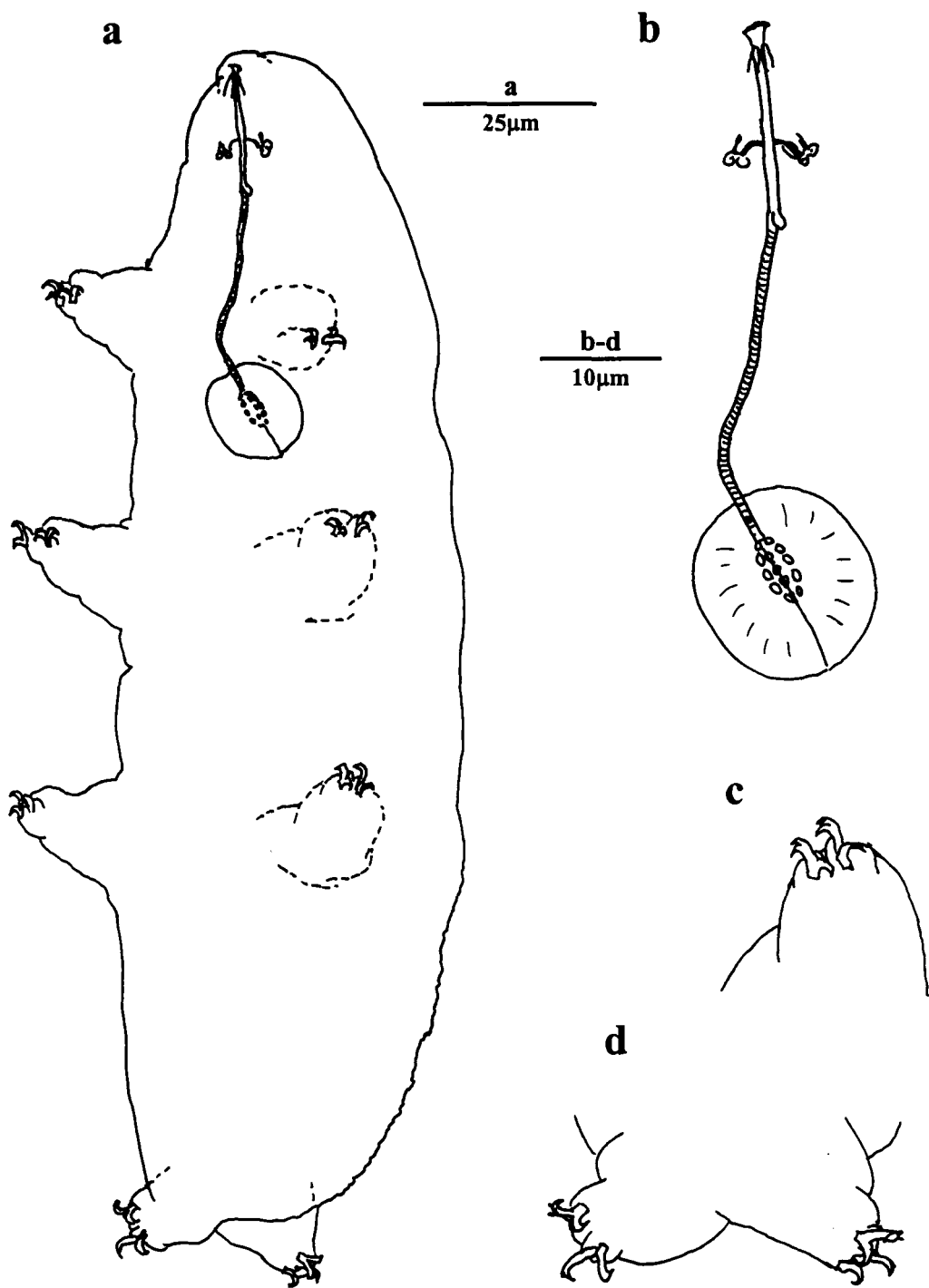


Figure 46: *Diphascon (D) langovdense* (Sudzuki, 1964). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of third leg; d. claws of fourth pair of legs.

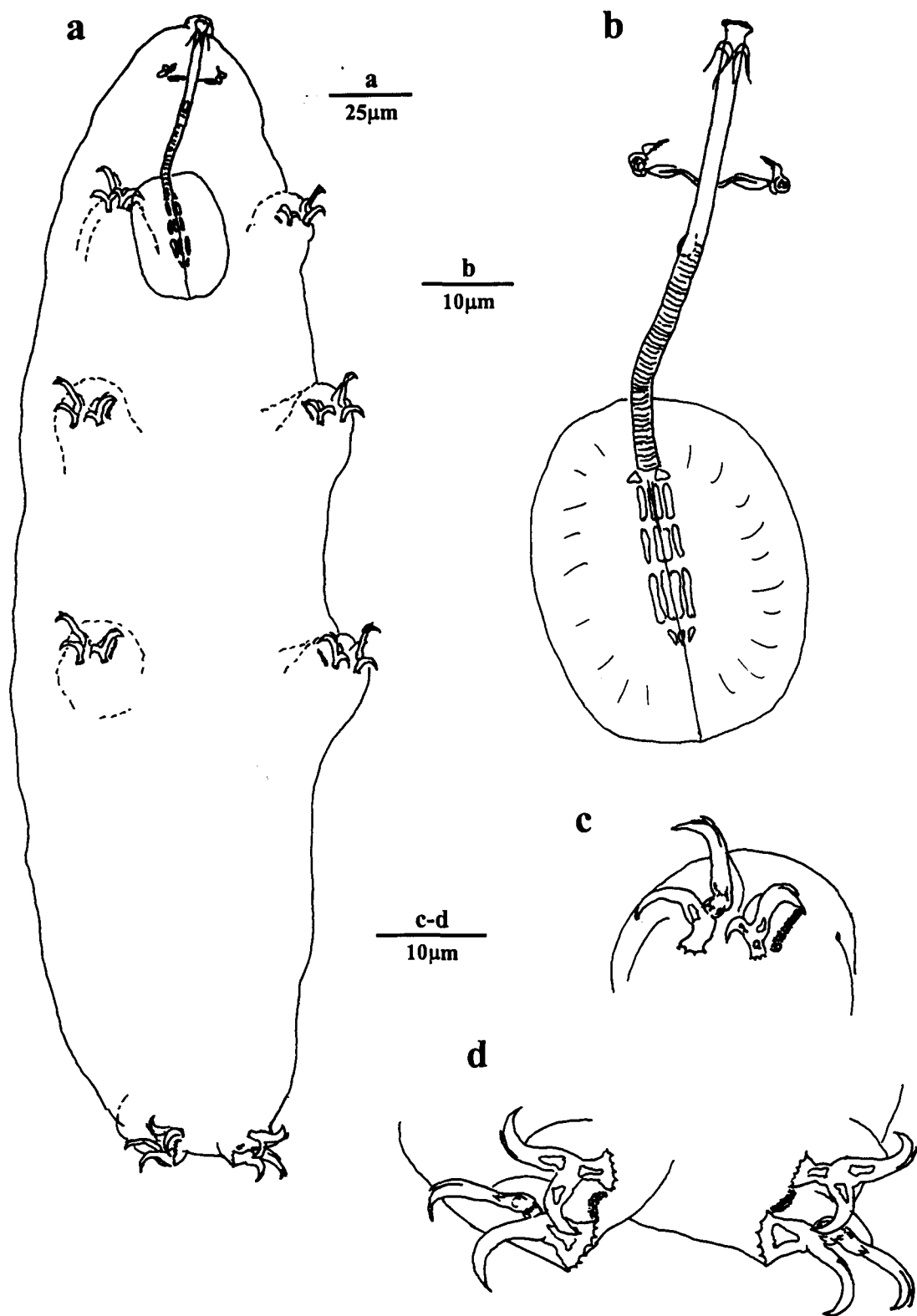


Figure 47: *Diphascon (D) nobilei* (Binda, 1969). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

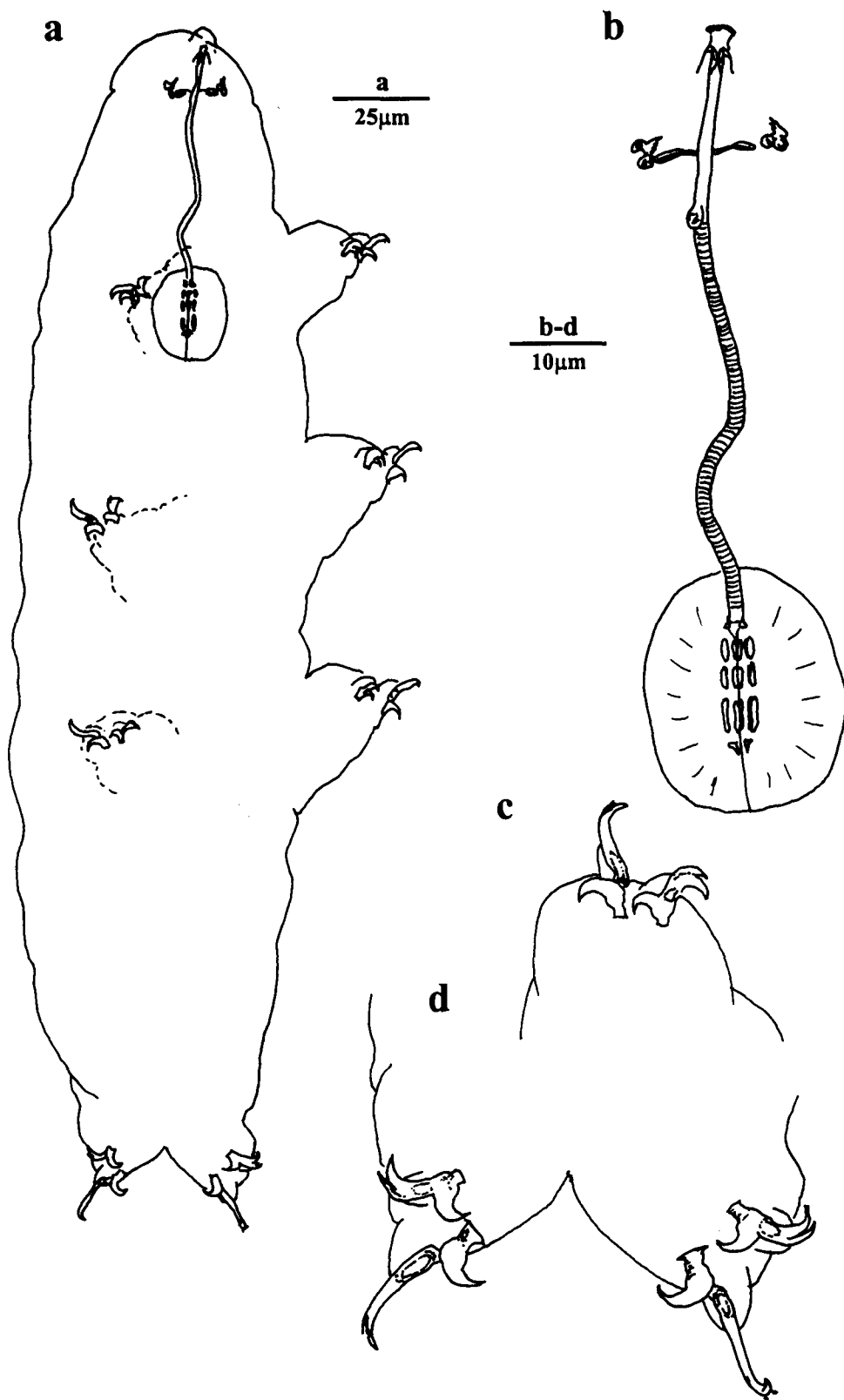


Figure 48: *Diphascon* (*D*) cf. *ongulense* (Morikawa, 1962). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view) ; c. claws of second leg; d. claws of fourth pair of legs.

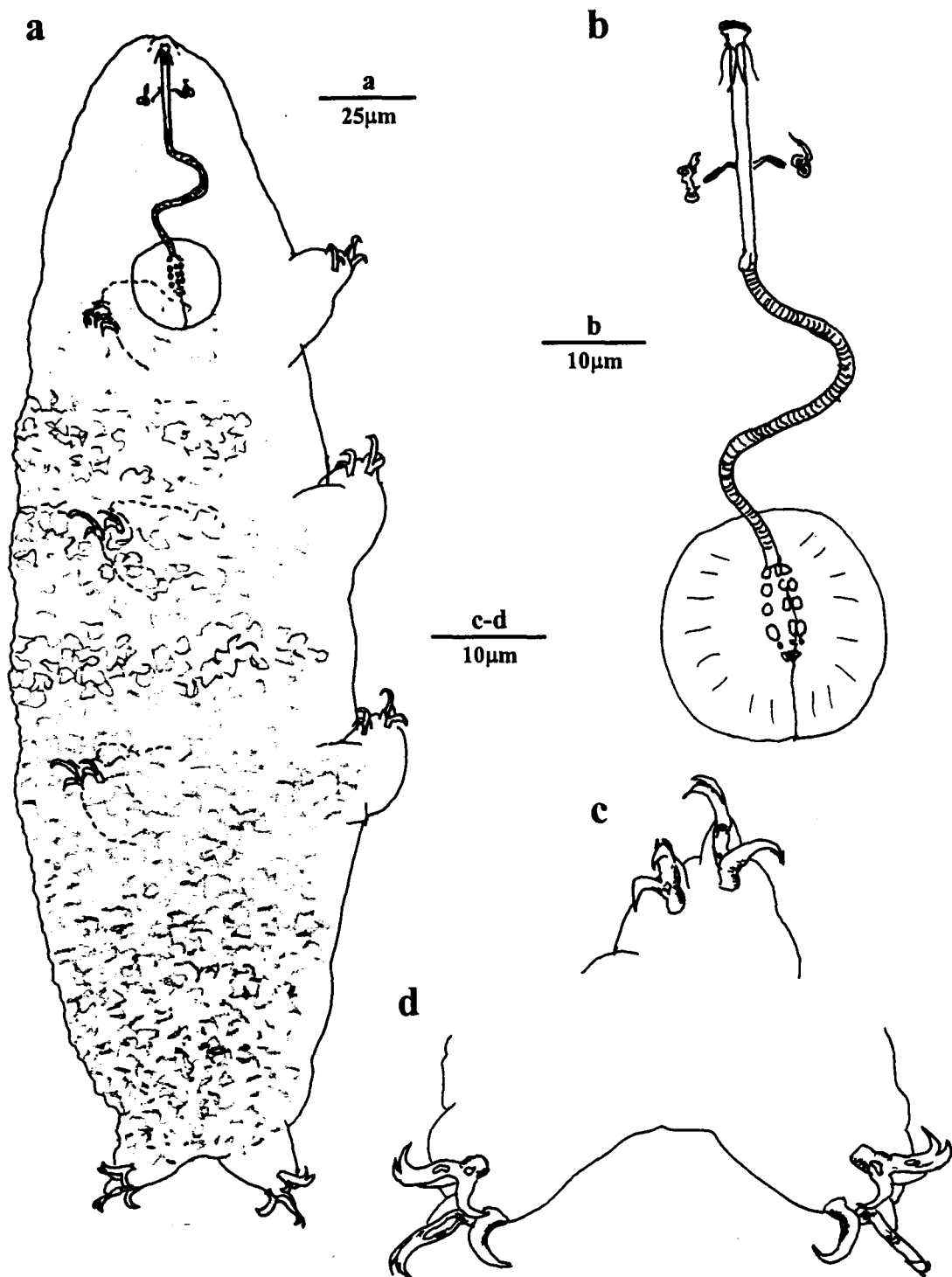


Figure 49: *Diphascon (D) pannuceus* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of third leg; d. claws of fourth pair of legs.

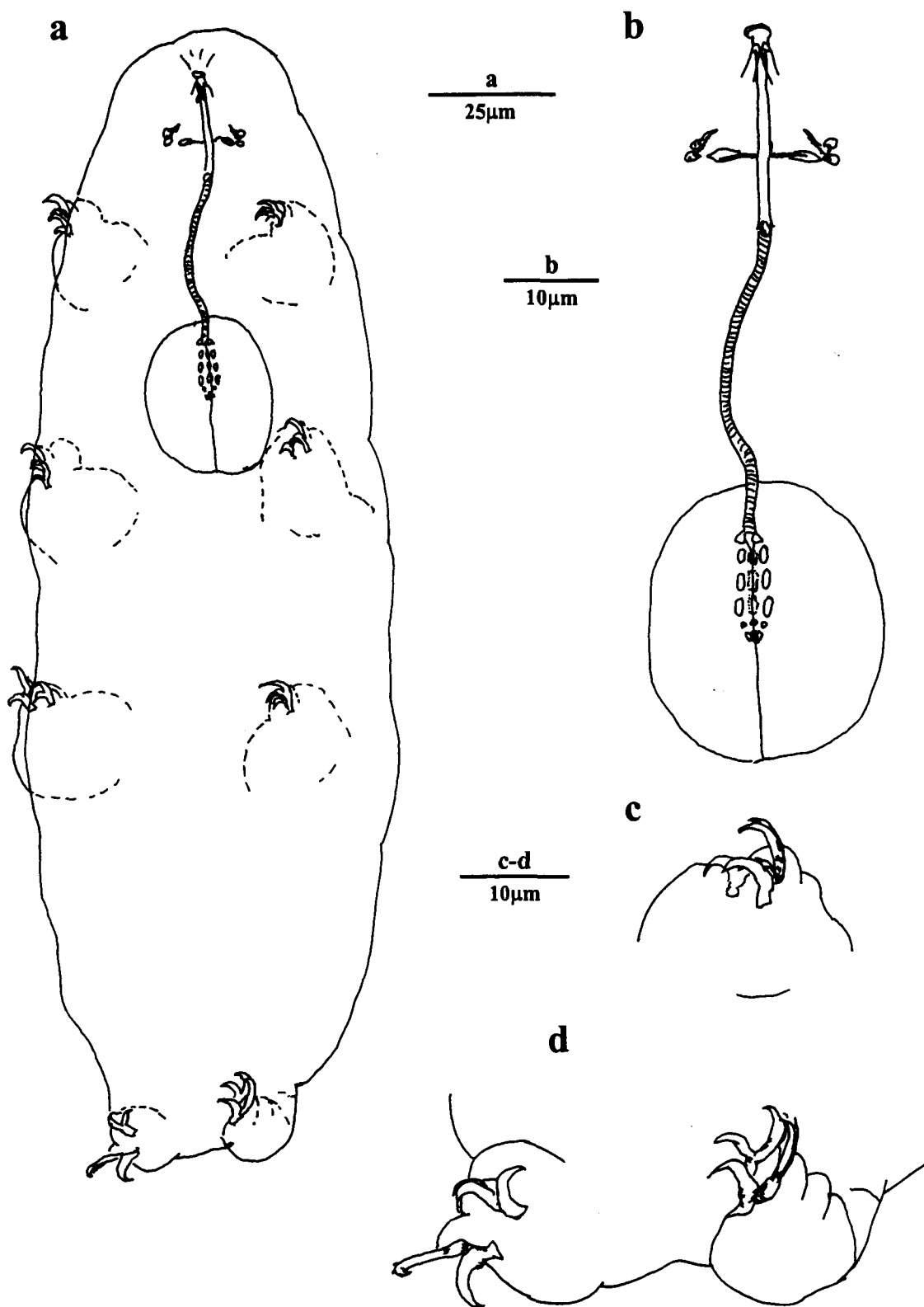


Figure 50: *Diphascon (D) pingue* (Marcus, 1936). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

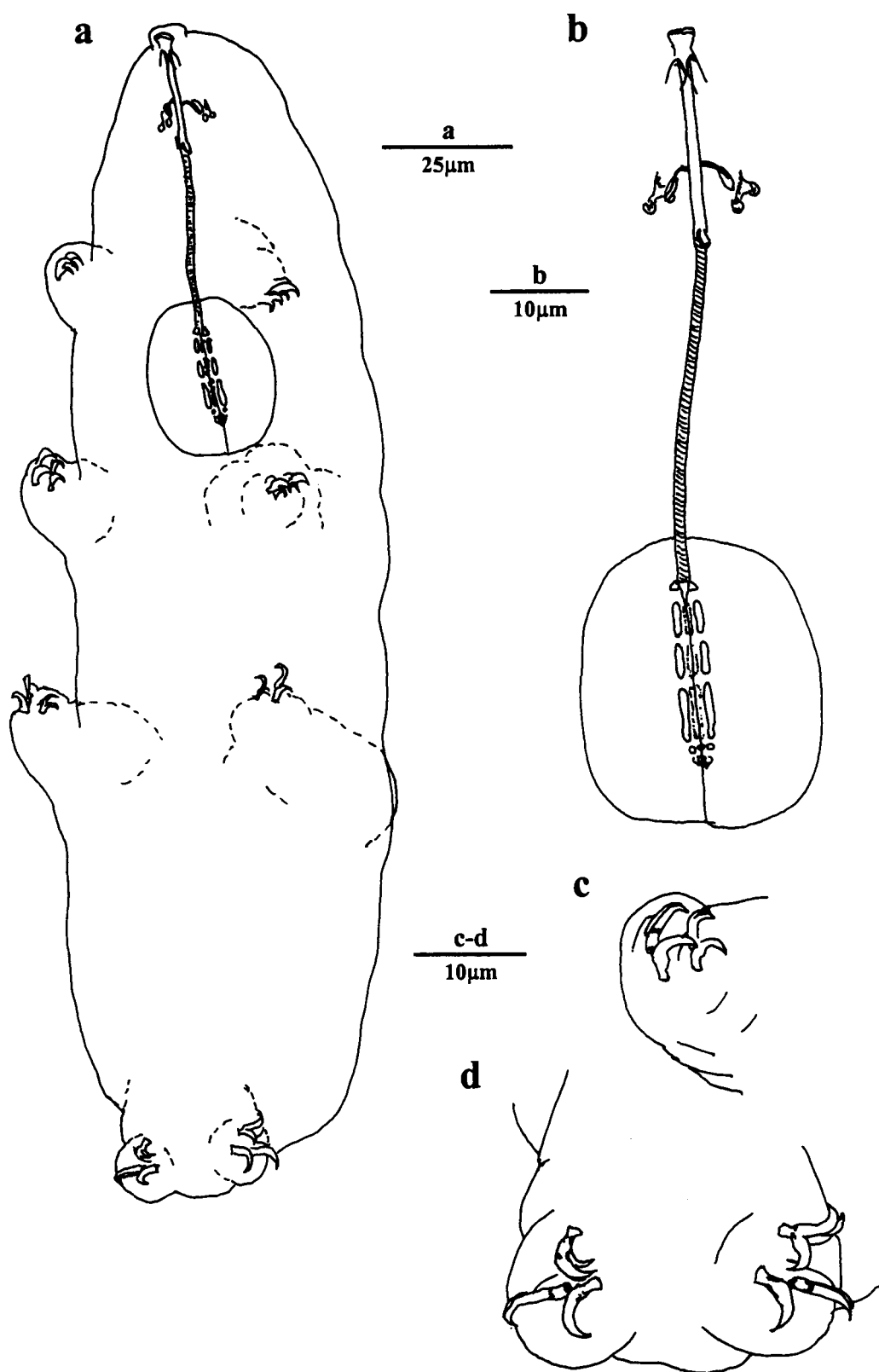


Figure 51: *Diphascocon (D) pinguiforme* Pilato & Binda, 1997/98. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs.

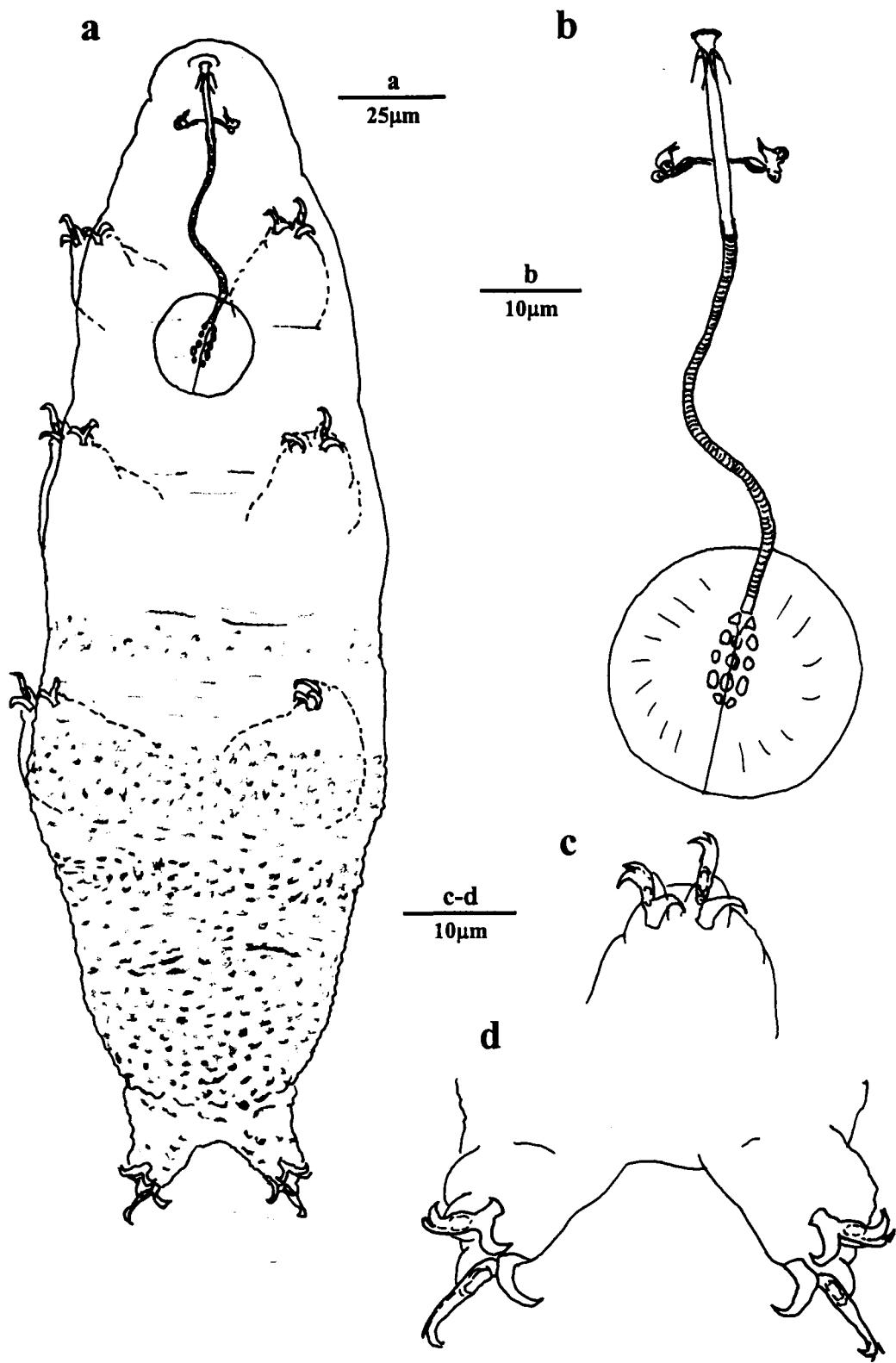


Figure 52: *Diphascon (D) puniceus* (Jennings, 1976). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

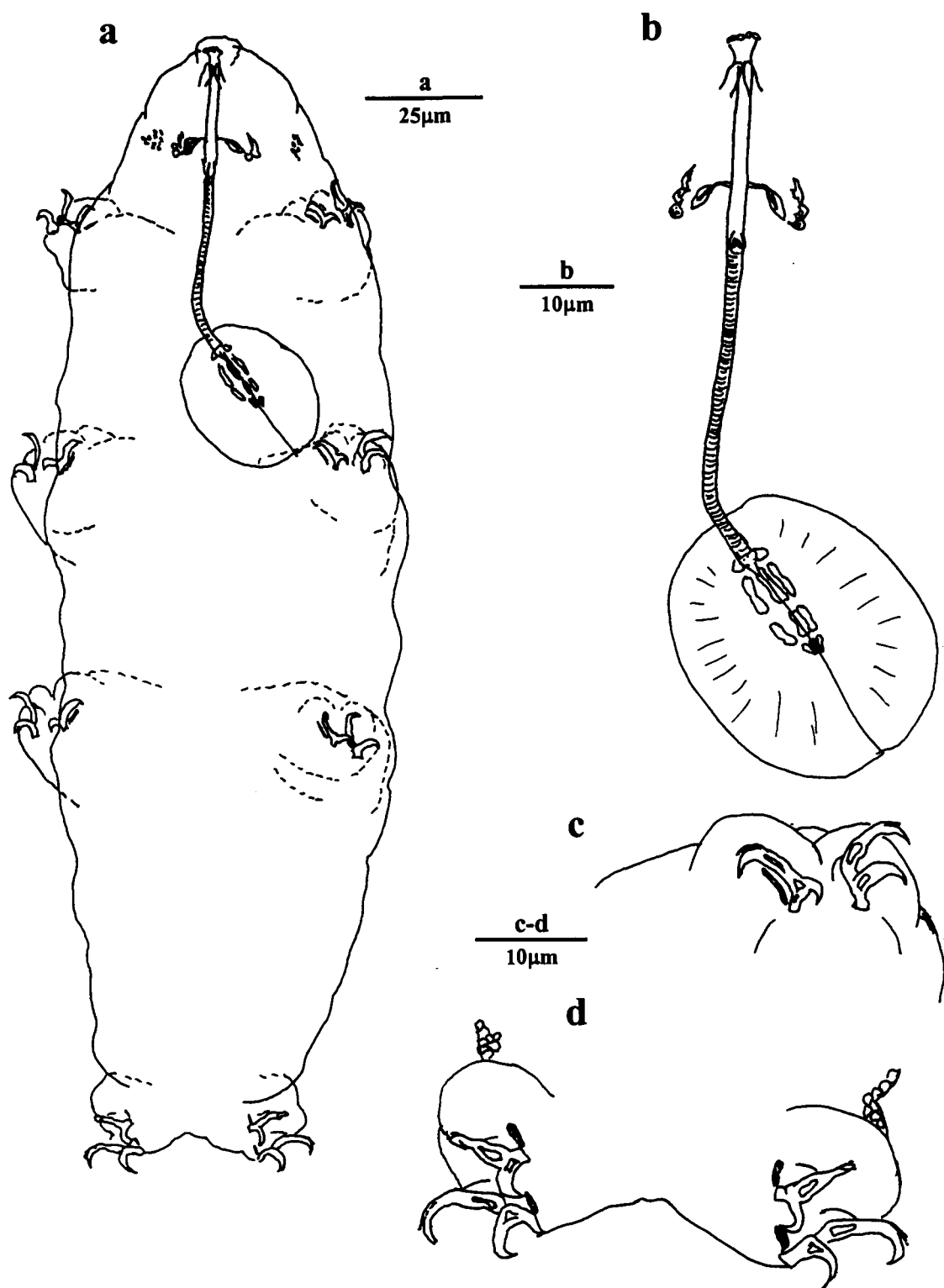


Figure 53: *Diphascon (D) rugosum* (Bartos, 1935). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs.

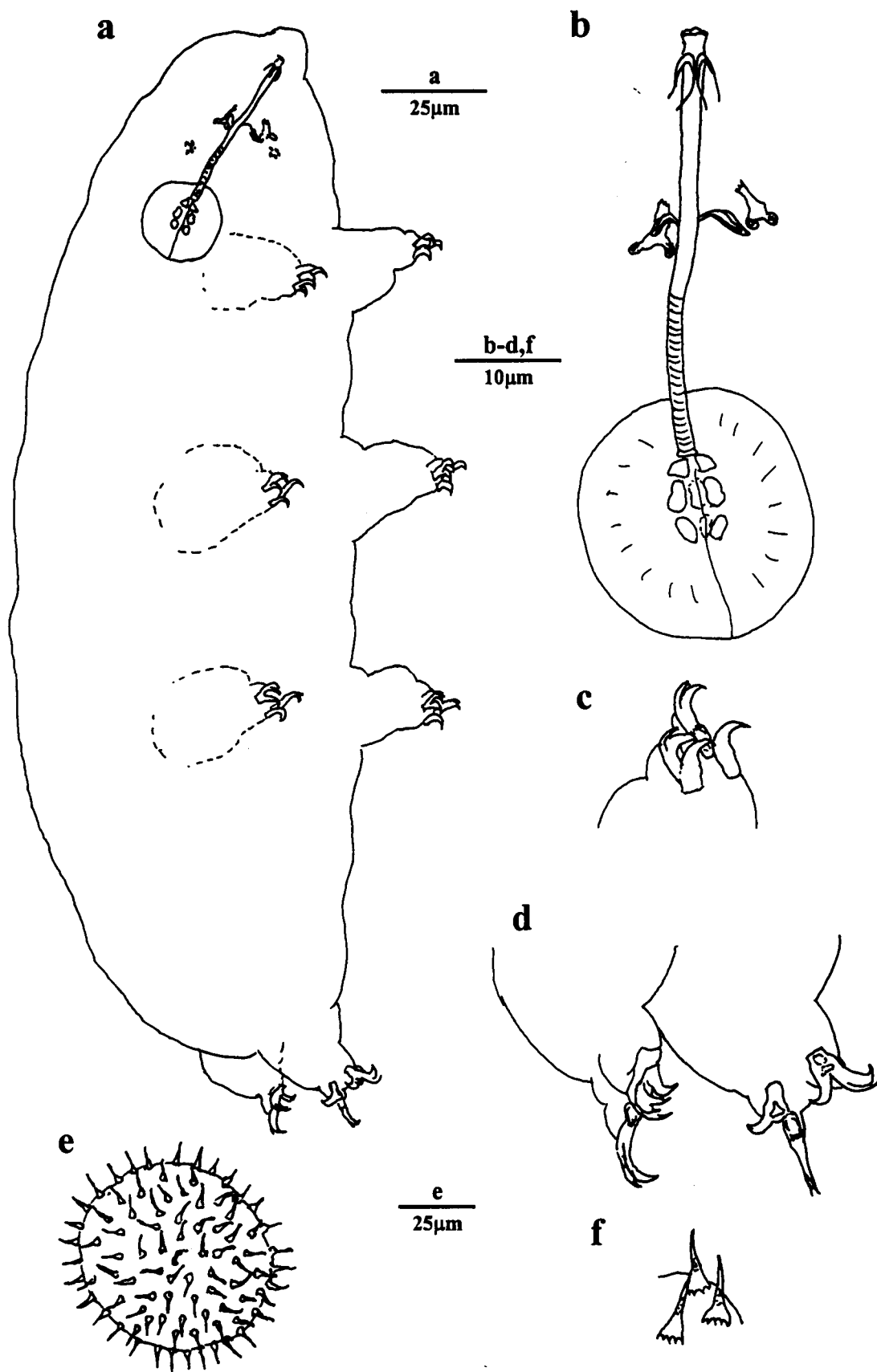


Figure 54: *Hebesuncus conjungens* (Thulin, 1911). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

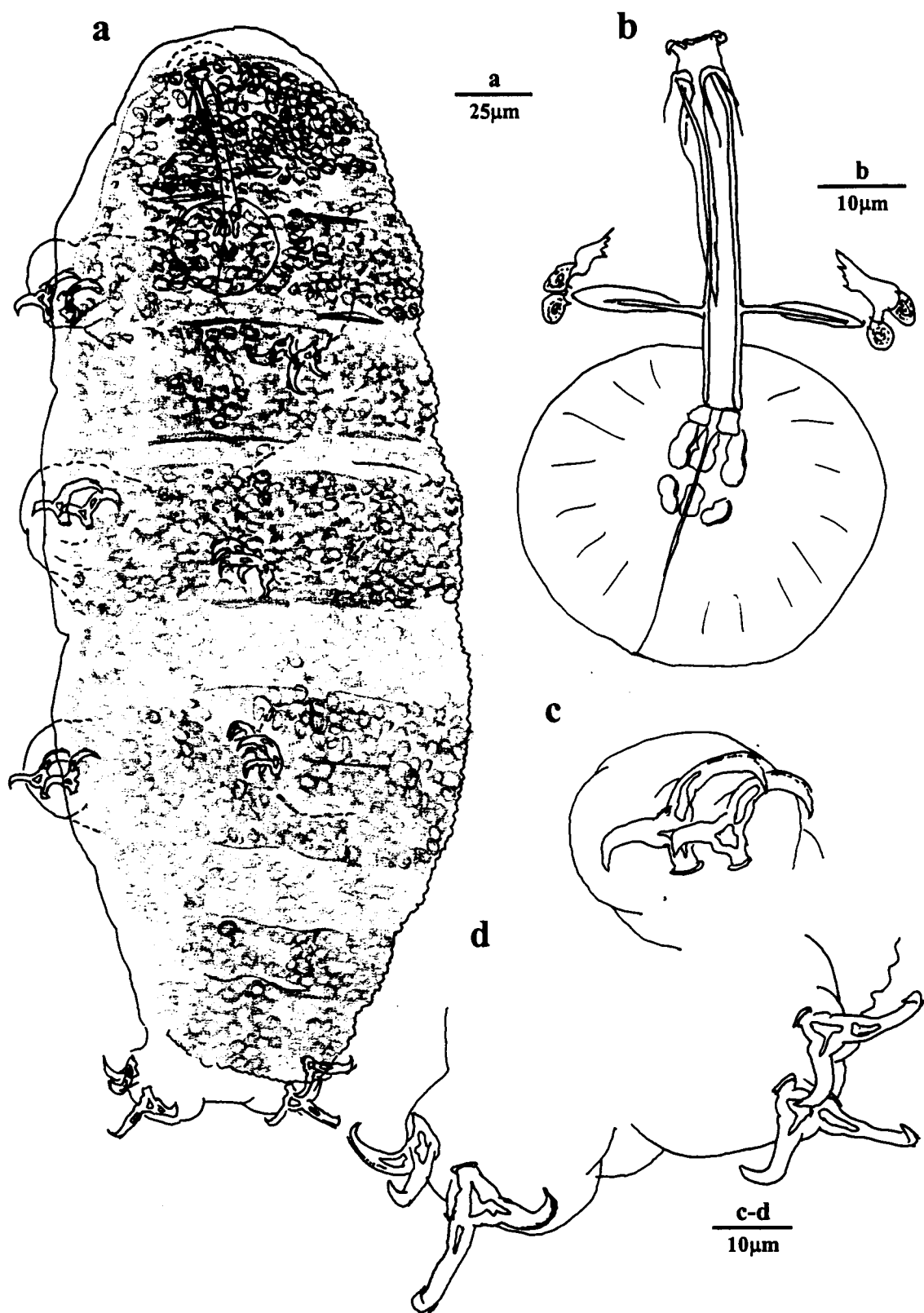


Figure 55: *Doryphoribius australocitrinus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs.

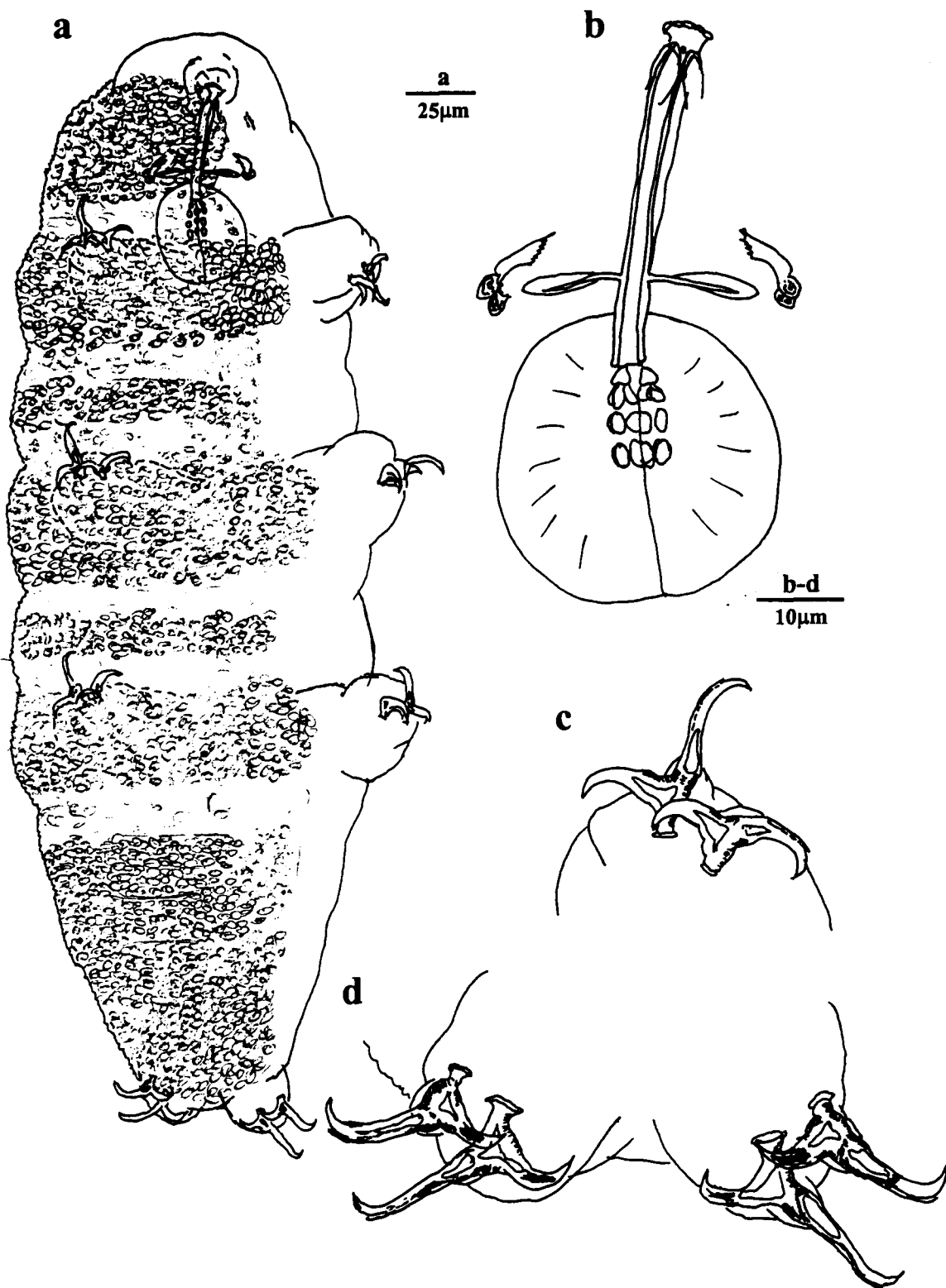


Figure 56: *Doryphoribius capricorniensis* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs.

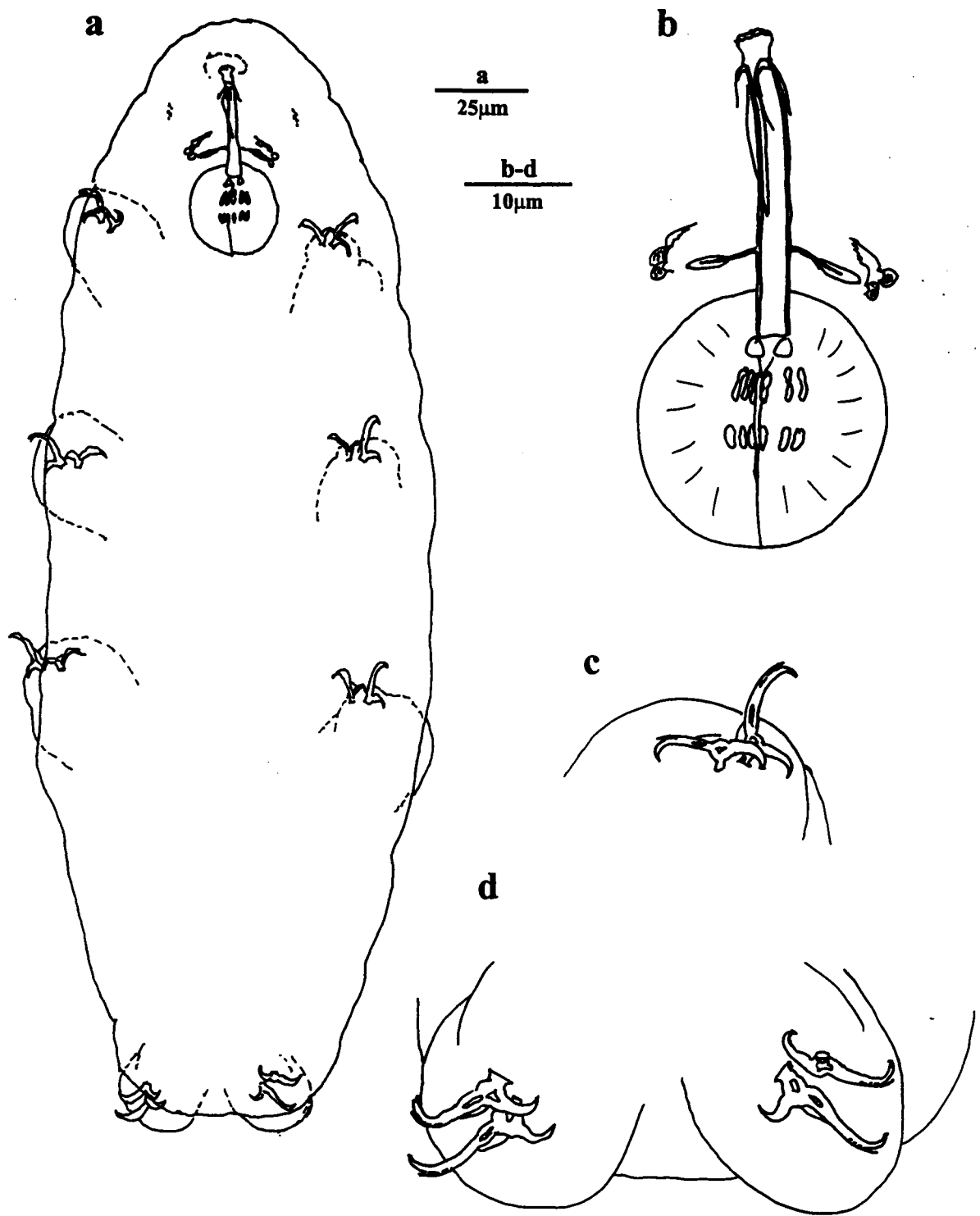


Figure 57: *Doryphoribius doryphorus* (Binda & Pilato, 1969). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

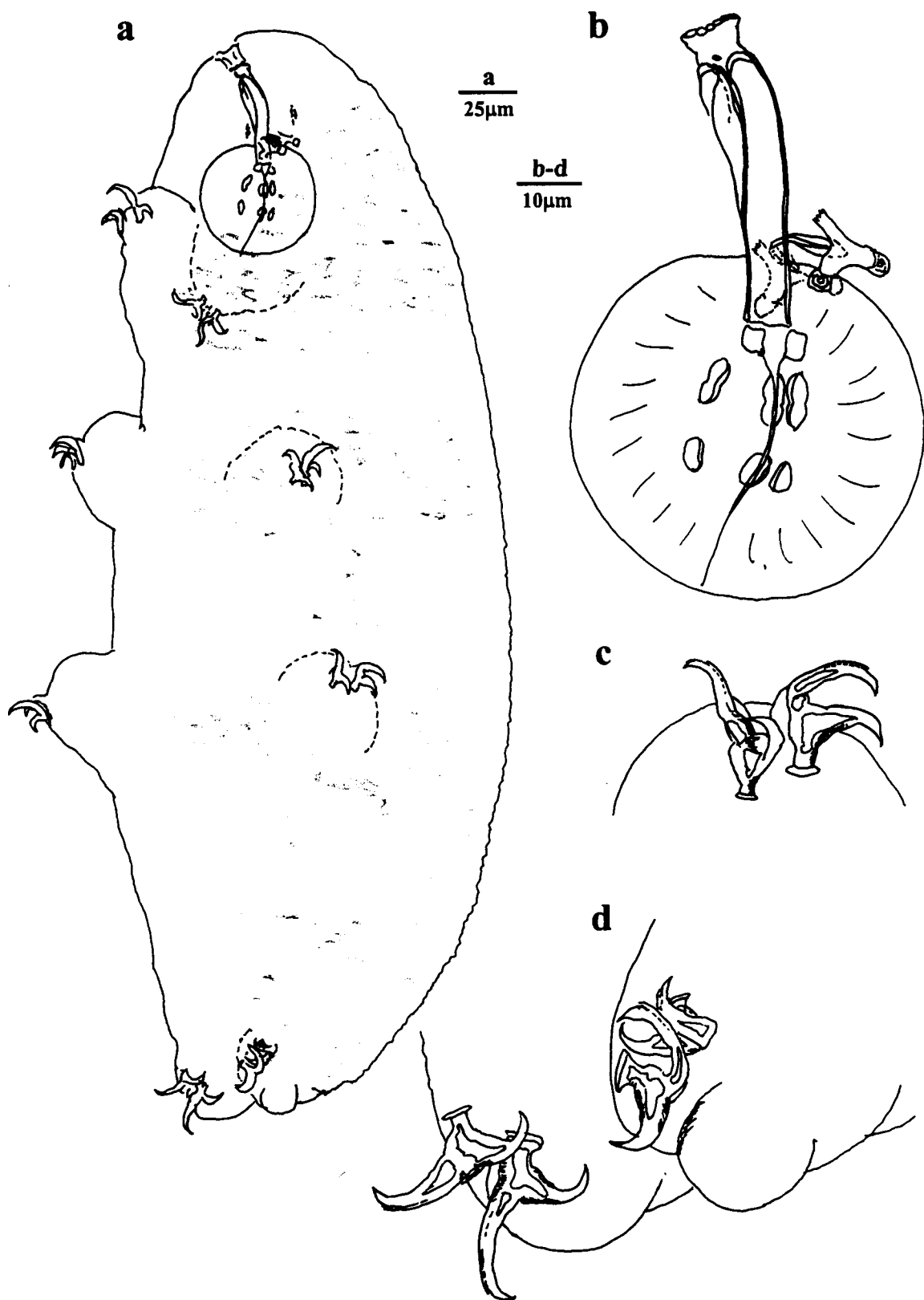


Figure 58: *Doryphoribius obscurus* sp. n. a. habitus (dorsolateral view);
b. buccopharyngeal apparatus (ventrolateral view); c. claws of third leg;
d. claws of fourth pair of legs.

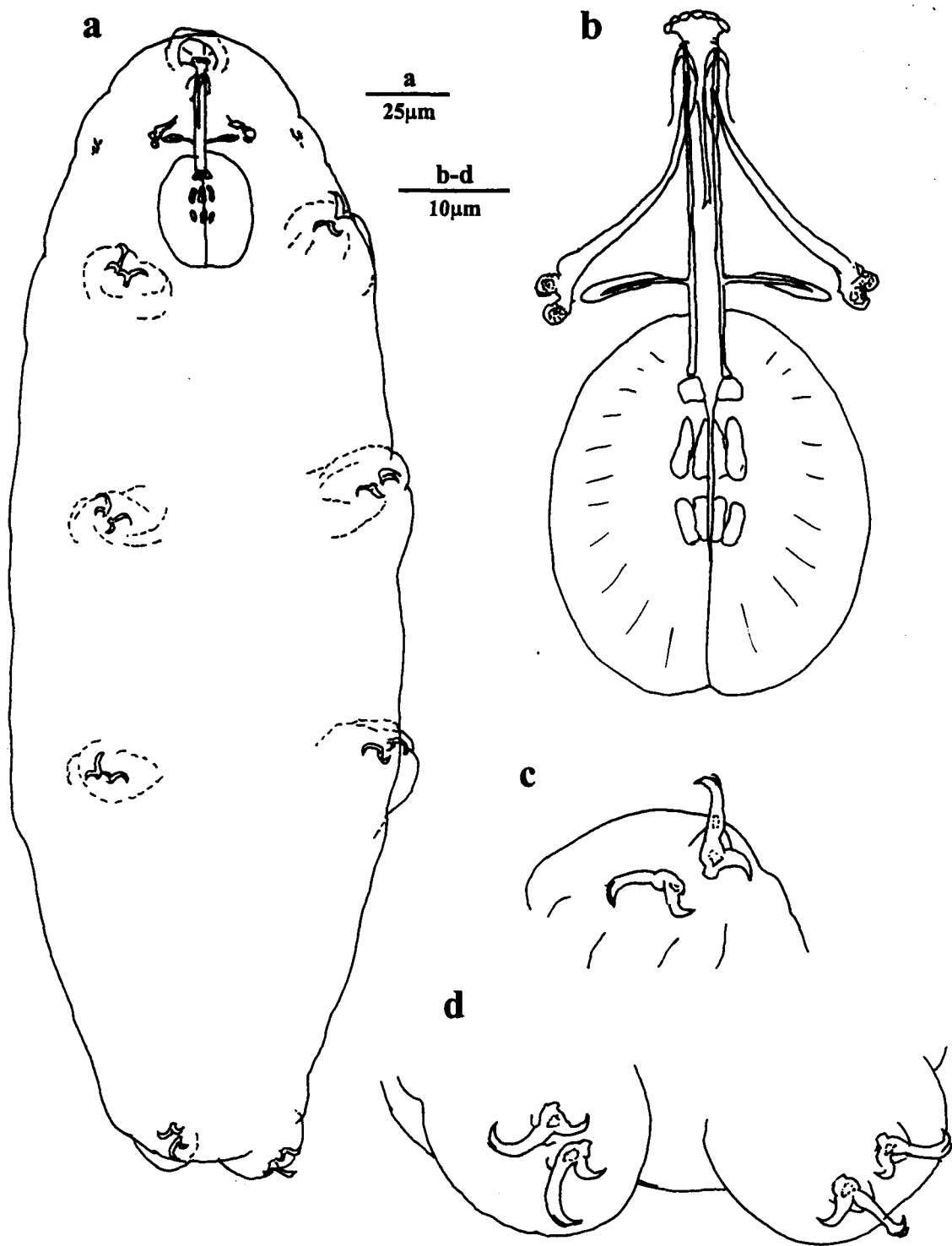


Figure 59: *Doryphoribius occidentalis* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

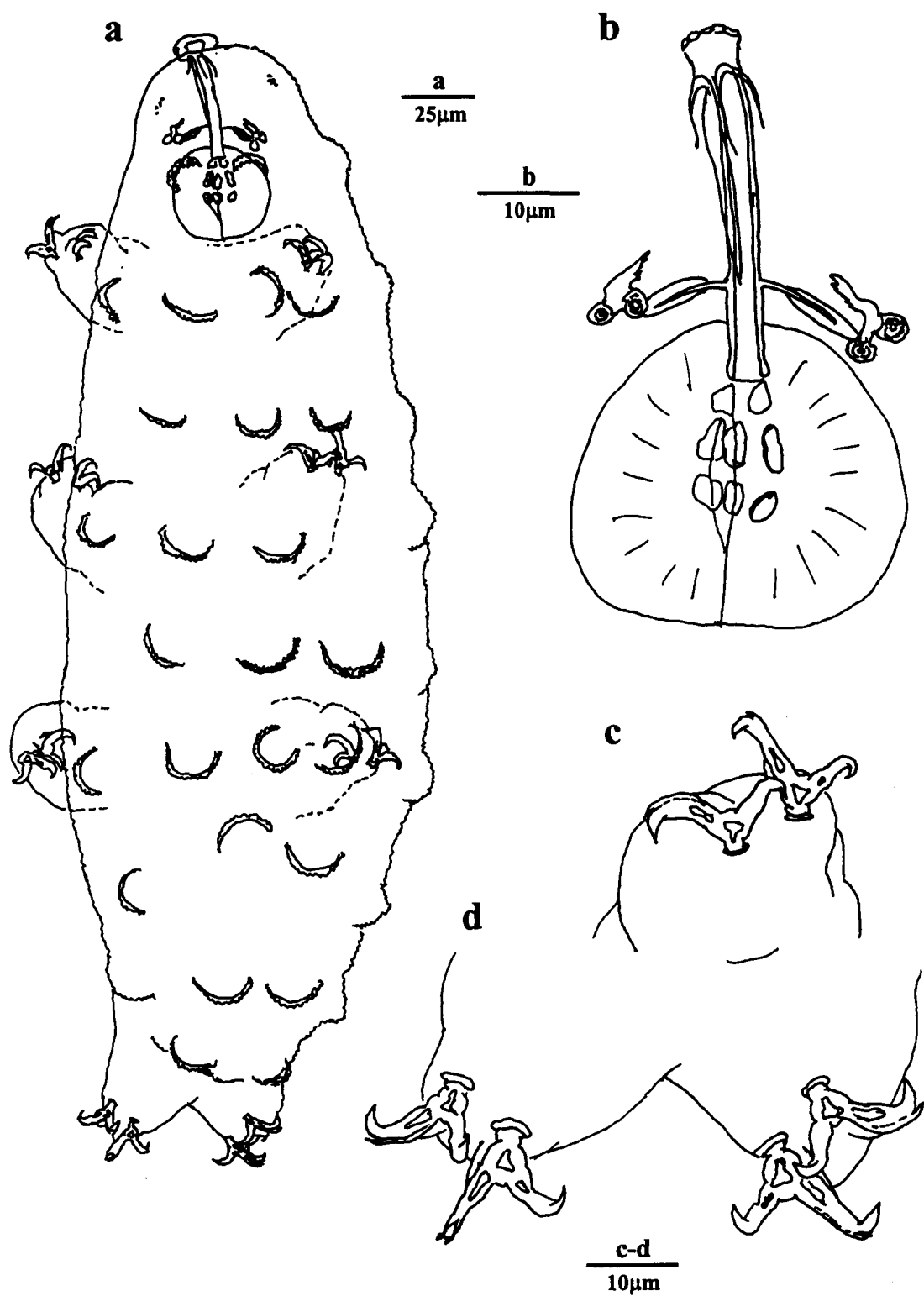


Figure 60: *Doryphoribgius zyxiglobus* (Horning, Schuster & Grigarick, 1978).
a. habitus (dorsal view); b. buccopharyngeal apparatus (ventrolateral view);
c. claws of second leg; d. claws of fourth pair of legs.

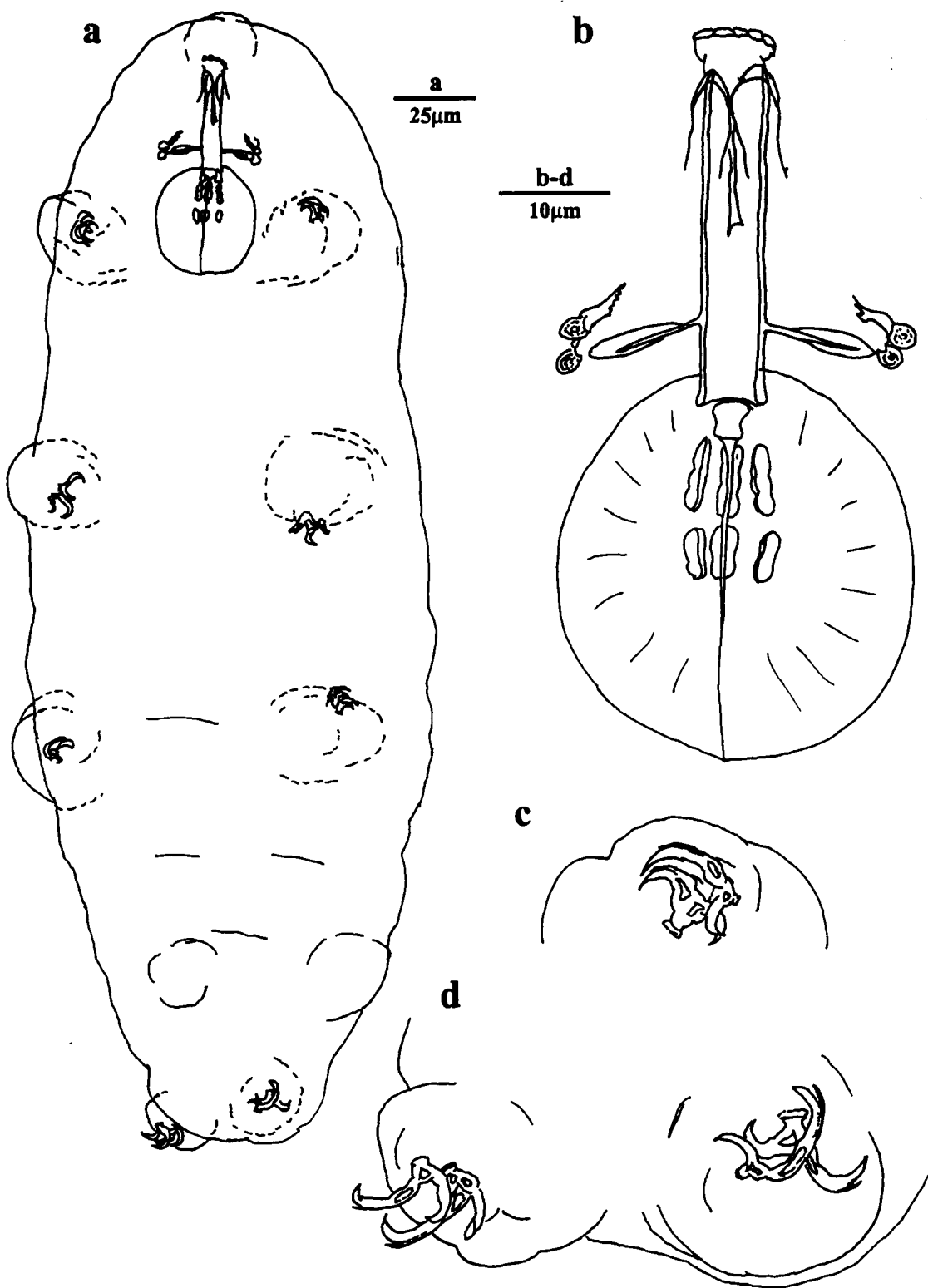


Figure 61: *Doryphoribius* sp. 1. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

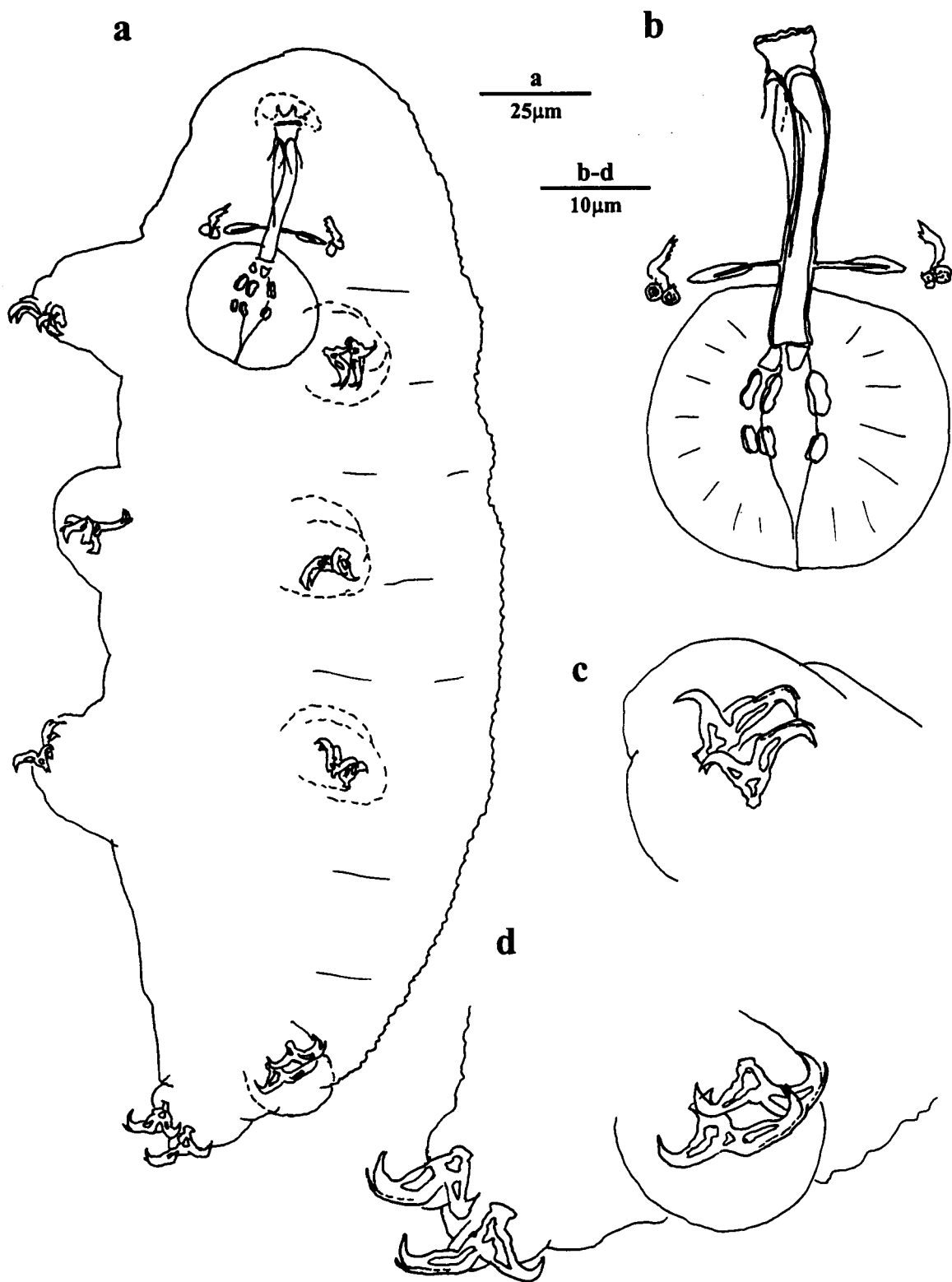


Figure 62: *Doryphoribius* sp. 2. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs.

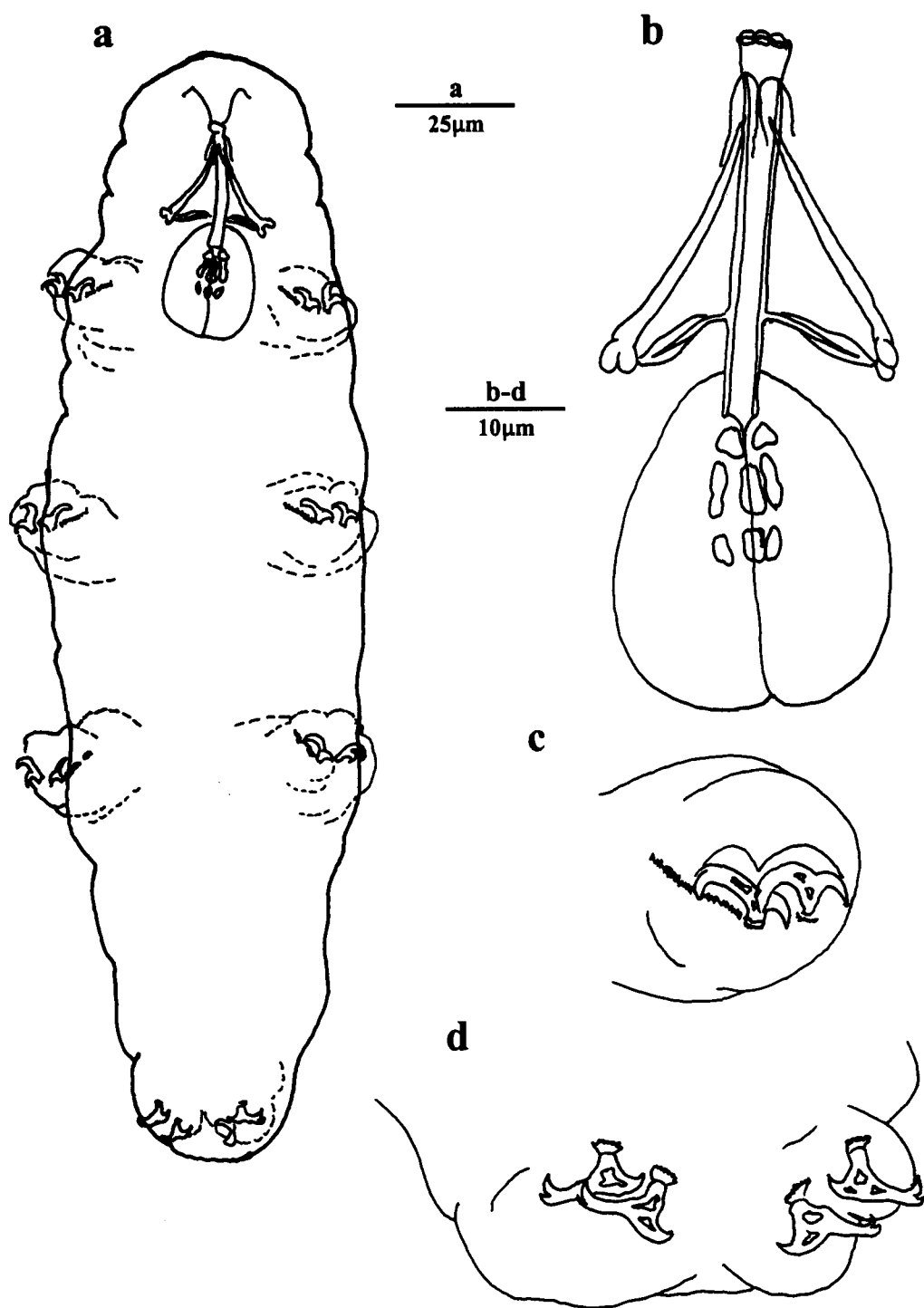


Figure 63: *Eremobiotus alicartai* (Binda, 1969). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs.

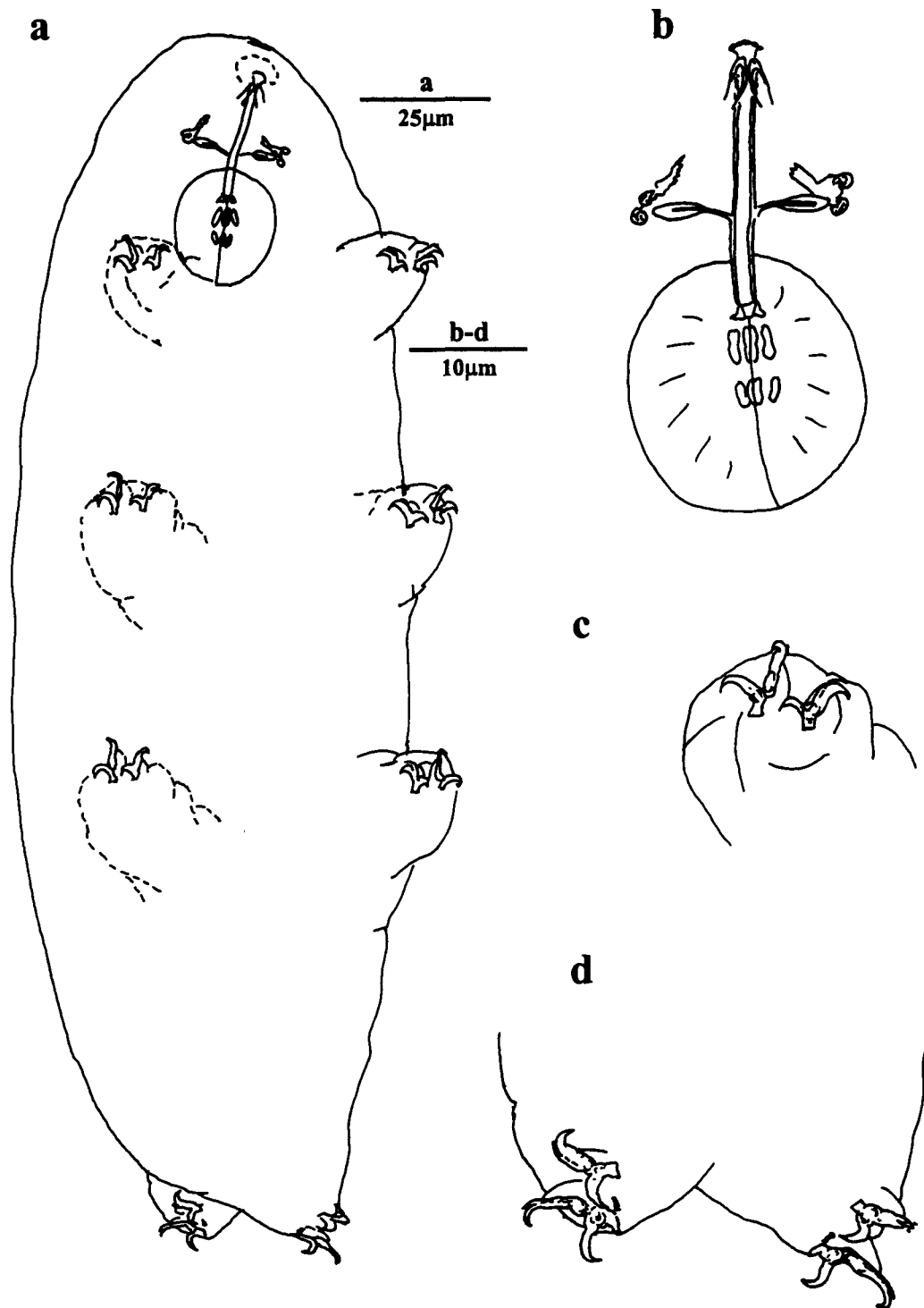


Figure 64: *Hypsibius convergens* (Urbanowicz, 1925). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

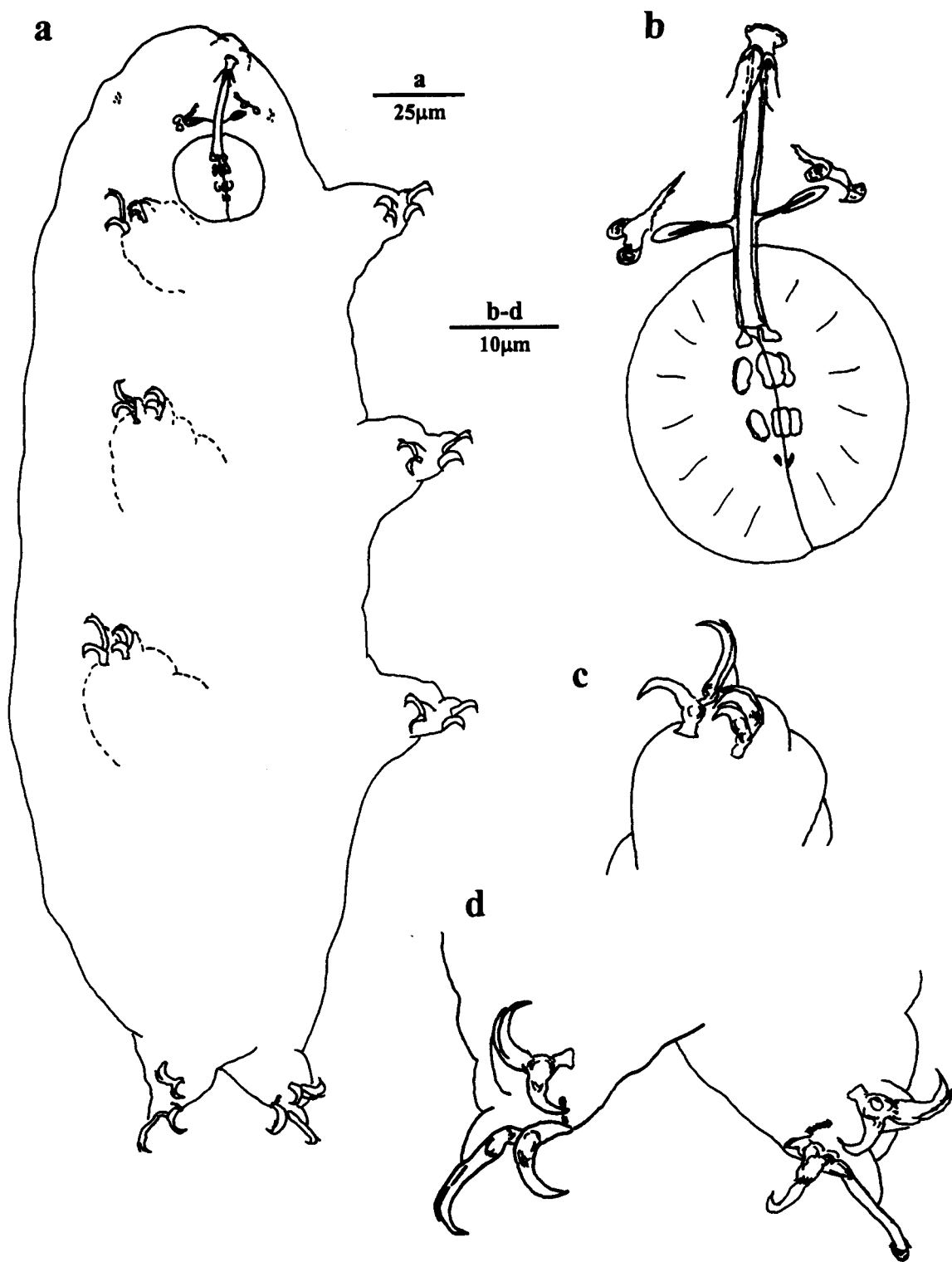


Figure 65: *Hypsibius dujardini* (Doyère, 1840). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs.

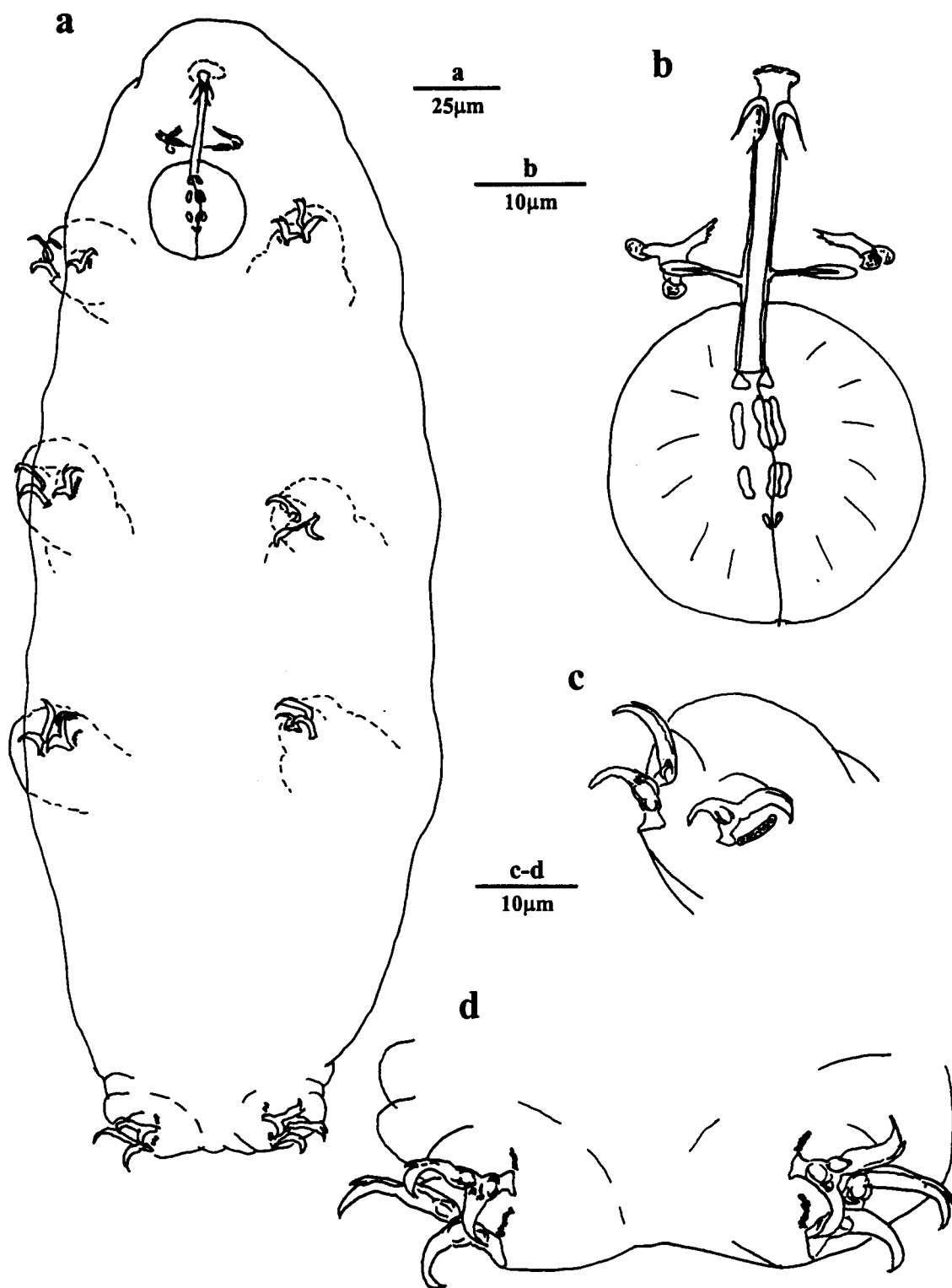


Figure 66: *Hypsibius* sp. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

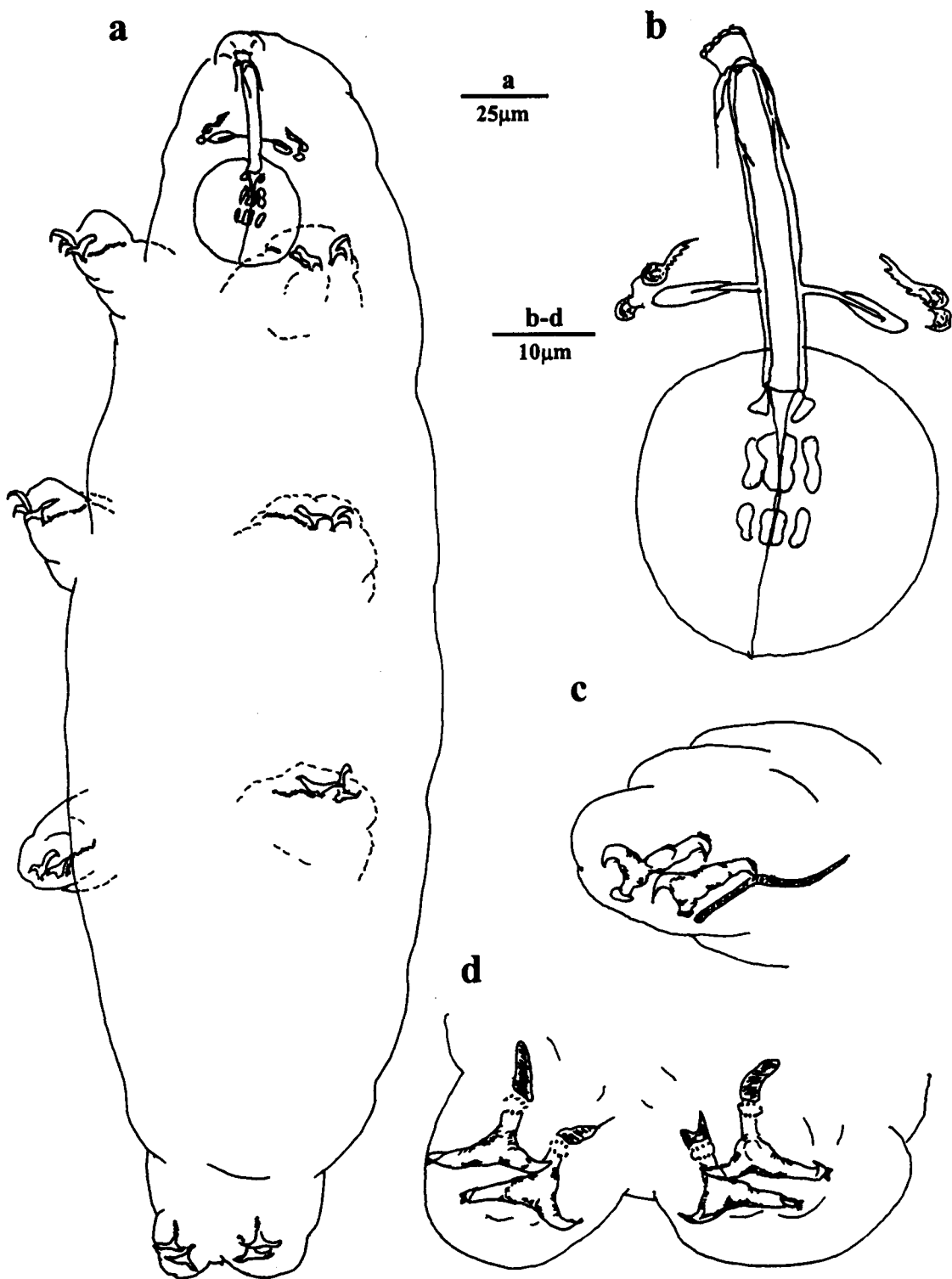


Figure 67: *Isohypsibius aridus* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of third leg; d. claws of fourth pair of legs.

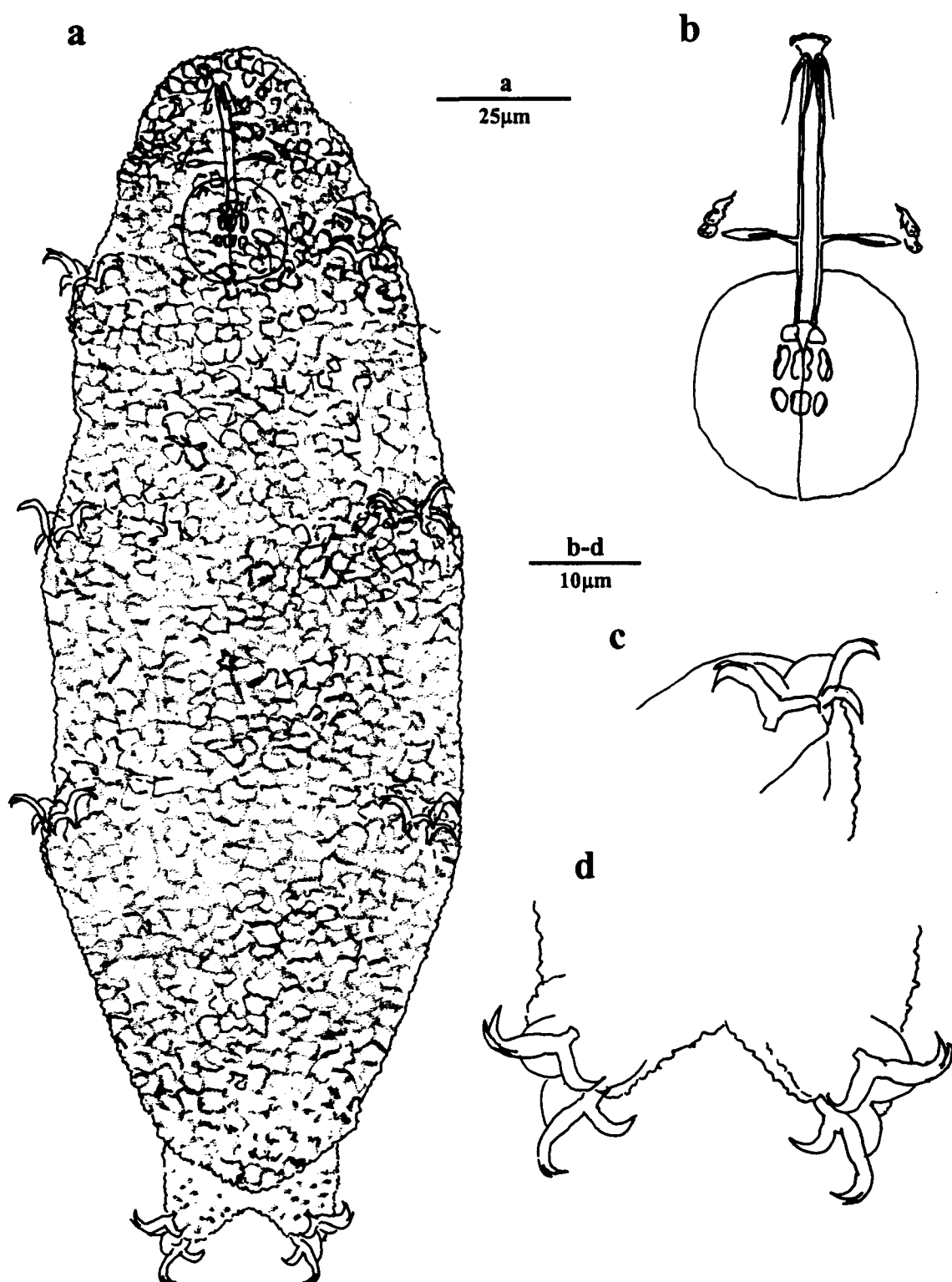


Figure 68: *Isohypsibius australogilvus* sp. n. a. habitus (dorsal view);
b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of
fourth pair of legs.

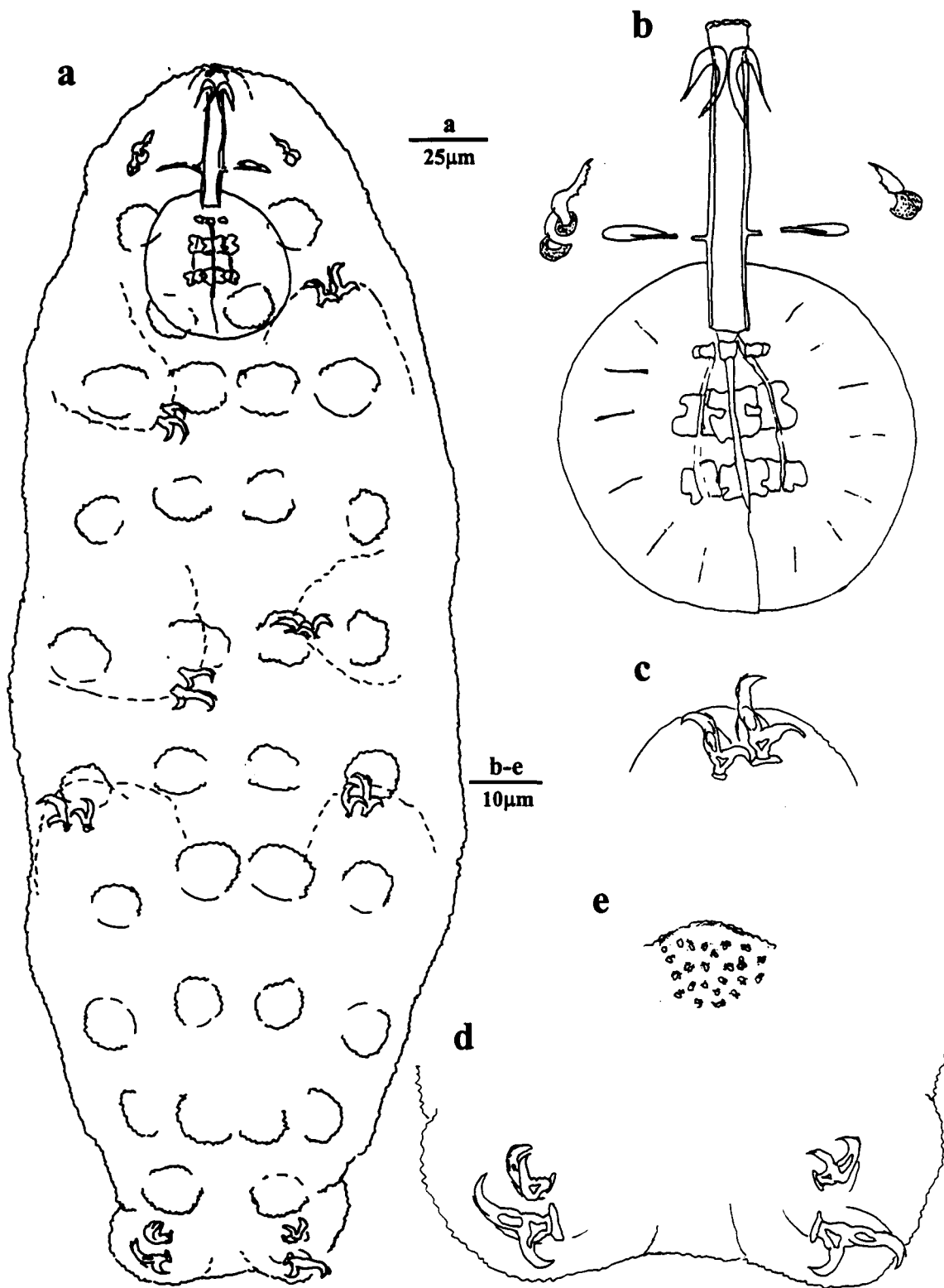


Figure 69: *Isohypsibius cf. bartosi* (Iharos, 1966). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. detail of sculpture of dorsal cuticle.

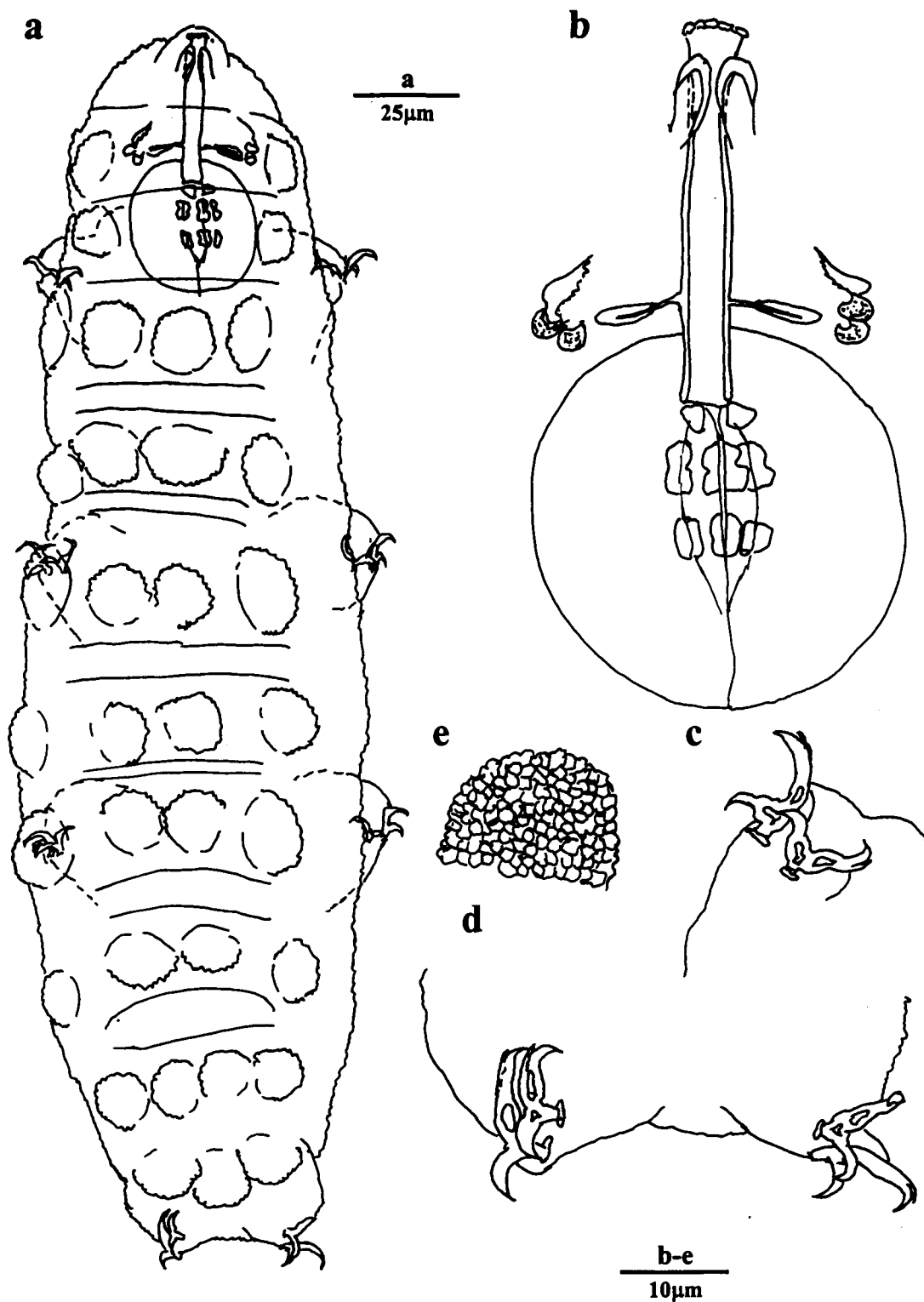


Figure 70: *Isohypsibius bellus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs; e. detail of sculpture of dorsal cuticle.

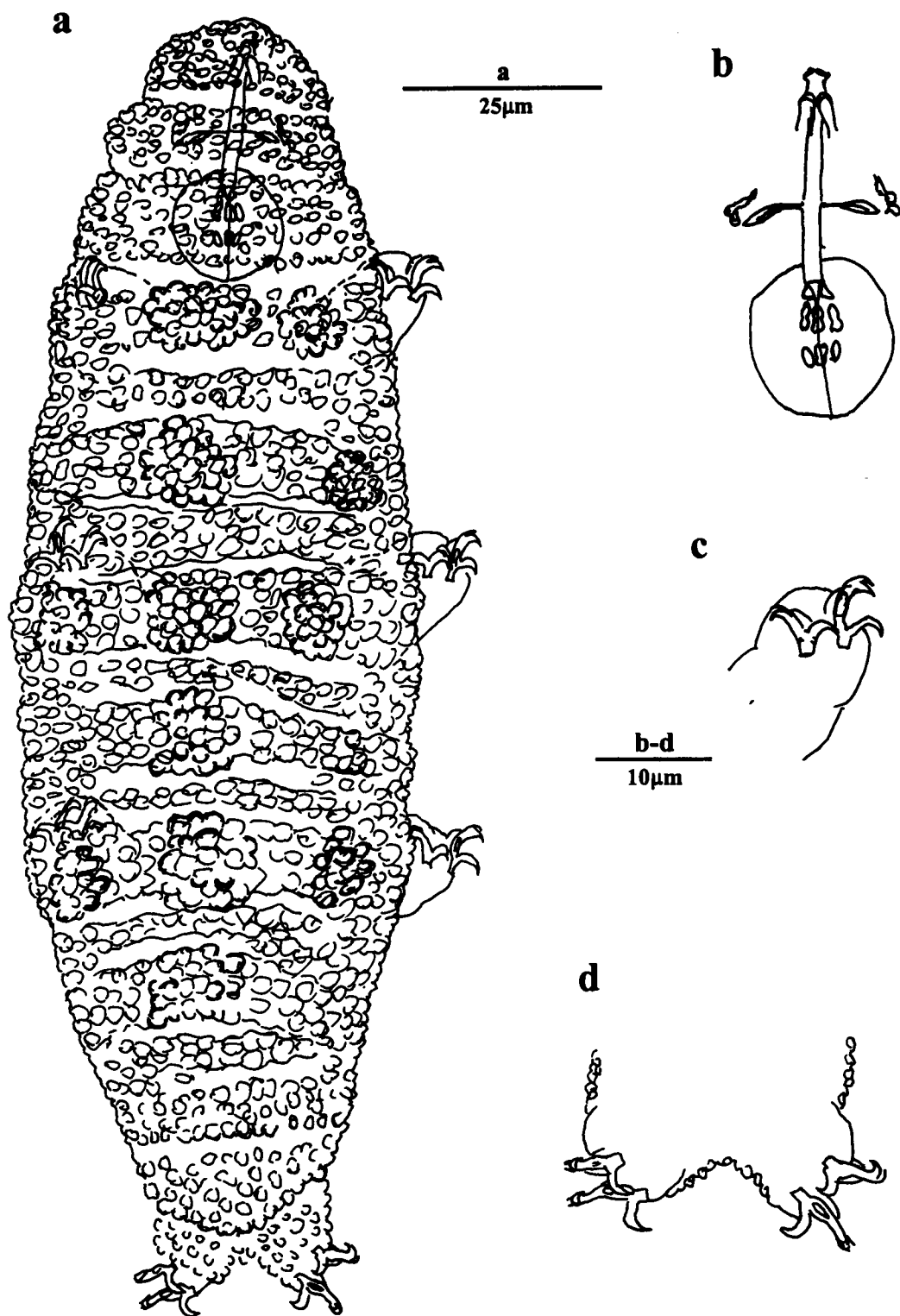


Figure 71: *Isohypsibius cameruni* (Itharos, 1969). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

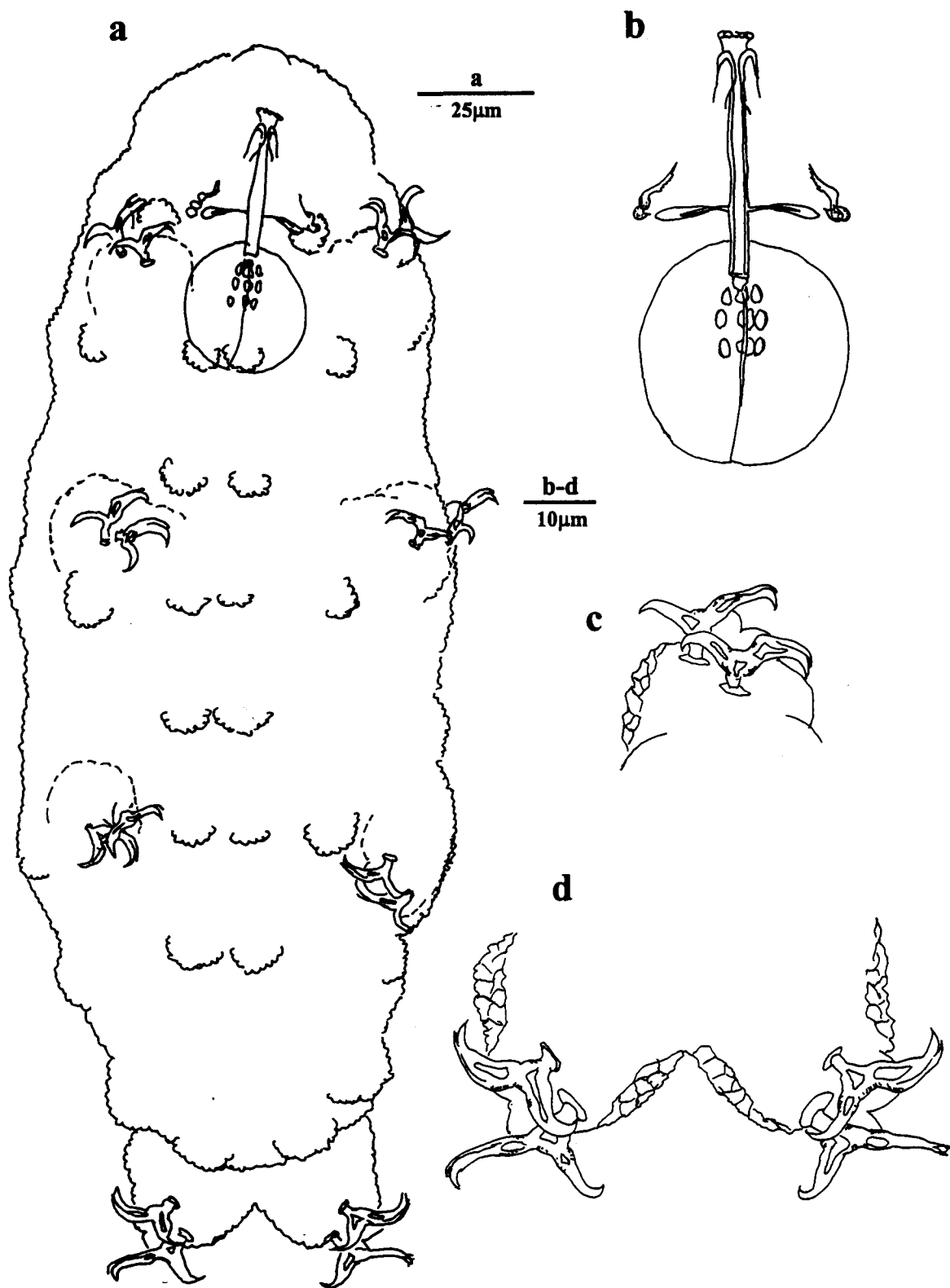


Figure 72: *Isohypsibius heatwolei* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

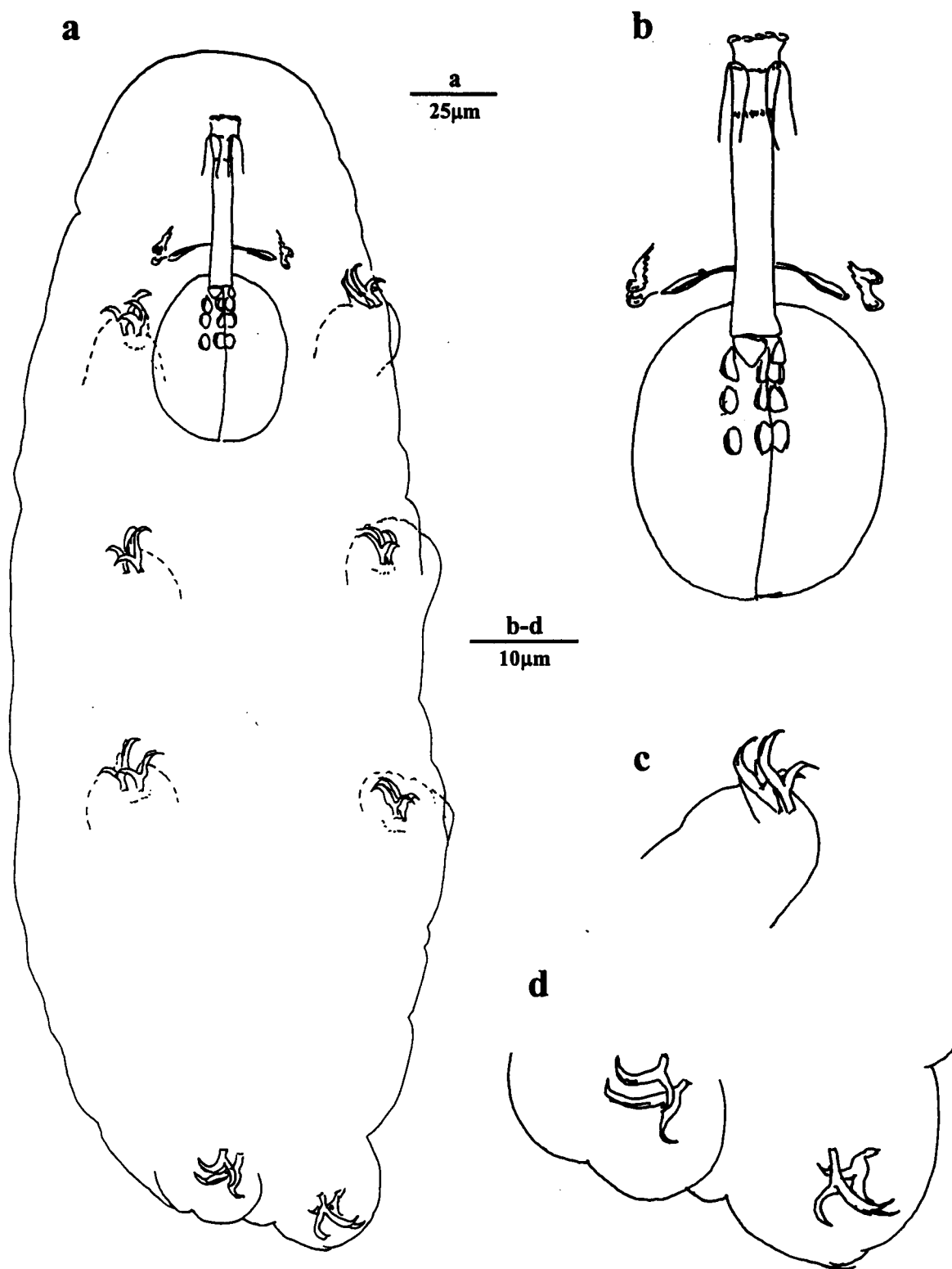


Figure 73: *Isohypsibius itoi* (Tsurusaki, 1980). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

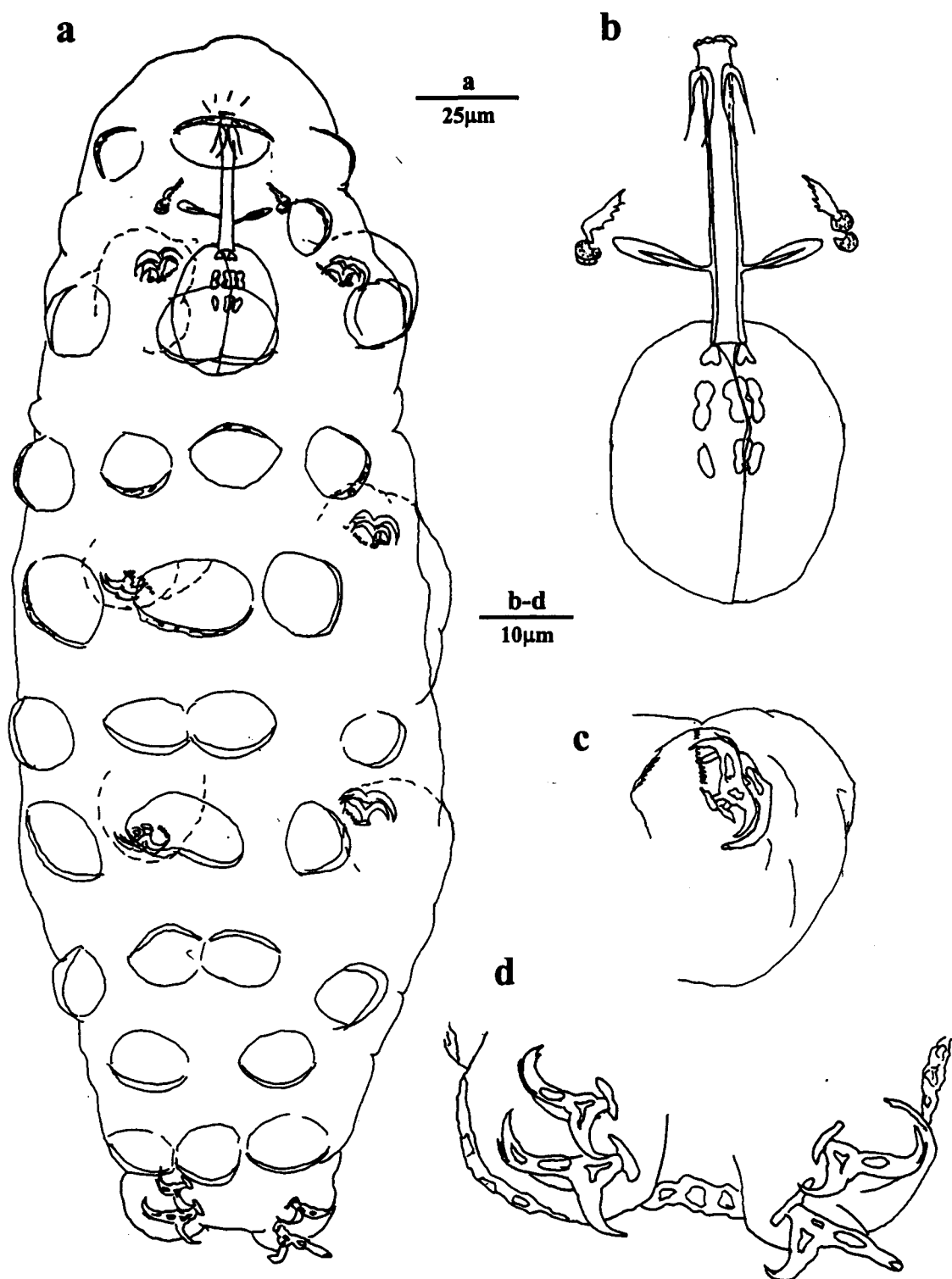


Figure 74: *Isohypsibius lunulatus* (Iharos, 1966). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

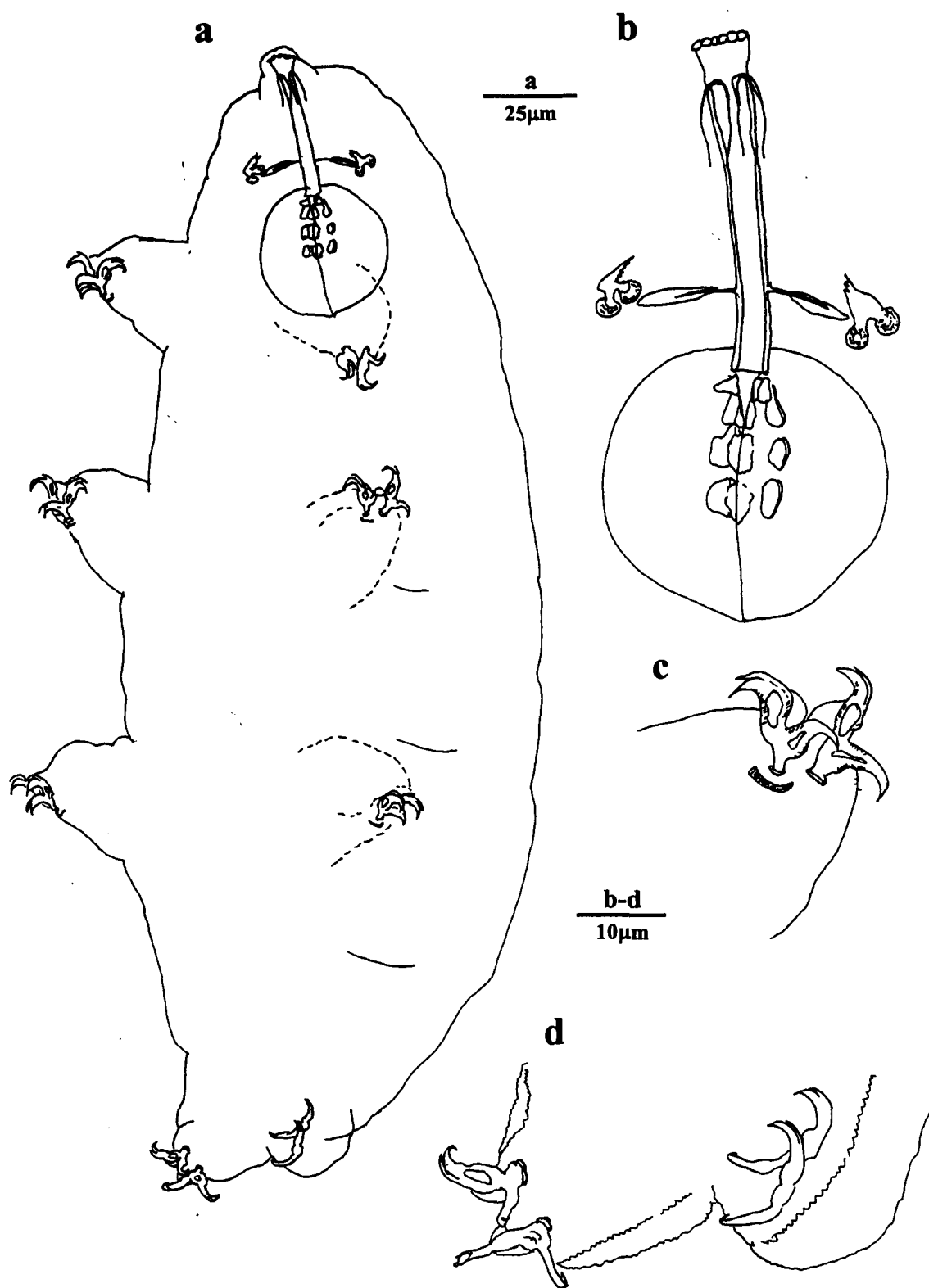


Figure 75: *Isohypsibius palmai* Pilato, 1996. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs.

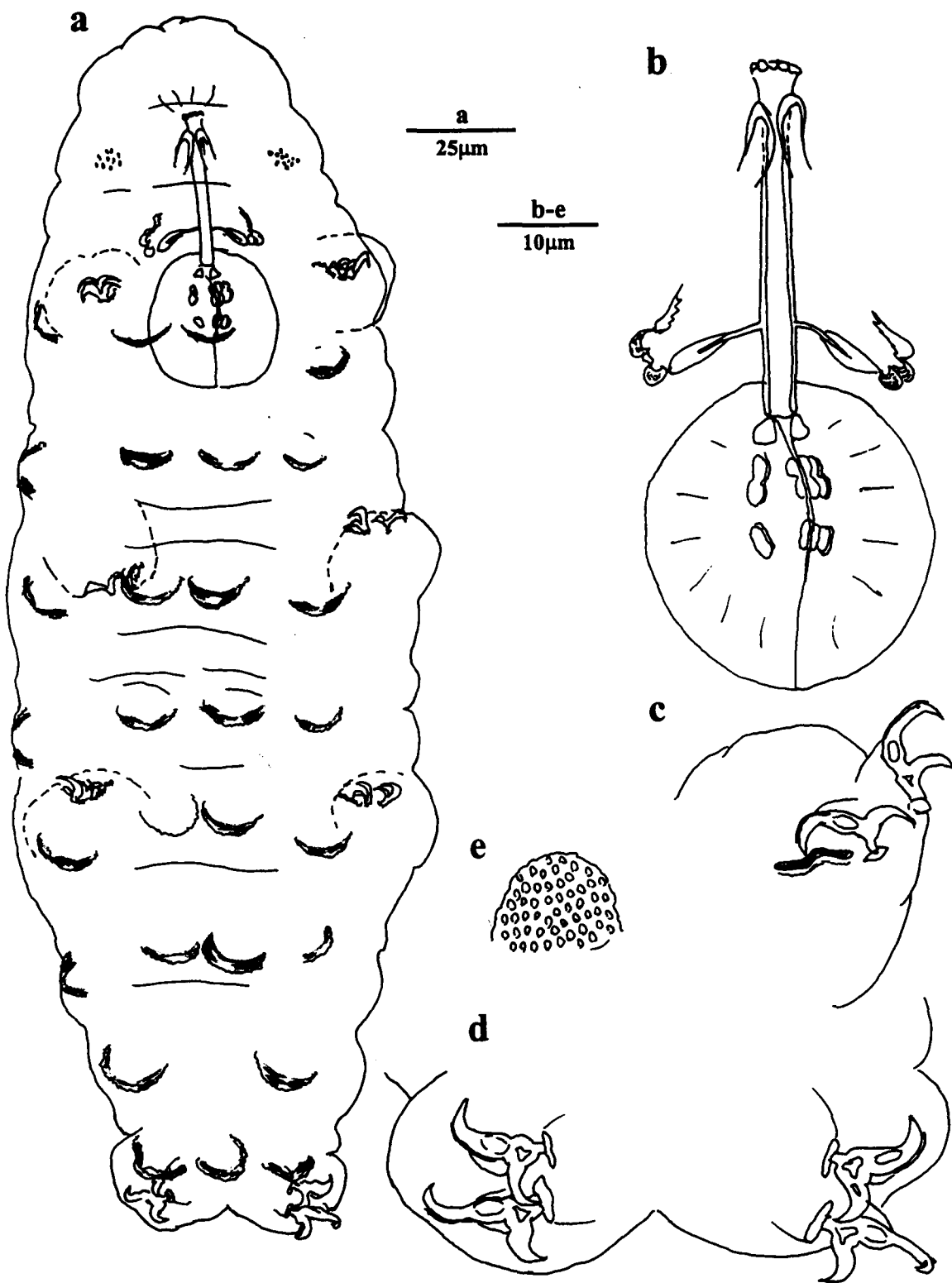


Figure 76: *Isohypsibius peteri* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. sculpture of dorsal cuticle.

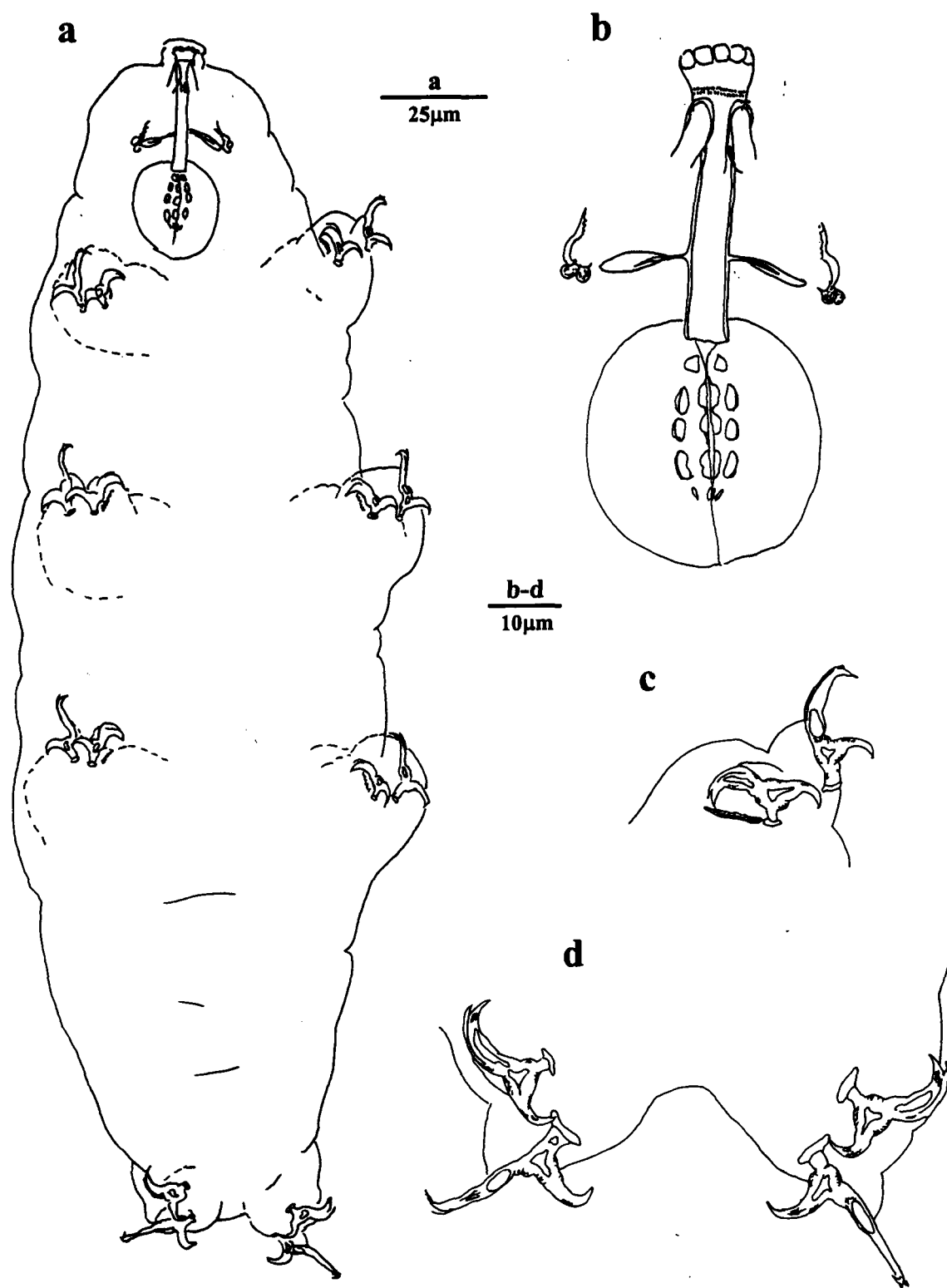


Figure 77: *Isohypsibius prosostomus* Thulin, 1928. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

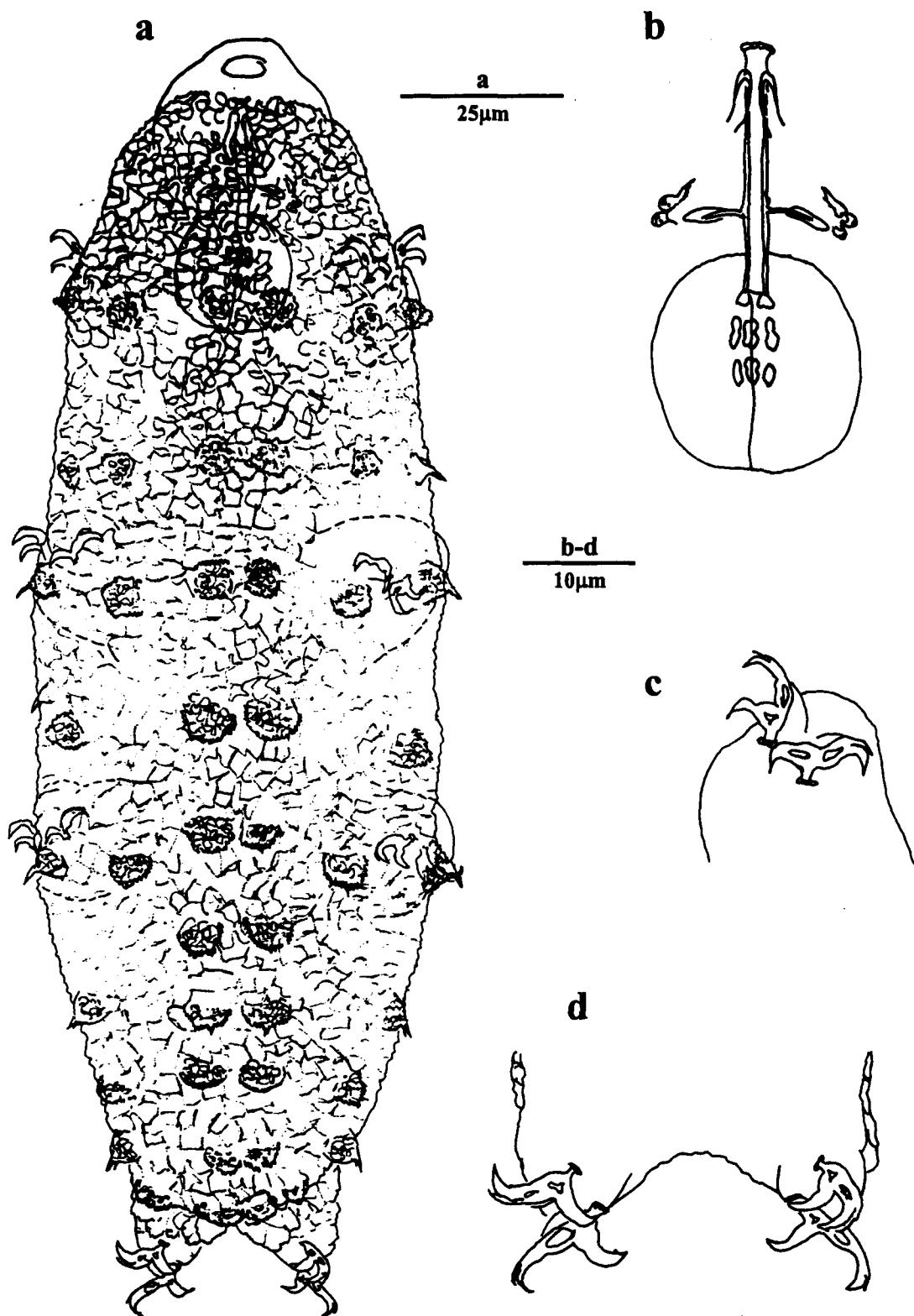


Figure 78: *Isohypsibius sattleri* (Richters, 1902). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

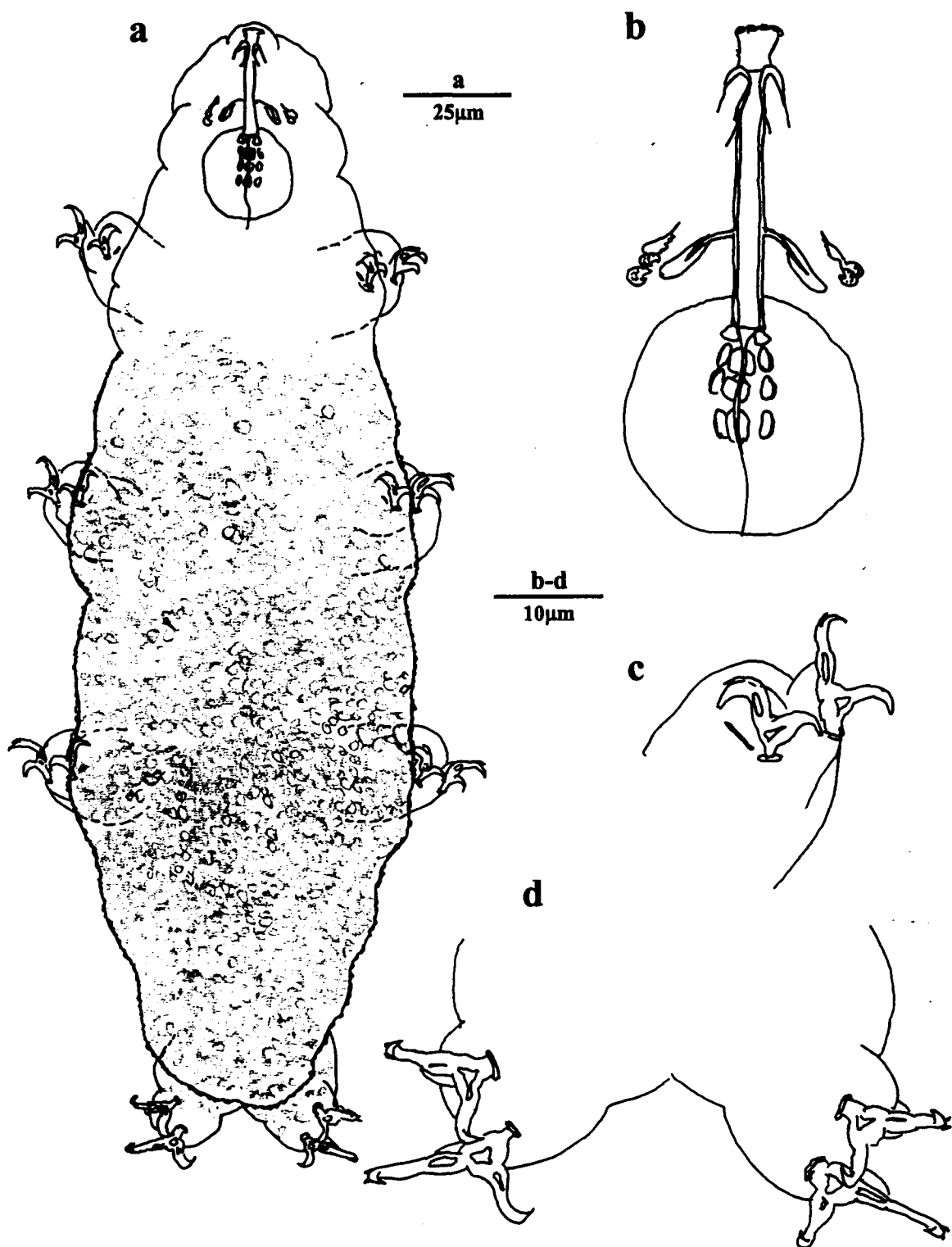


Figure 79: *Isohypsibius wilsoni* (Horning, Schuster & Grigarick, 1978). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

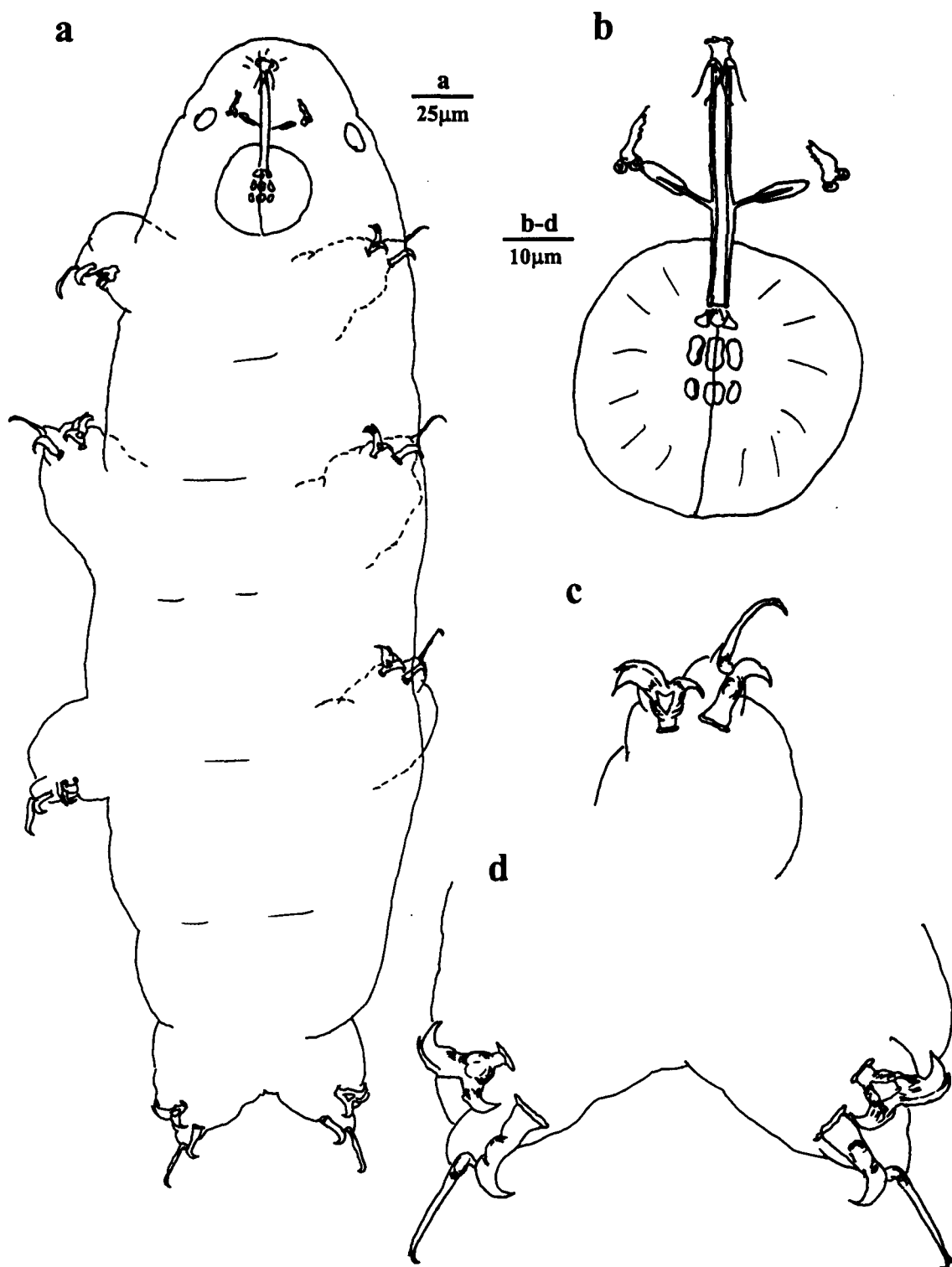


Figure 80: *Ramazzottius lacus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

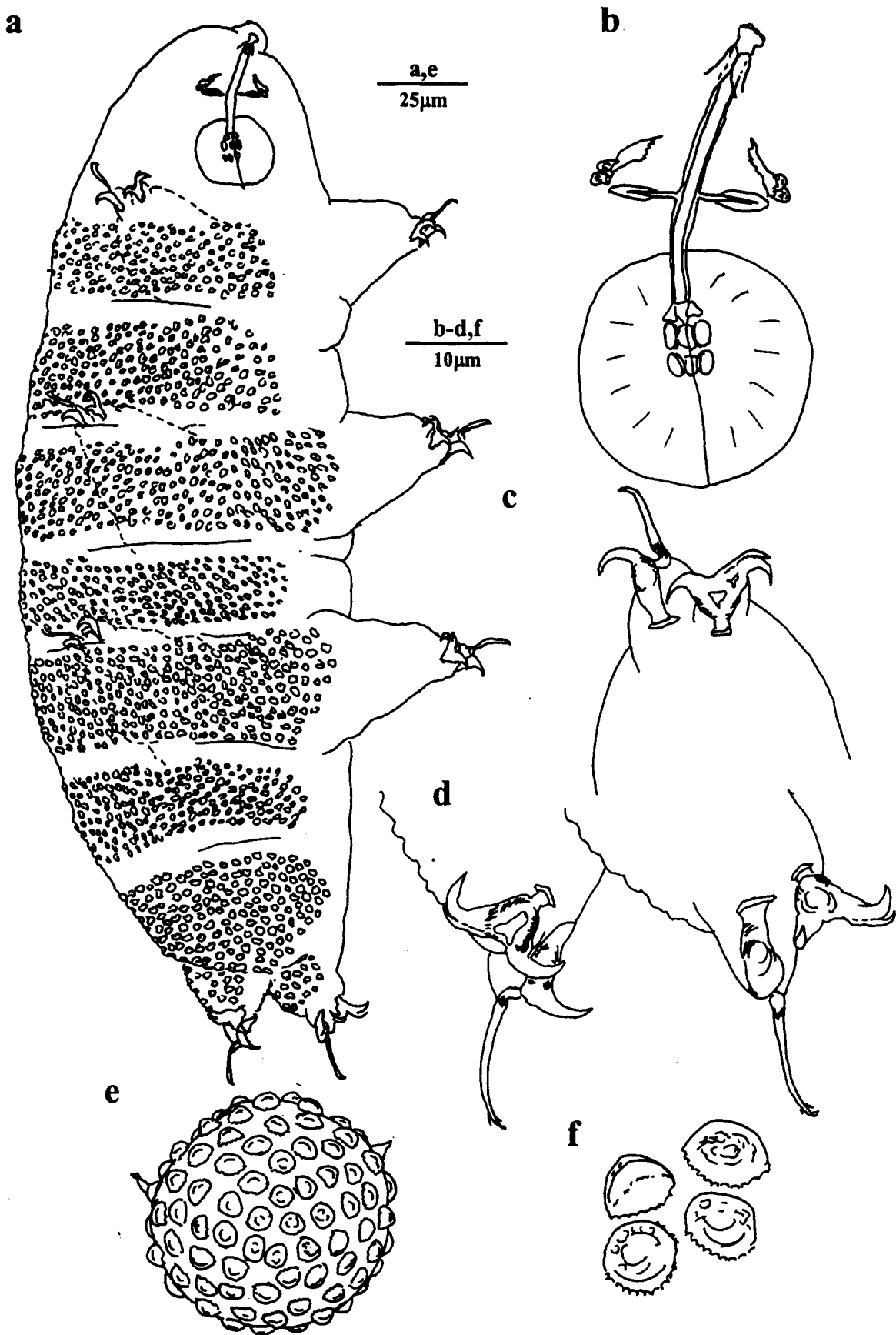


Figure 81: *Ramazzottius oberhaeuseri* (Doyère, 1840). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

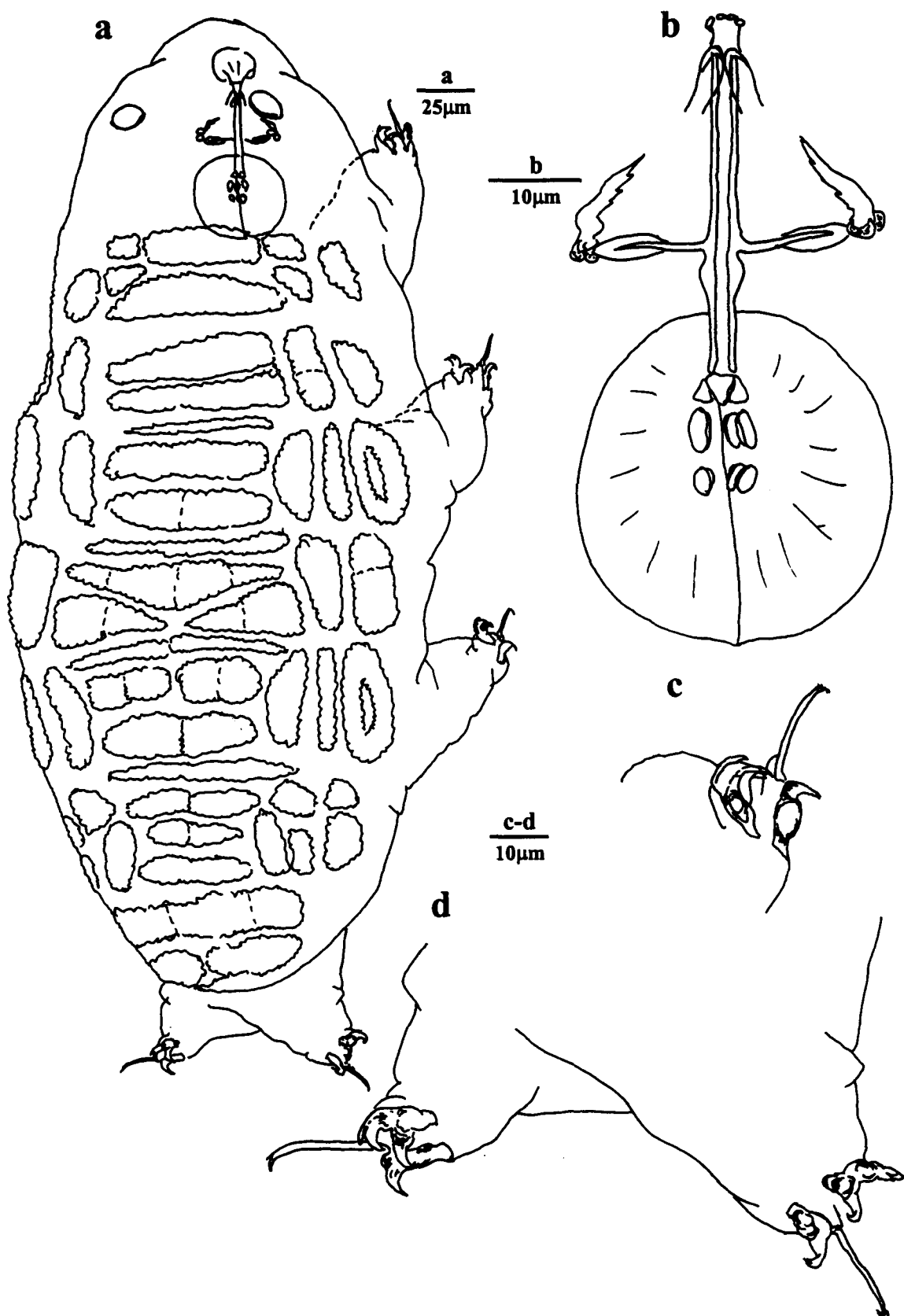


Figure 82: *Ramazzottius szeptycki* (Dastych, 1979). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs.

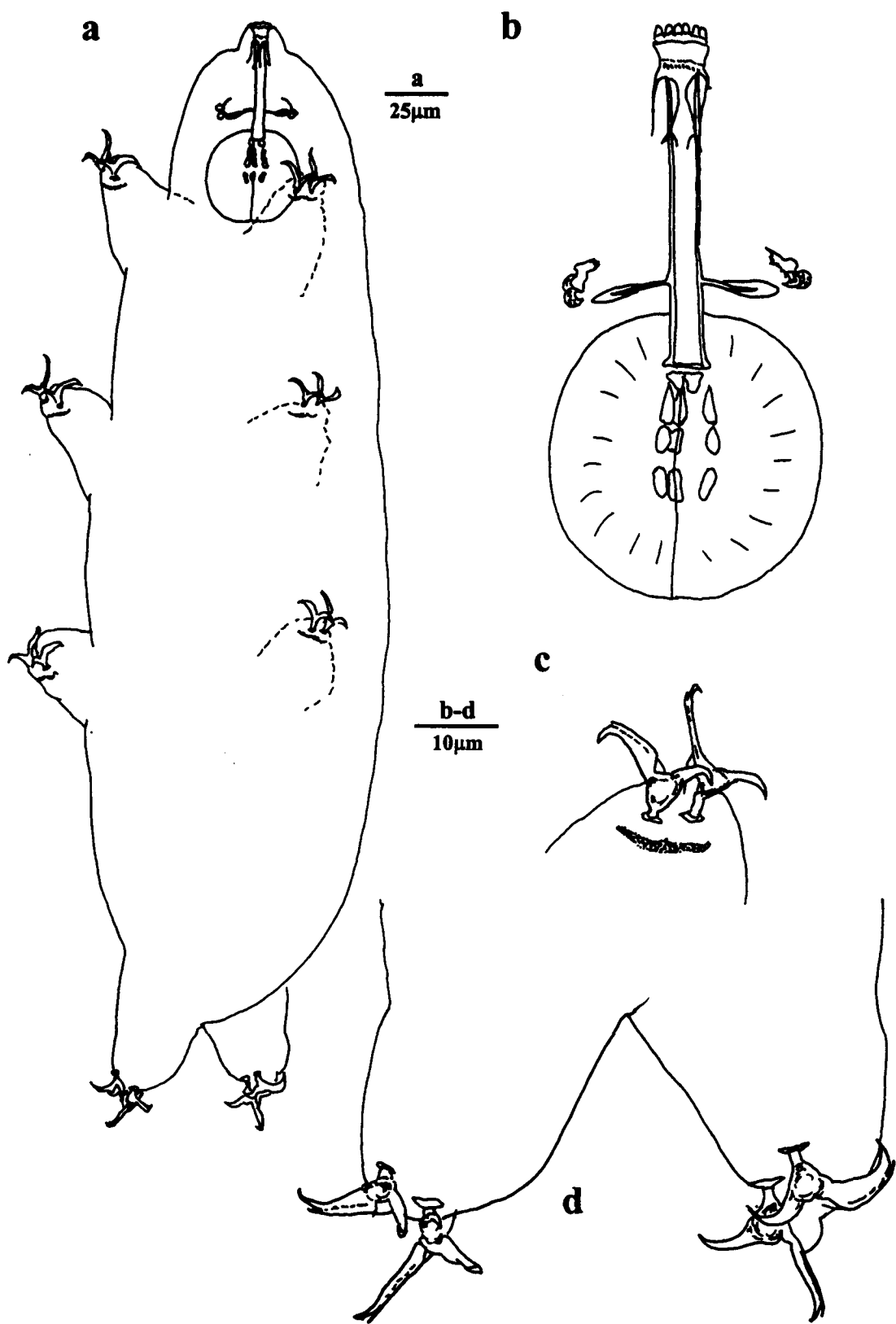


Figure 83: *Thulinius ruffoi* (Bertolani, 1981). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of third leg; d. claws of fourth pair of legs.

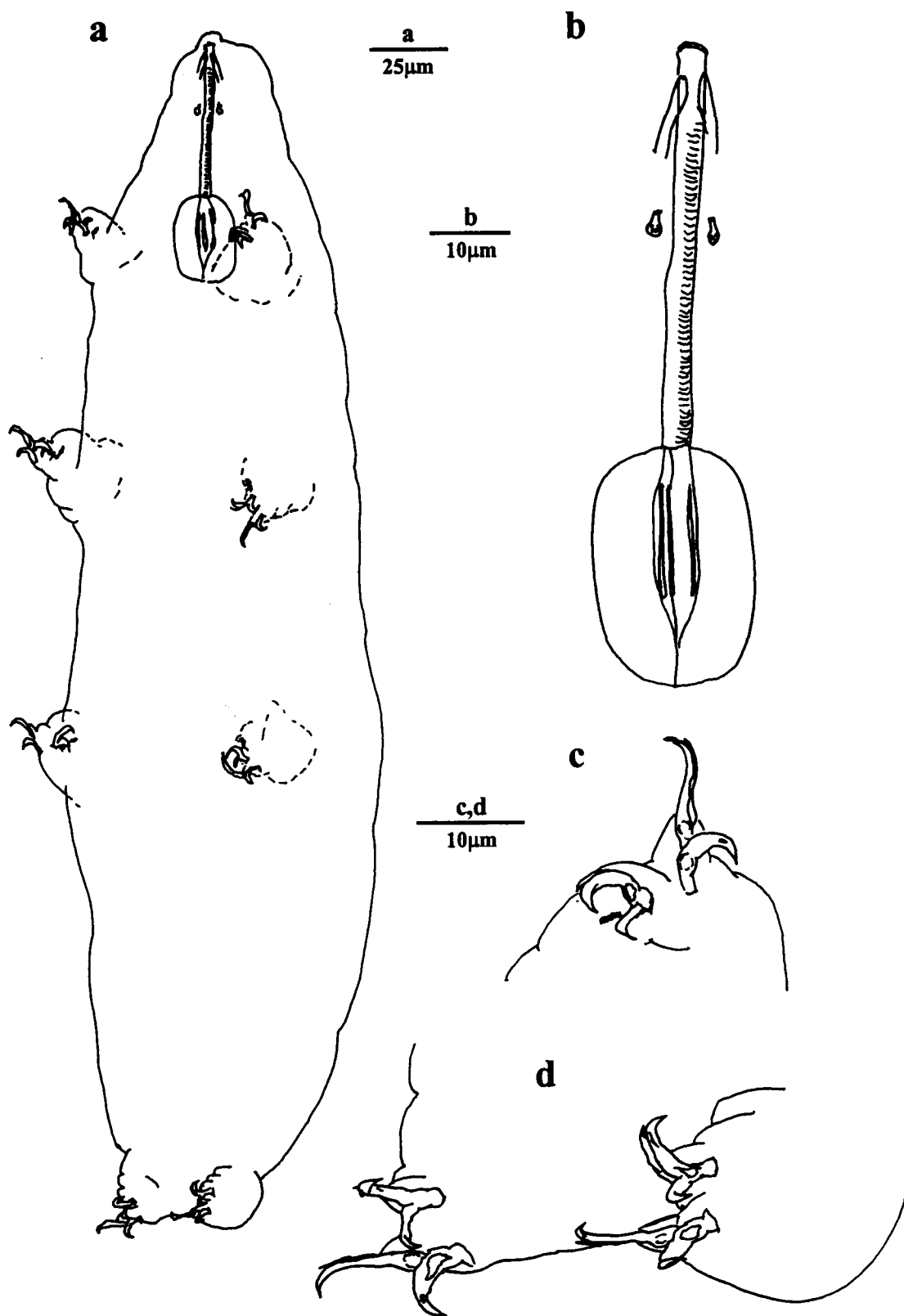


Figure 84: *Astatumen trinacriae* (Arcidiacono, 1962). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

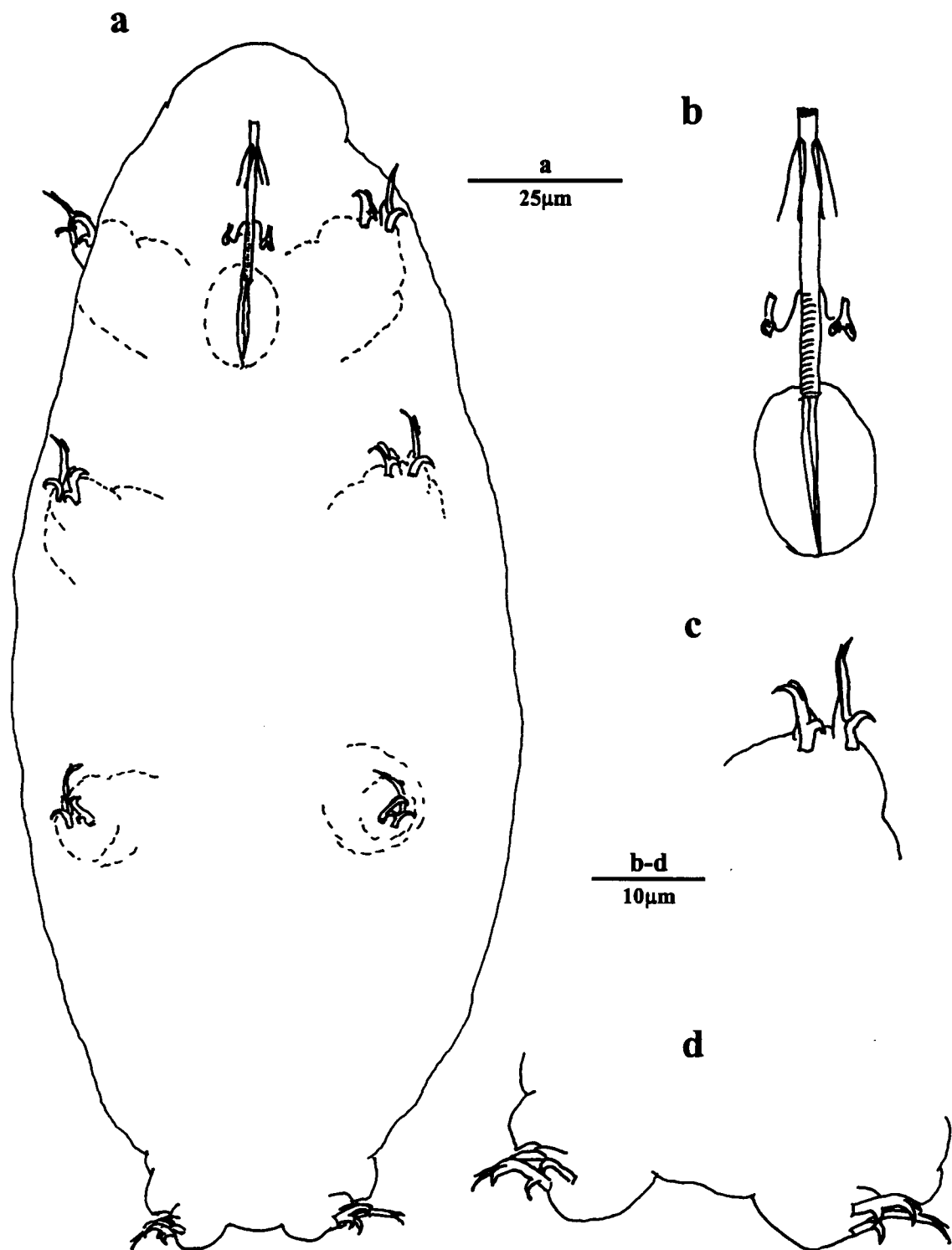


Figure 85: *Itaquiscon brevitubulus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

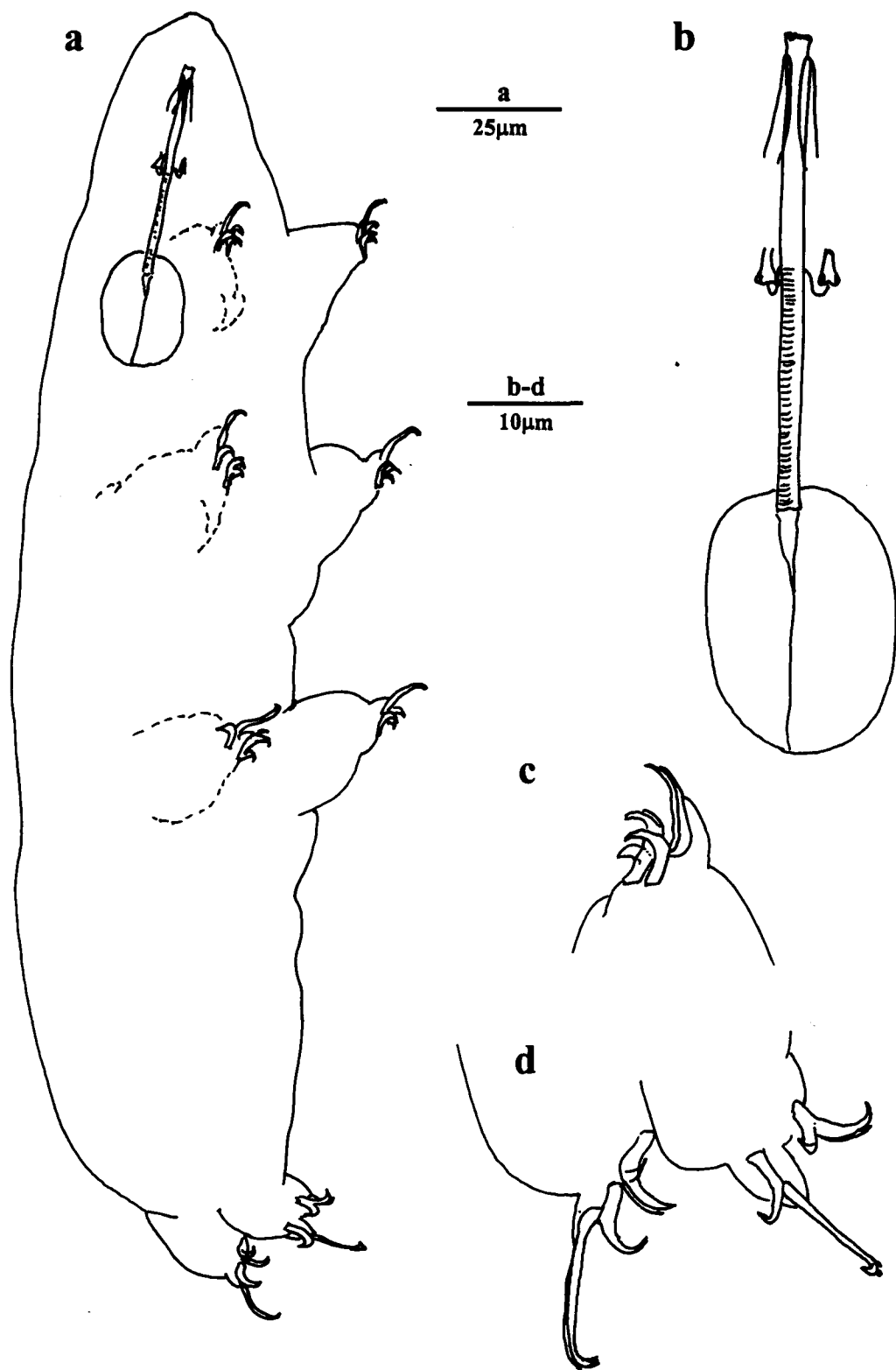


Figure 86: *Itaquascon cambewarrensensis* Pilato, Binda & Claxton, 2002. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

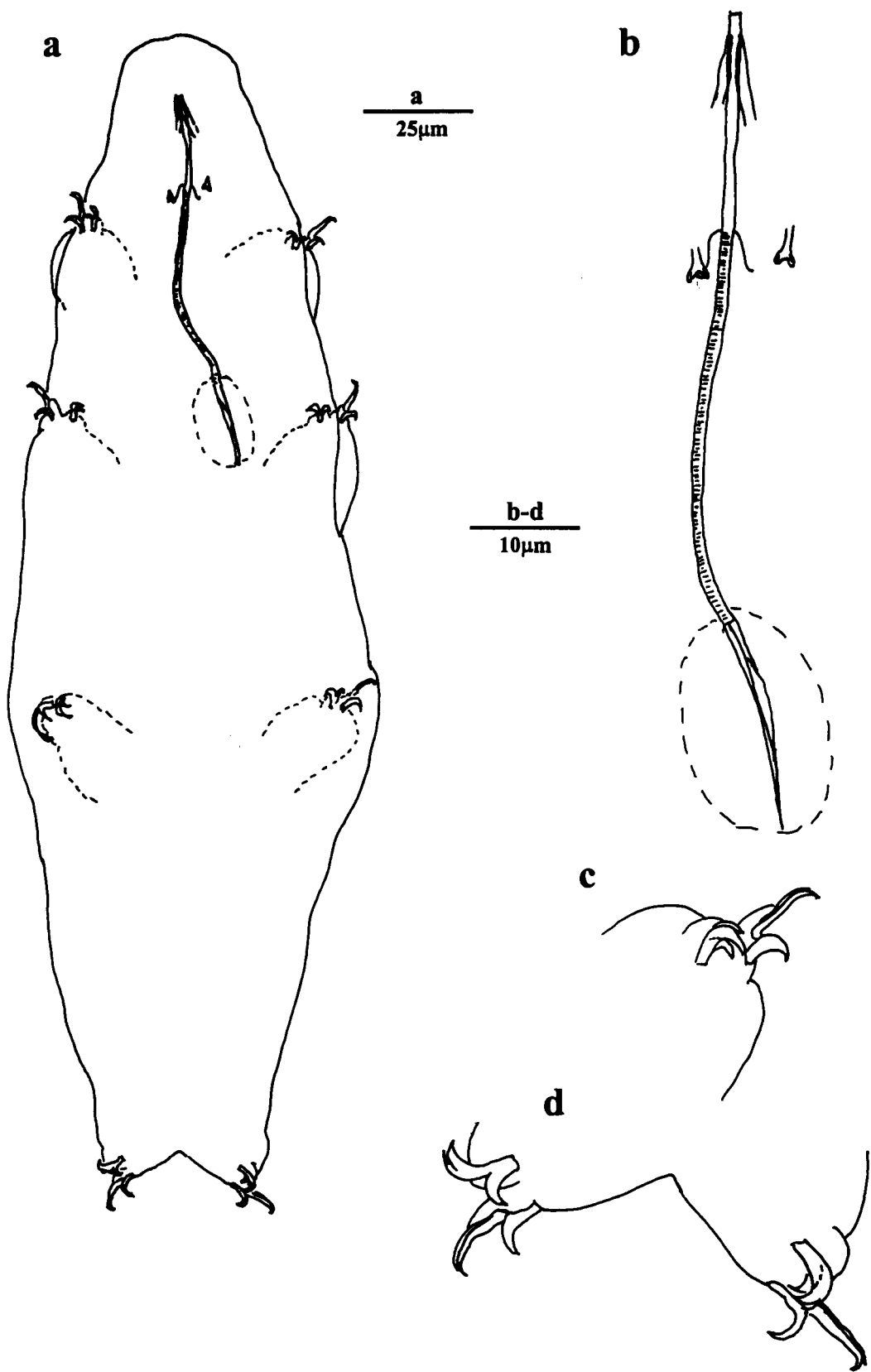


Figure 87: *Itaquascon longitubulus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

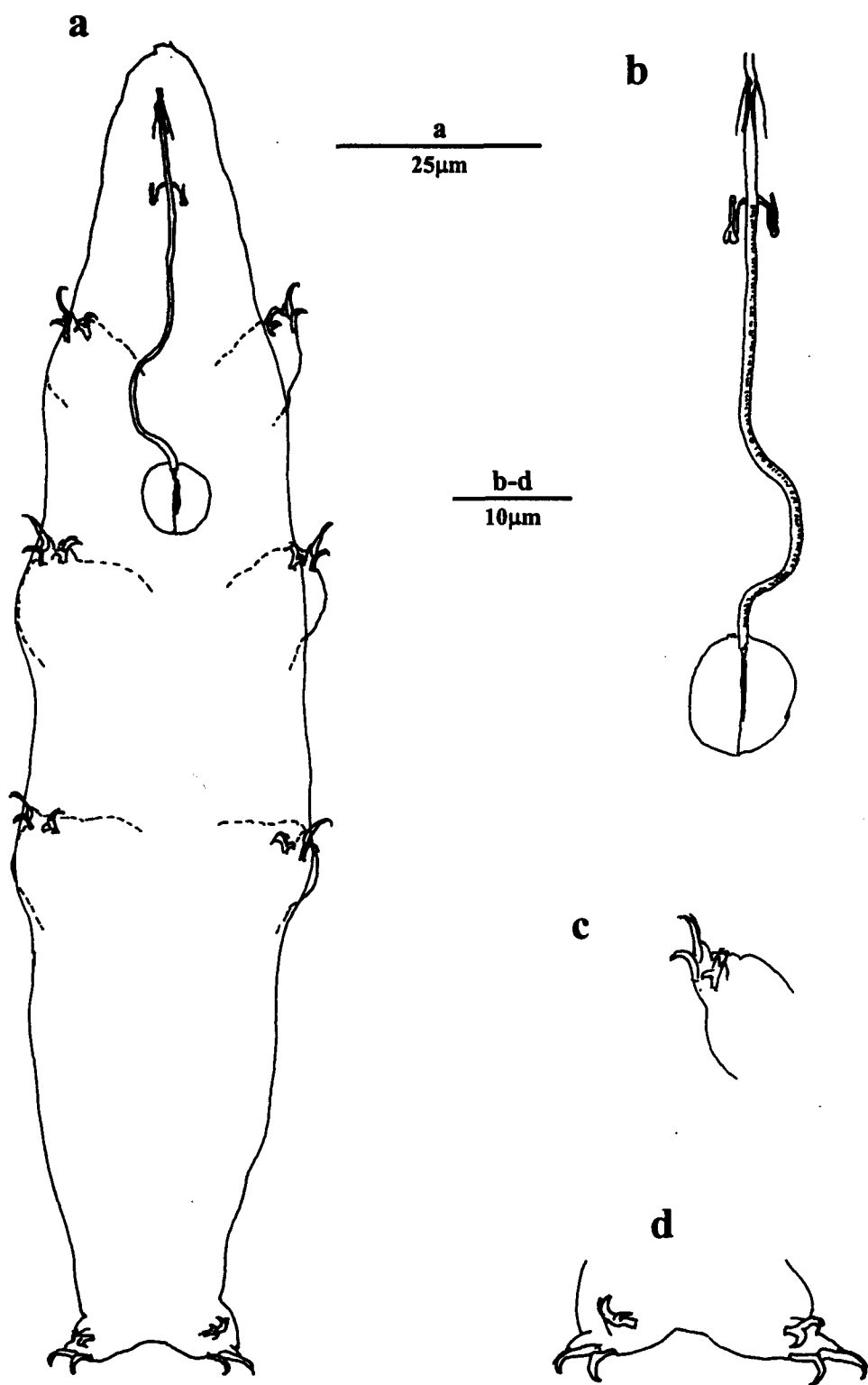


Figure 88: *Itaquascon pawlowskii* Weglarska, 1973. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

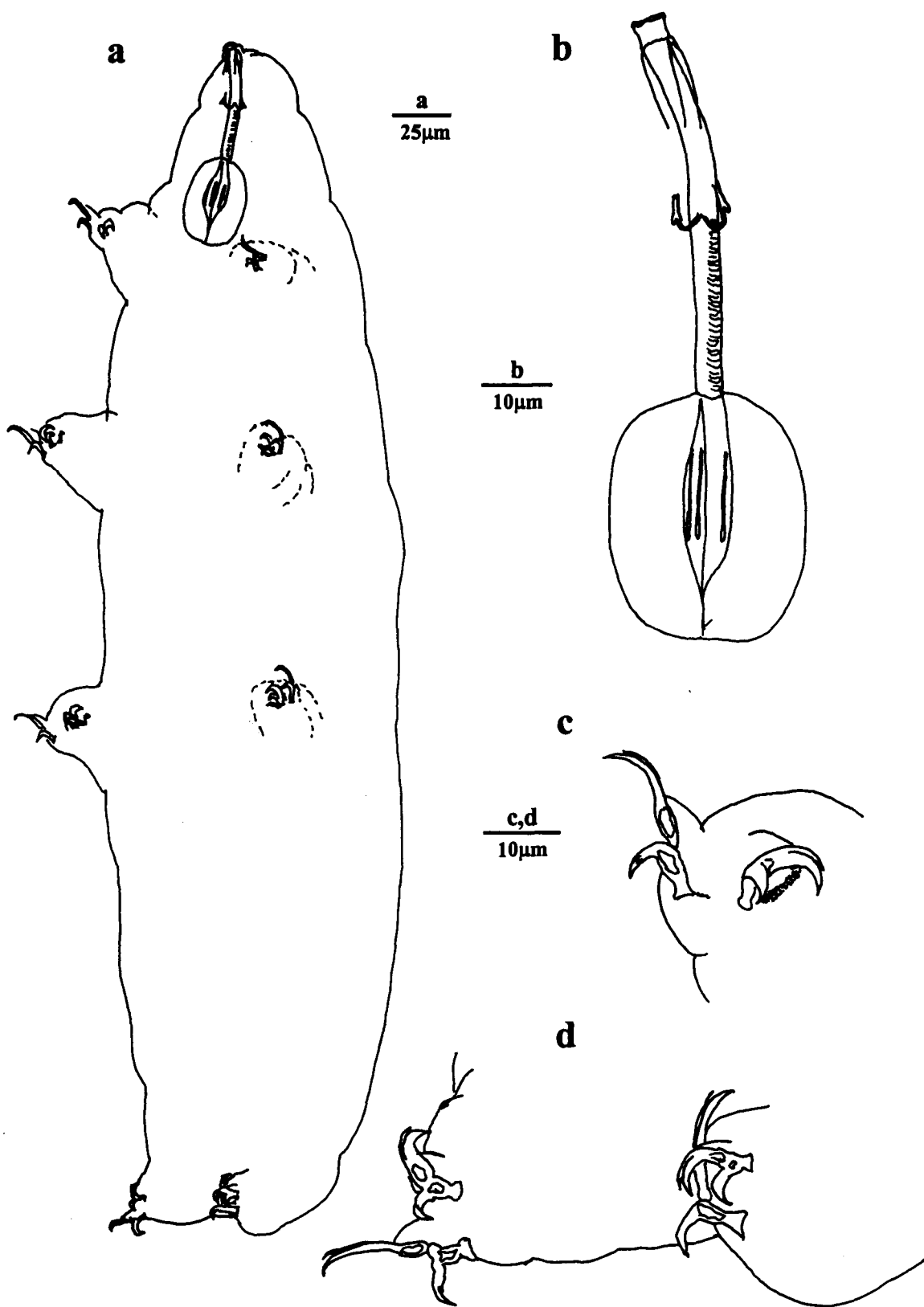


Figure 89: *Itaquascon pseudotrinacriæ* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of third leg; d. claws of fourth pair of legs.

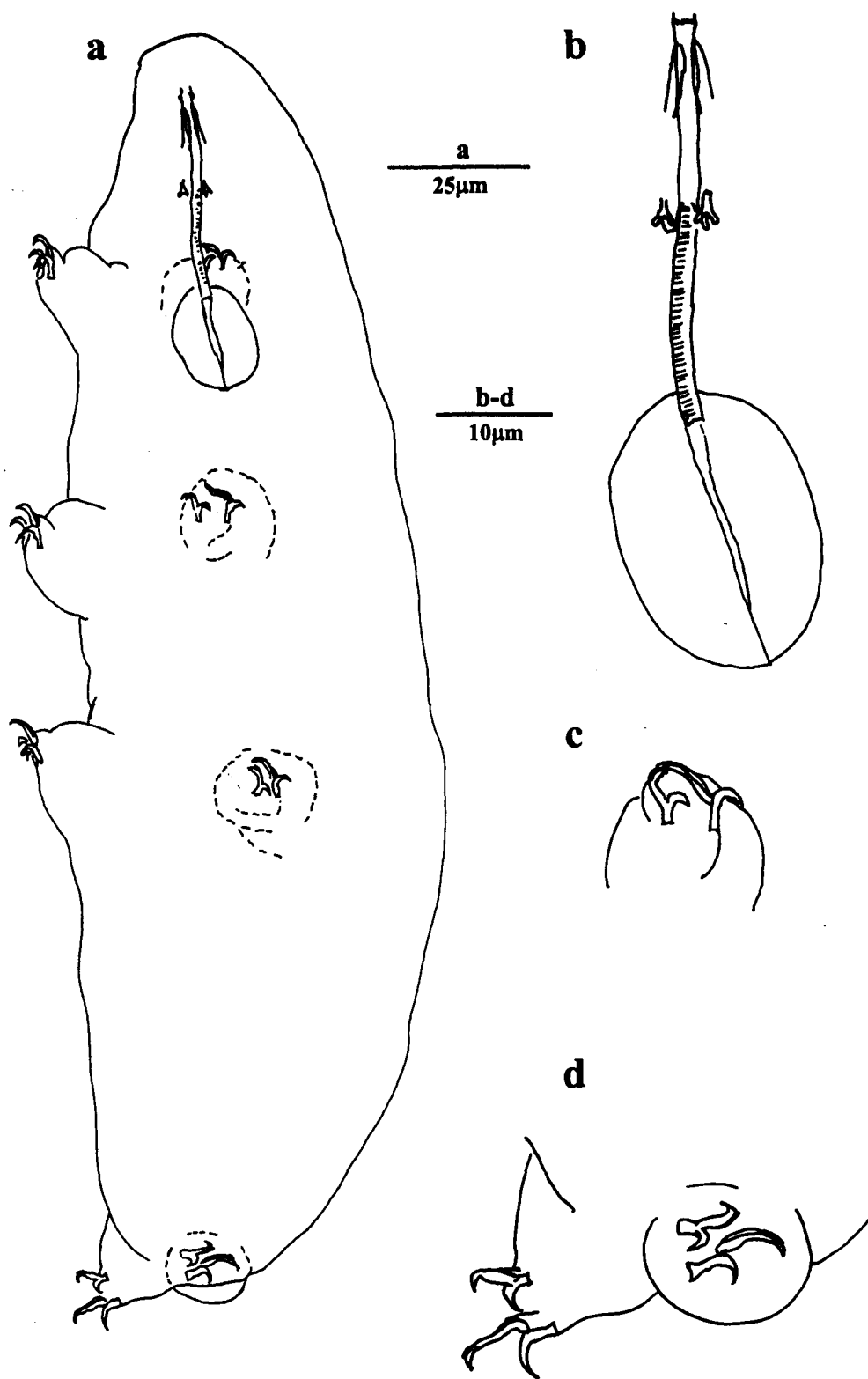


Figure 90: *Itaquascon unguiculum* Pilato, Binda & Claxton, 2002. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

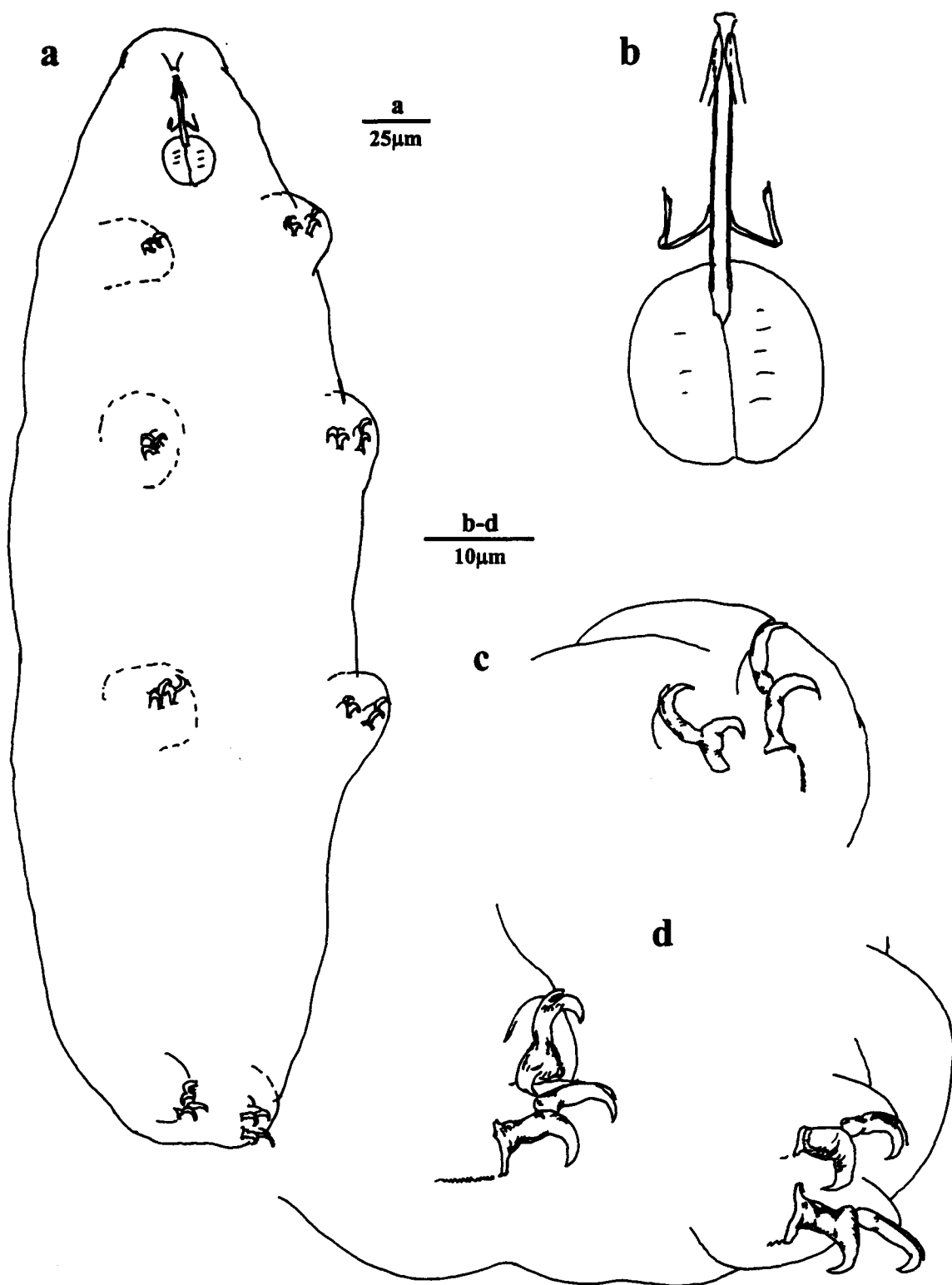


Figure 91: *Lexia breviunguis* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

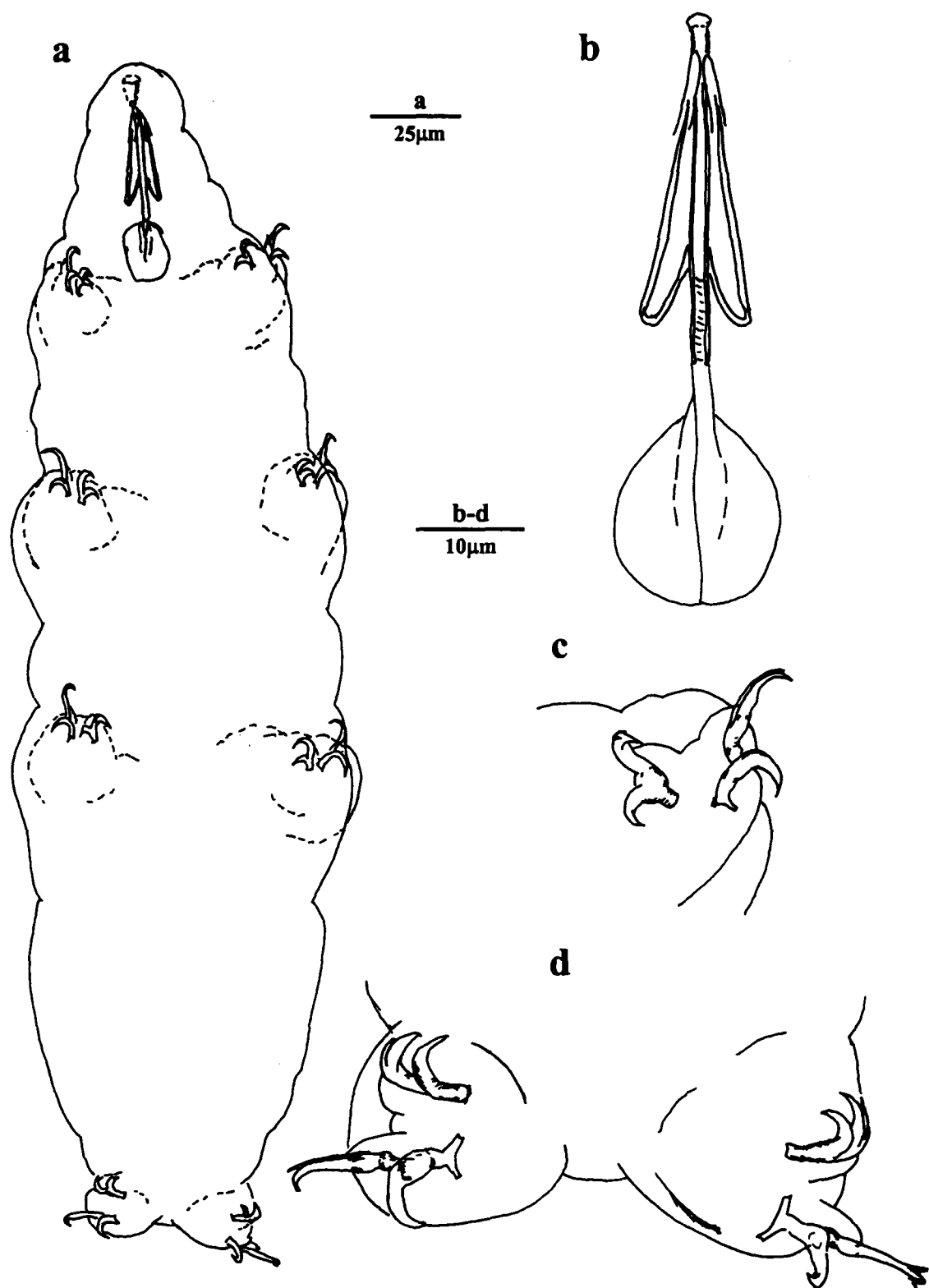


Figure 92: *Lexia melbaensis* gen. n. sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

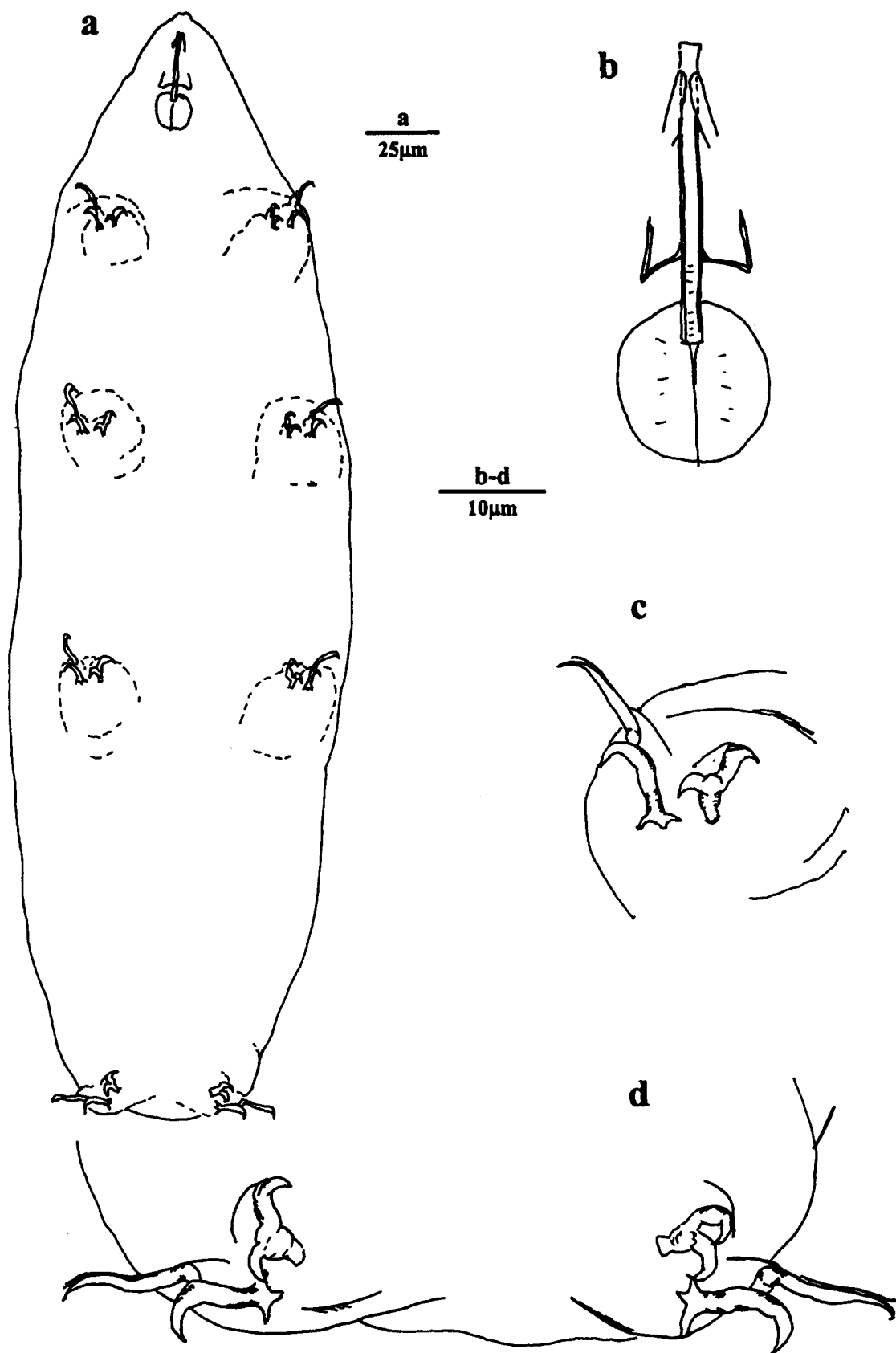


Figure 93: *Lexia trihallicis* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

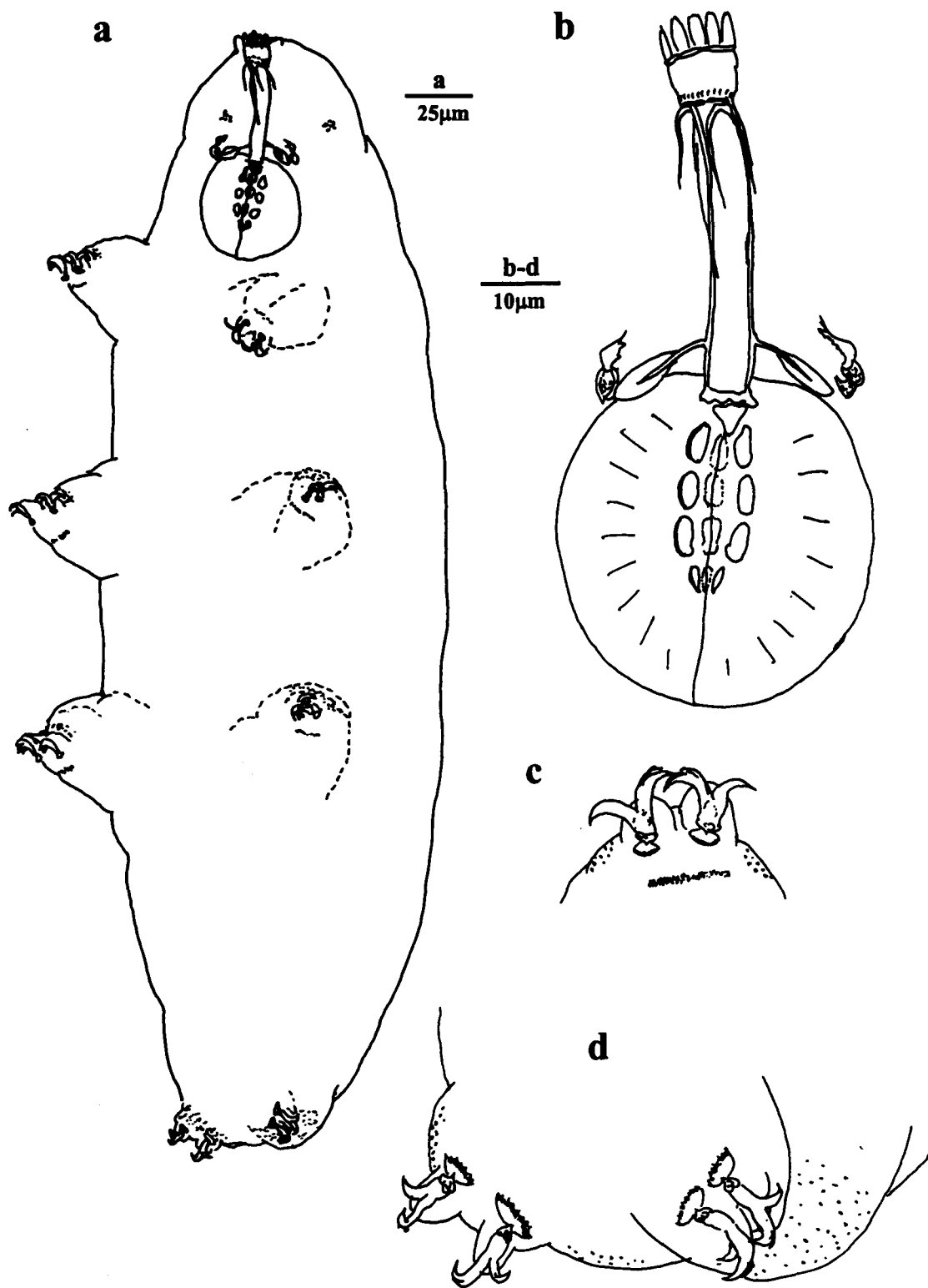


Figure 94: *Calcarobiotus adunatus* sp. n. a. habitus (dorsolateral view);
b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg;
d. claws of fourth pair of legs.

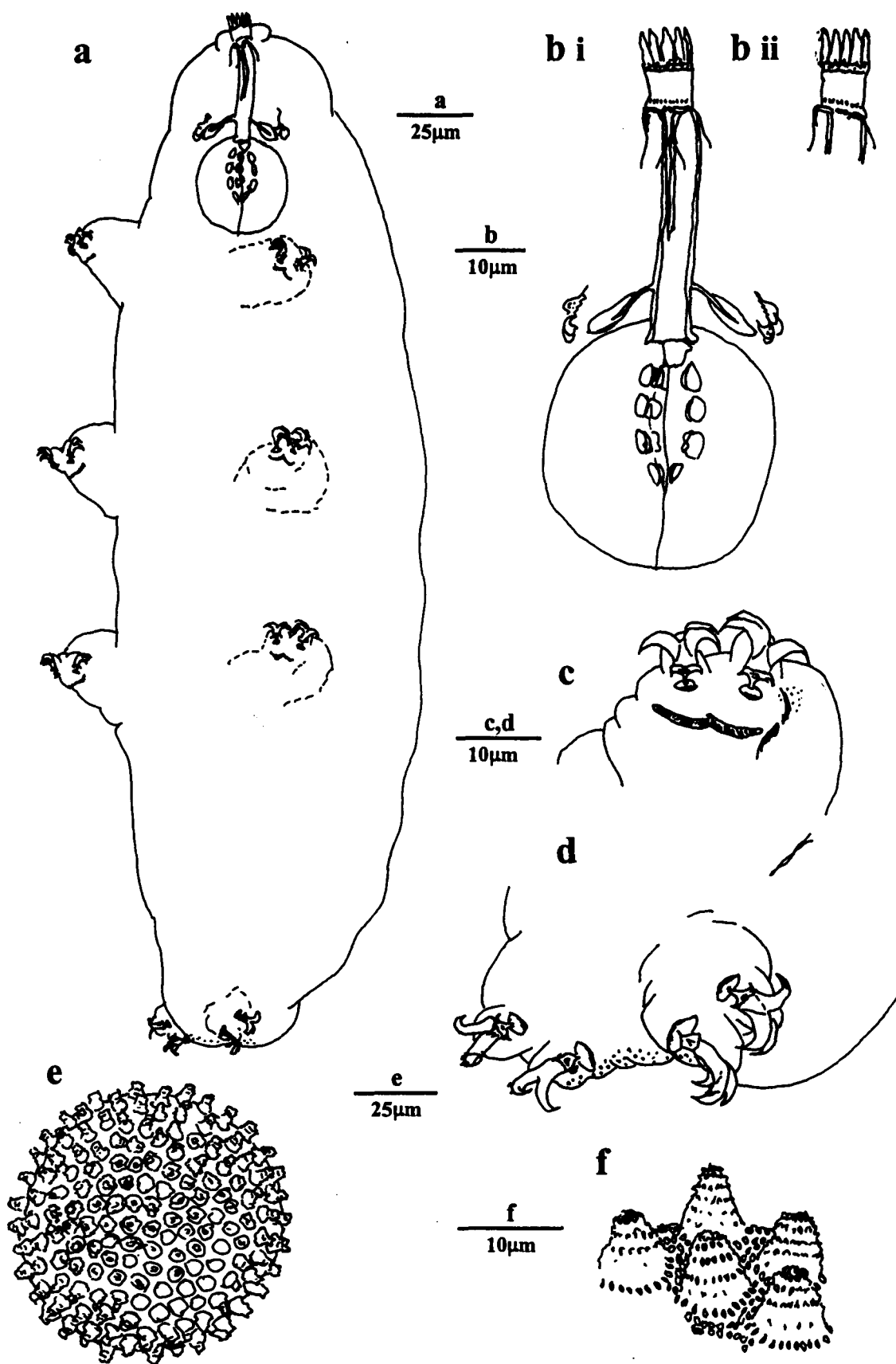


Figure 95: *Calcarobiotus australis* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of third leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

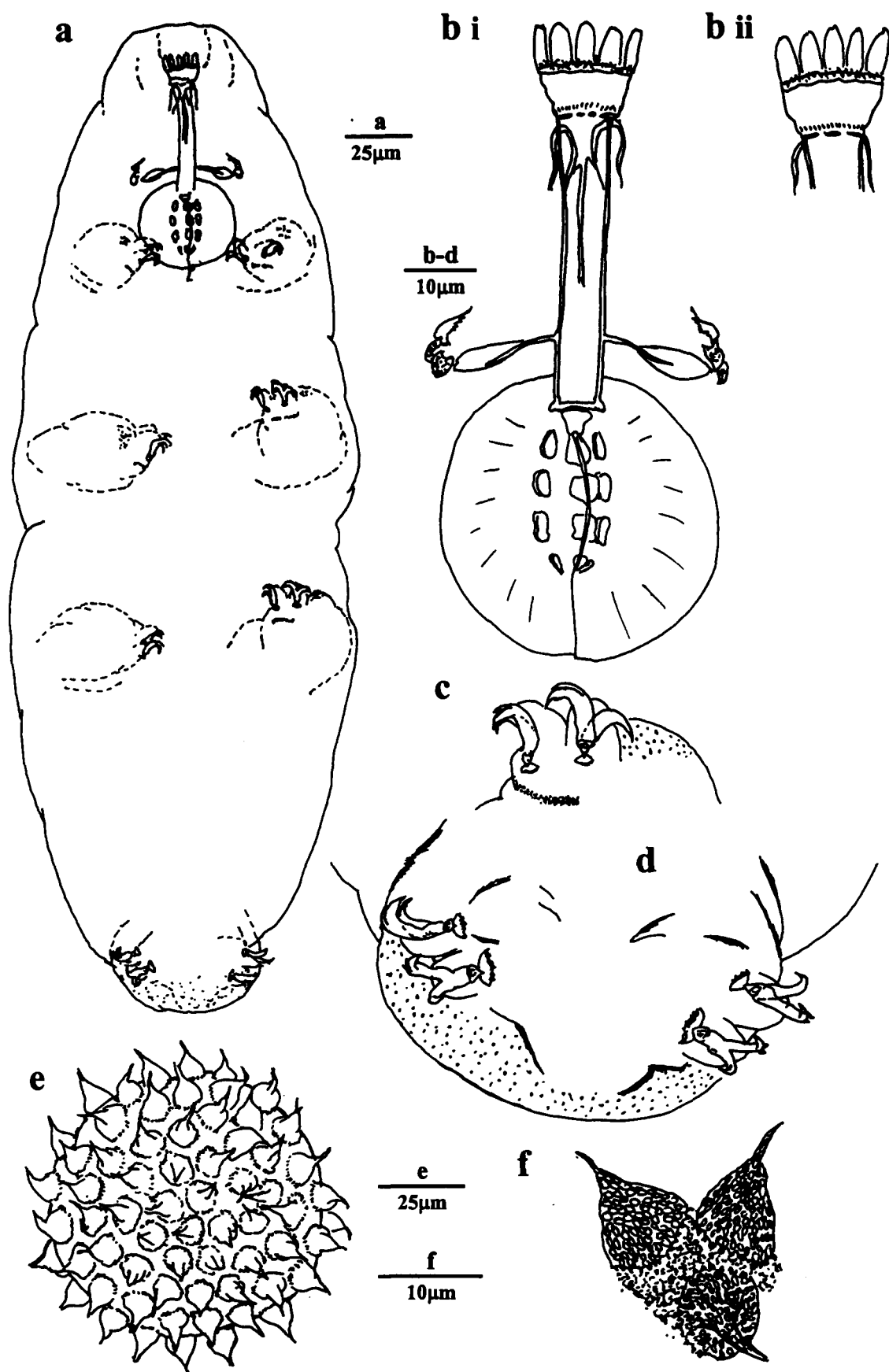


Figure 96: *Calcarobiotus capricorniensis* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of second leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

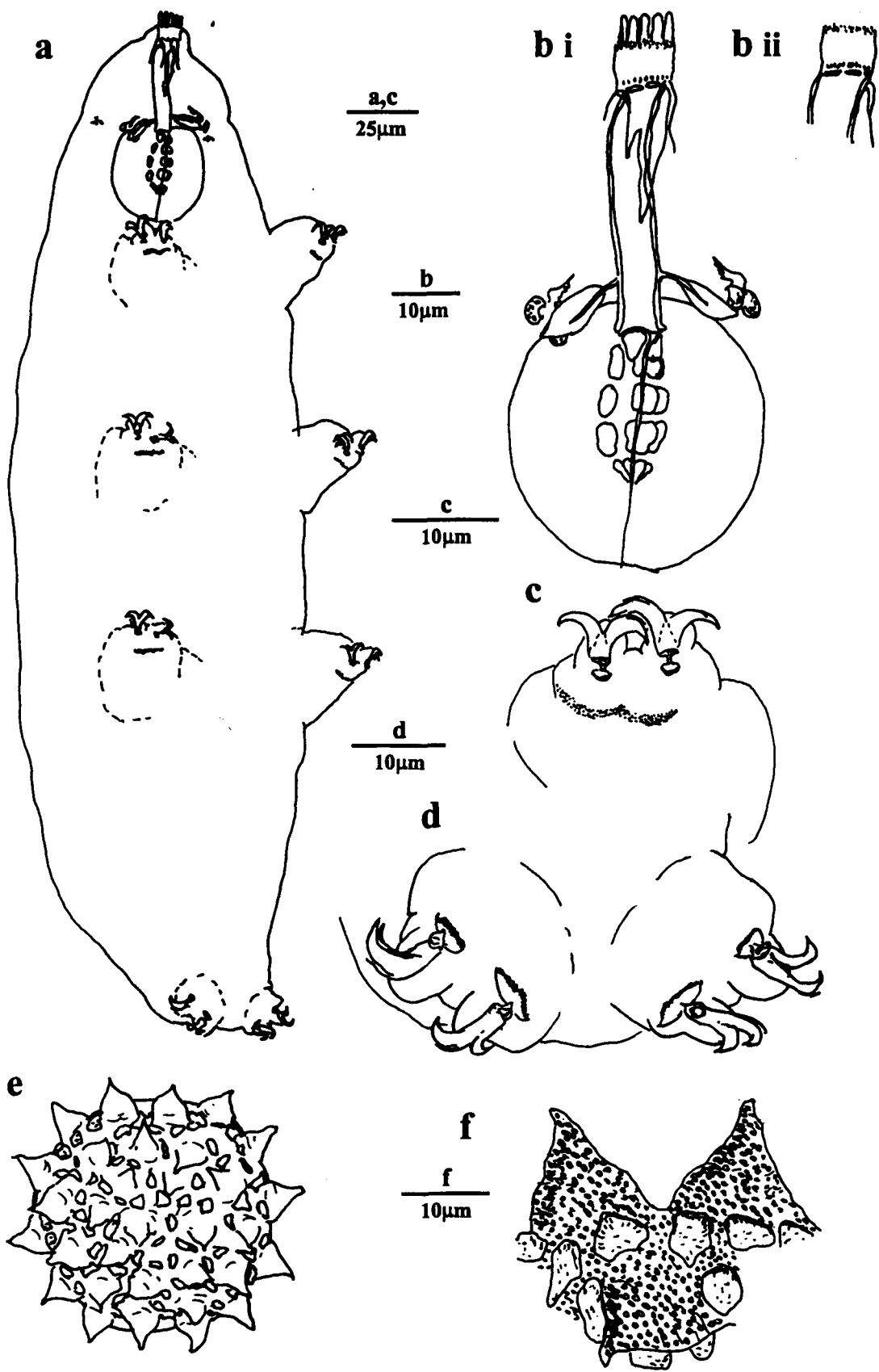


Figure 97: *Calcarobiotus erugatus* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of second leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

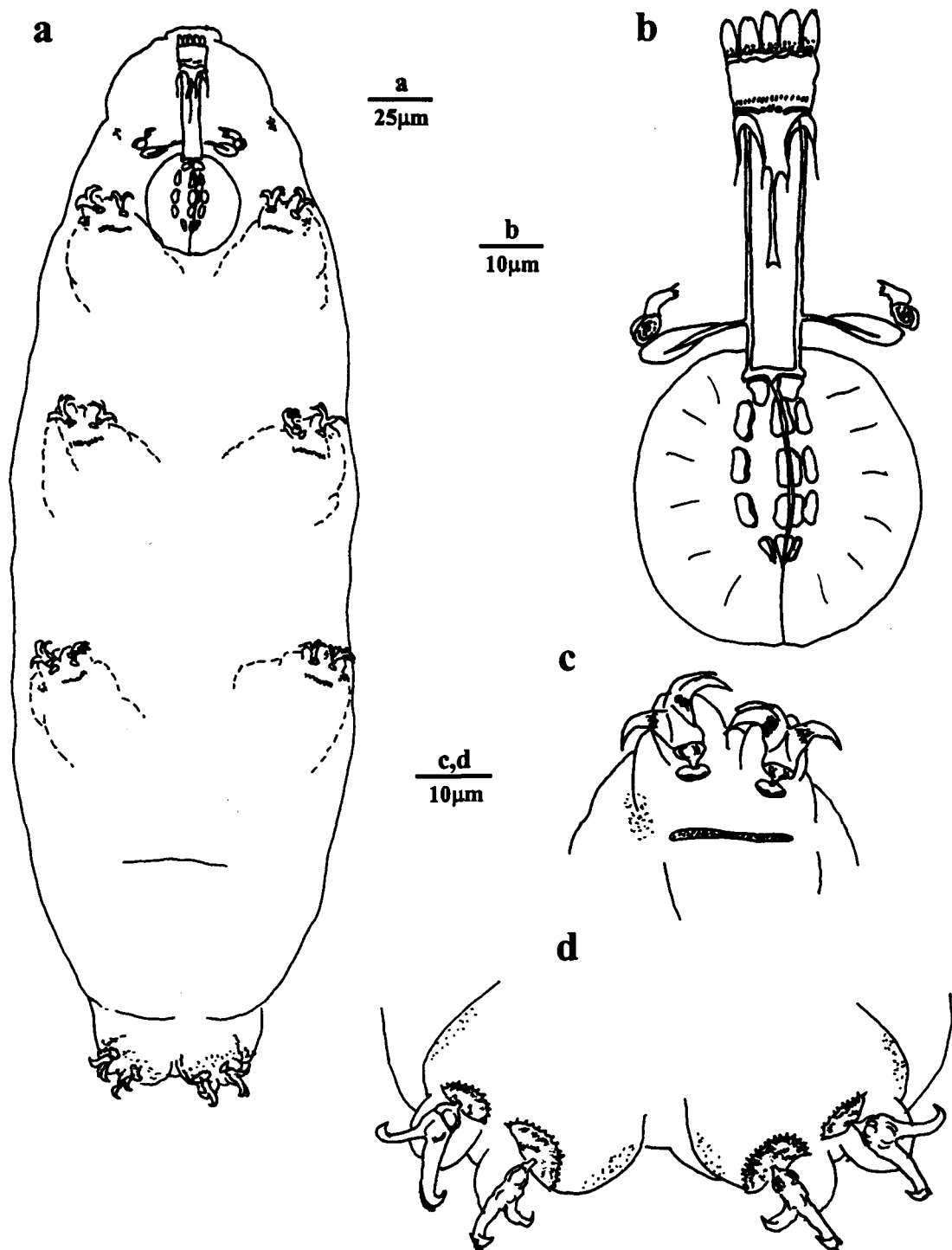


Figure 98: *Calcarobiotus hesperius* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

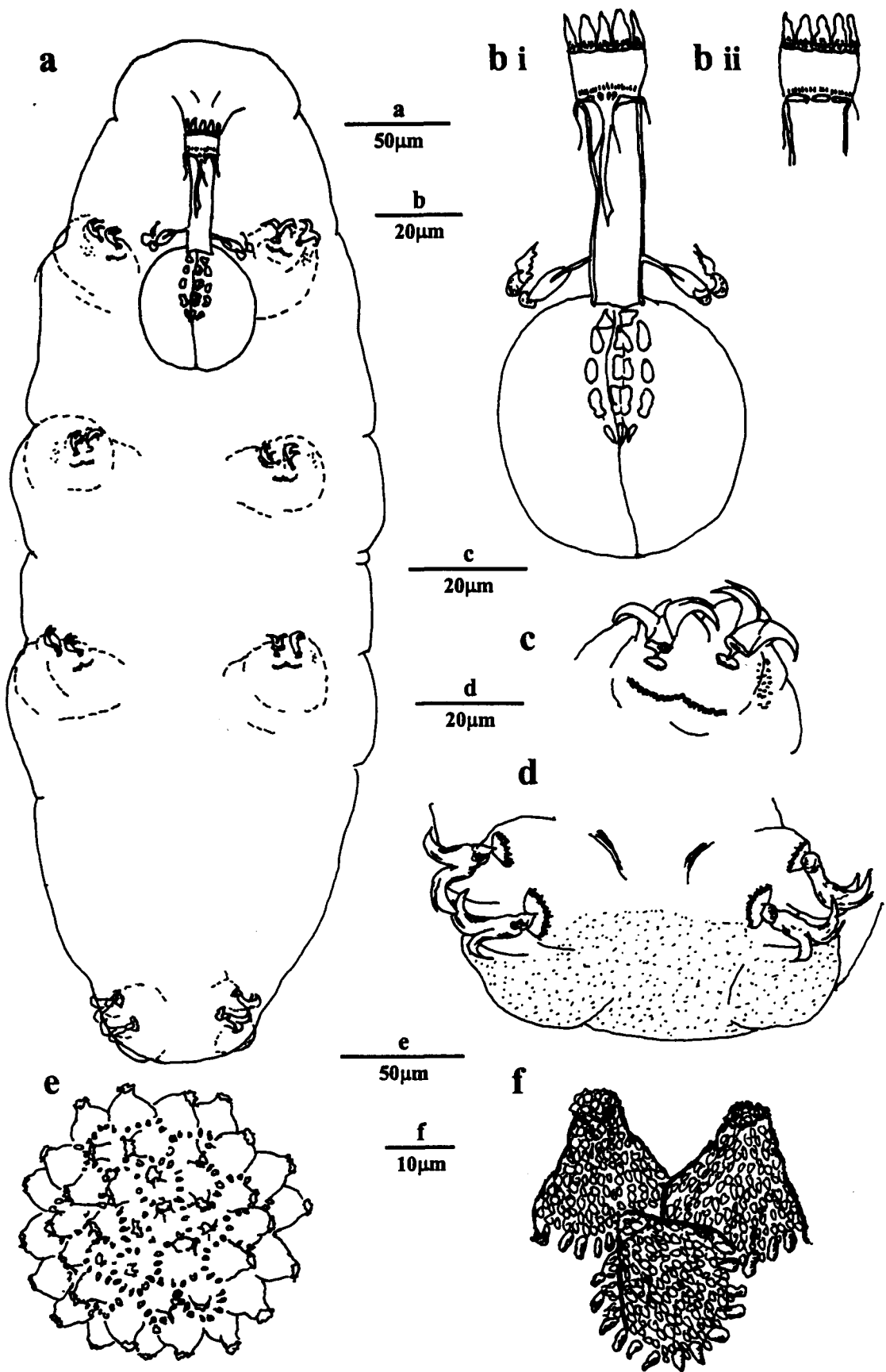


Figure 99: *Calcarobiotus maculatus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

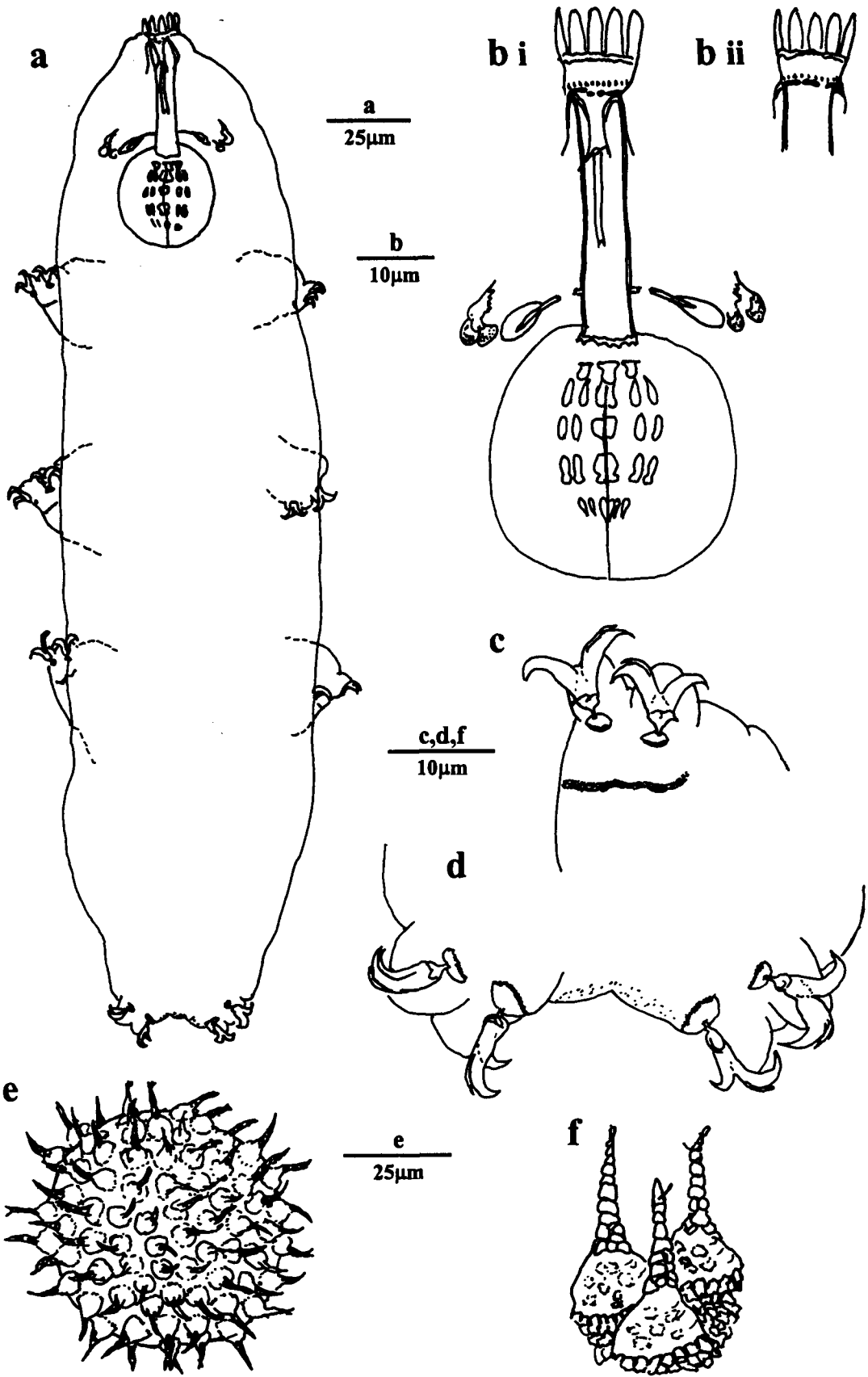


Figure 100: *Calcarobiotus microaculeus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of third leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

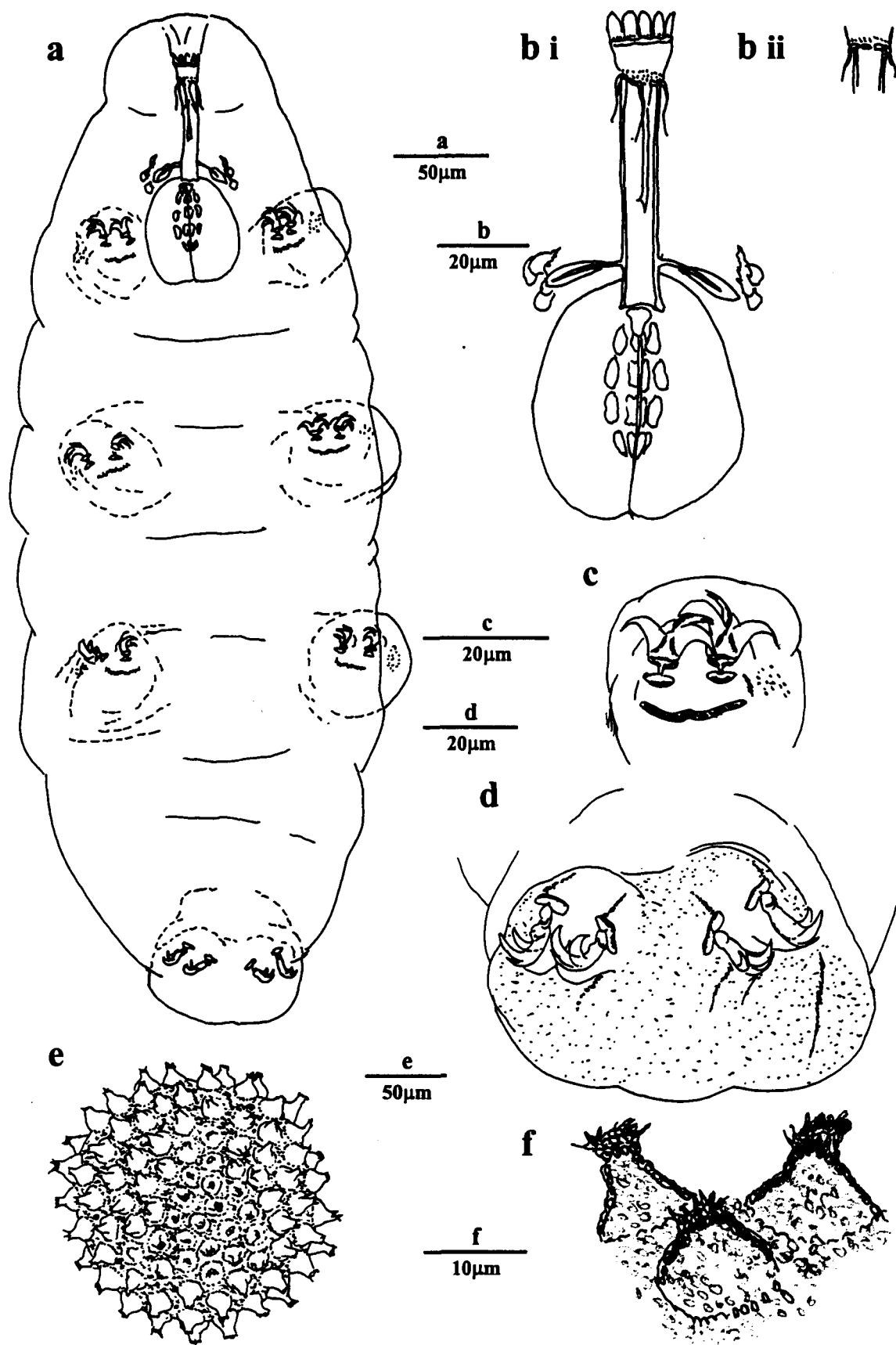


Figure 101: *Calcarobiotus reticulatus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

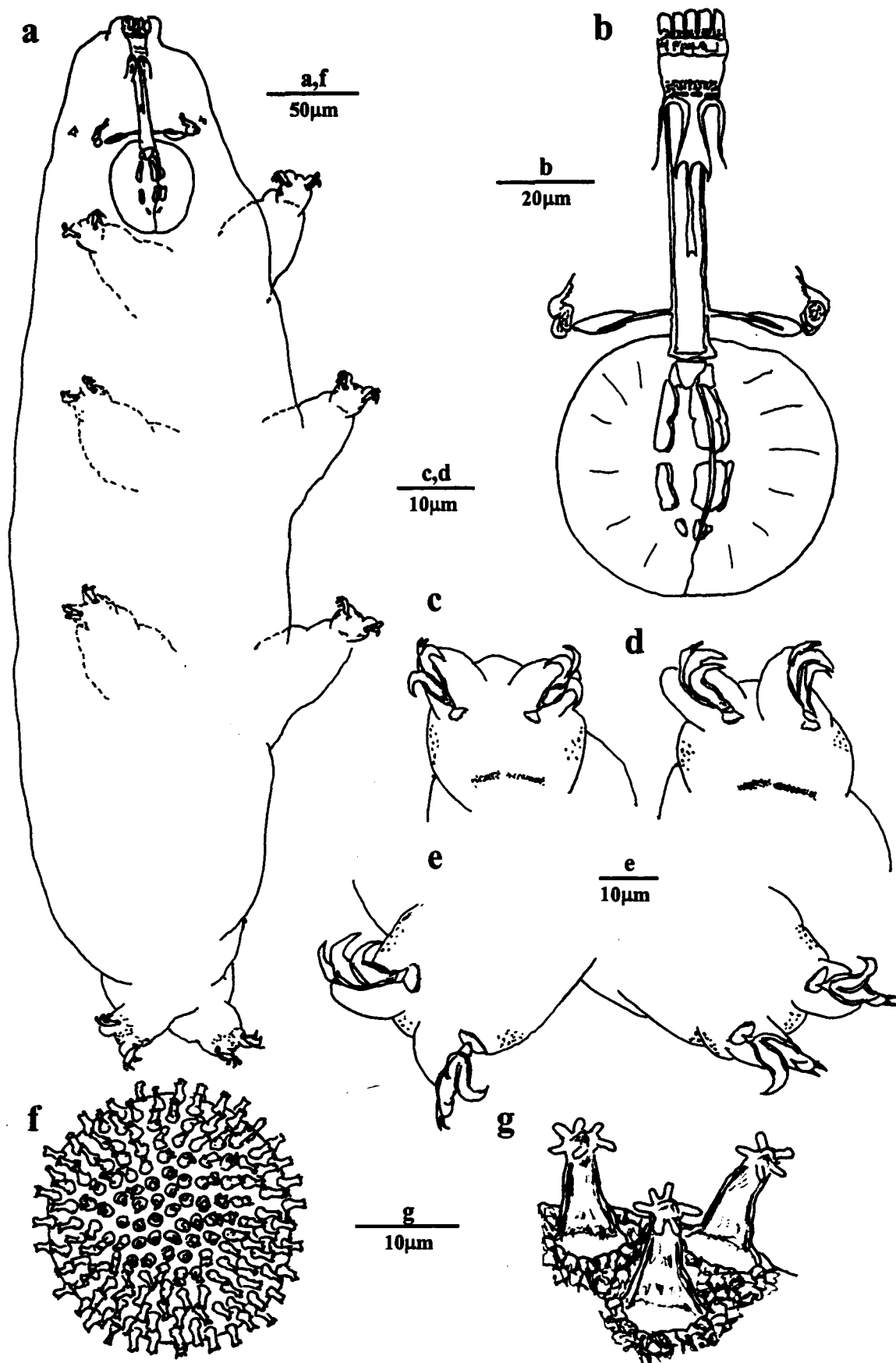


Figure 102: *Haptobiotus turritus* gen. n., sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of second leg; e. claws of fourth pair of legs; f. egg; g. egg processes.

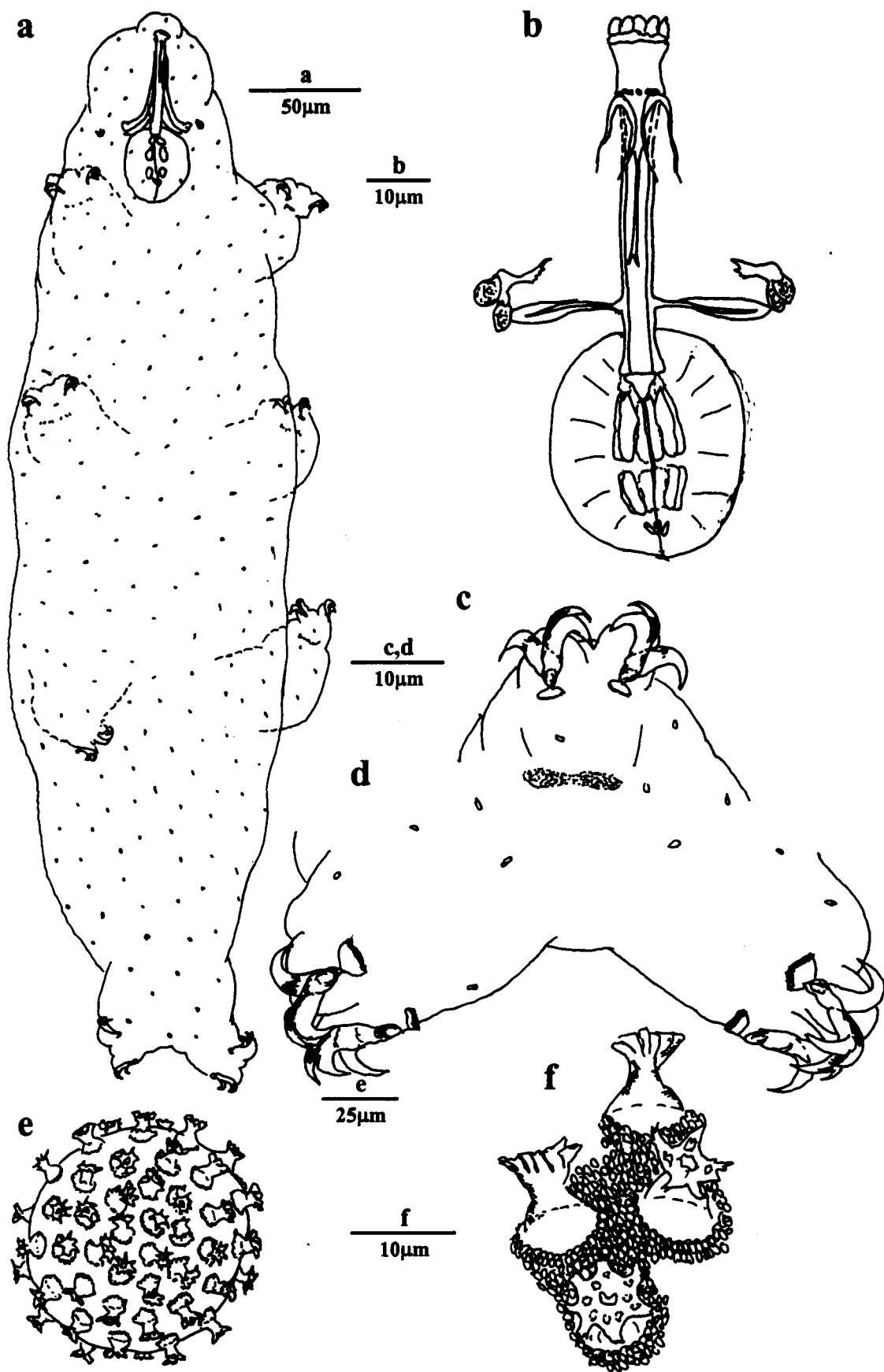


Figure 103: *Macrobiotus albus* sp.n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

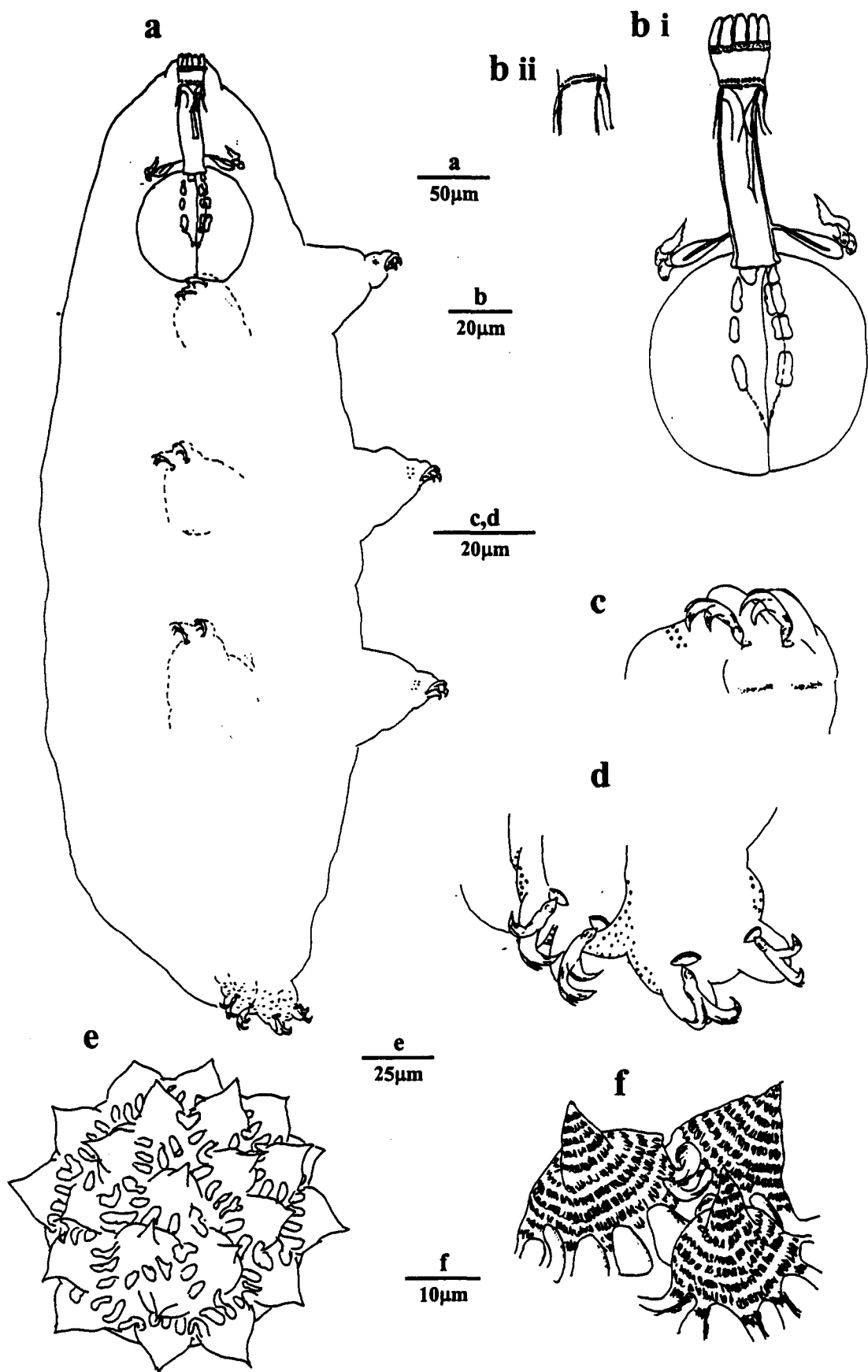


Figure 104: *Macrobiotus areolatus* Murray, 1907. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

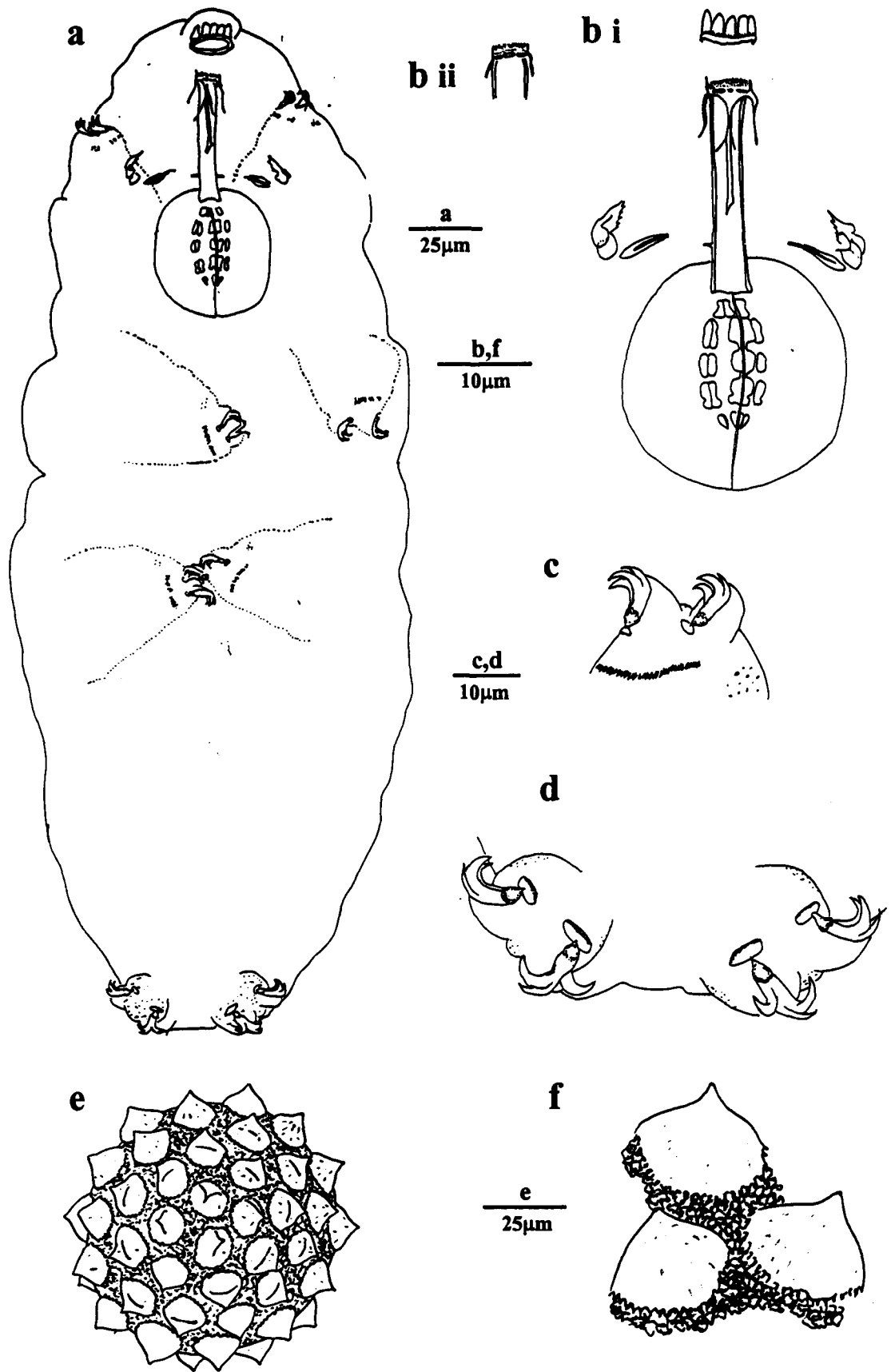


Figure 105: *Macrobiotus australis* Pilato & D'Urso, 1976 a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

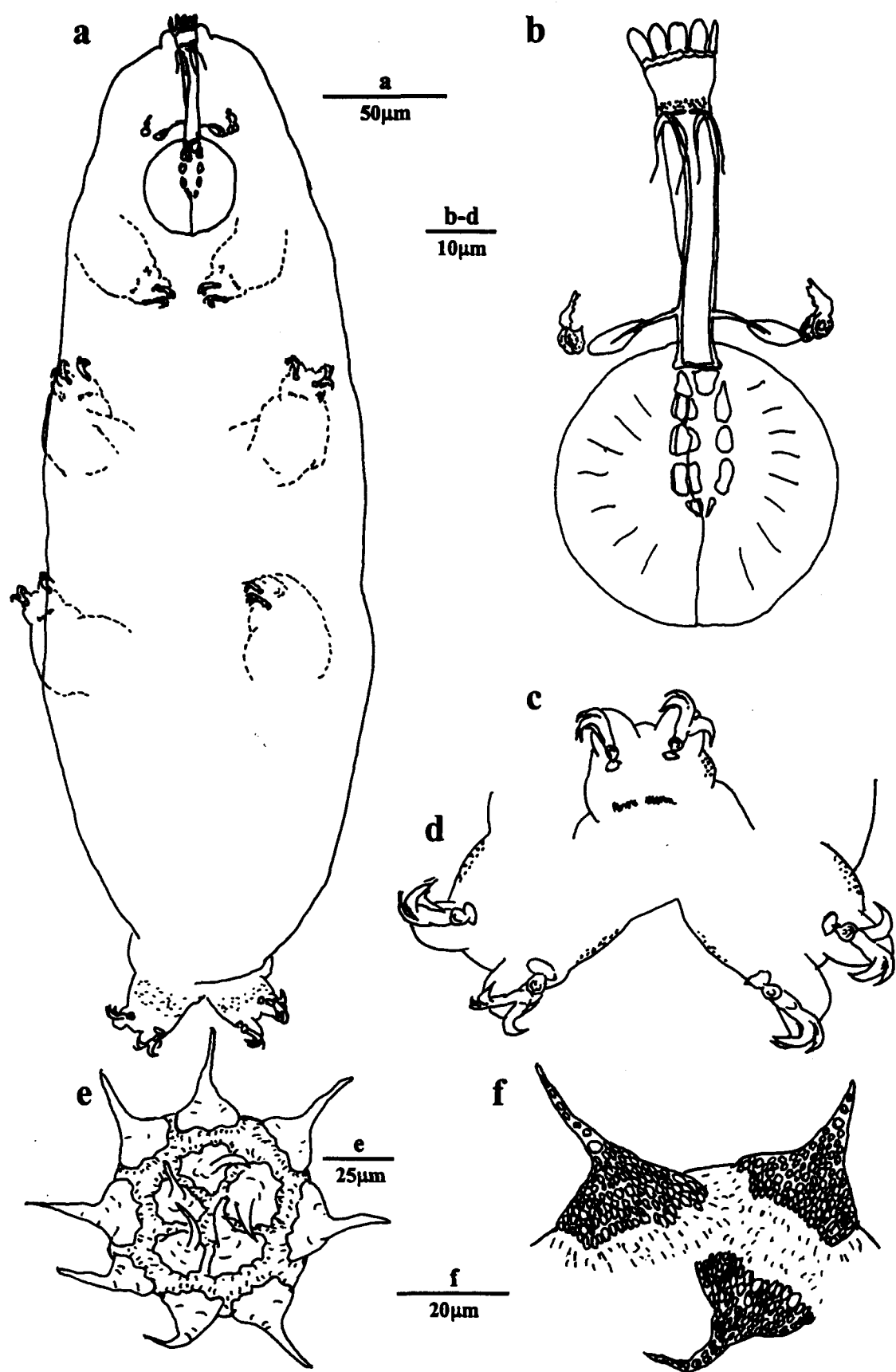


Figure 106: *Macrobiotus australoliviae* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of second leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

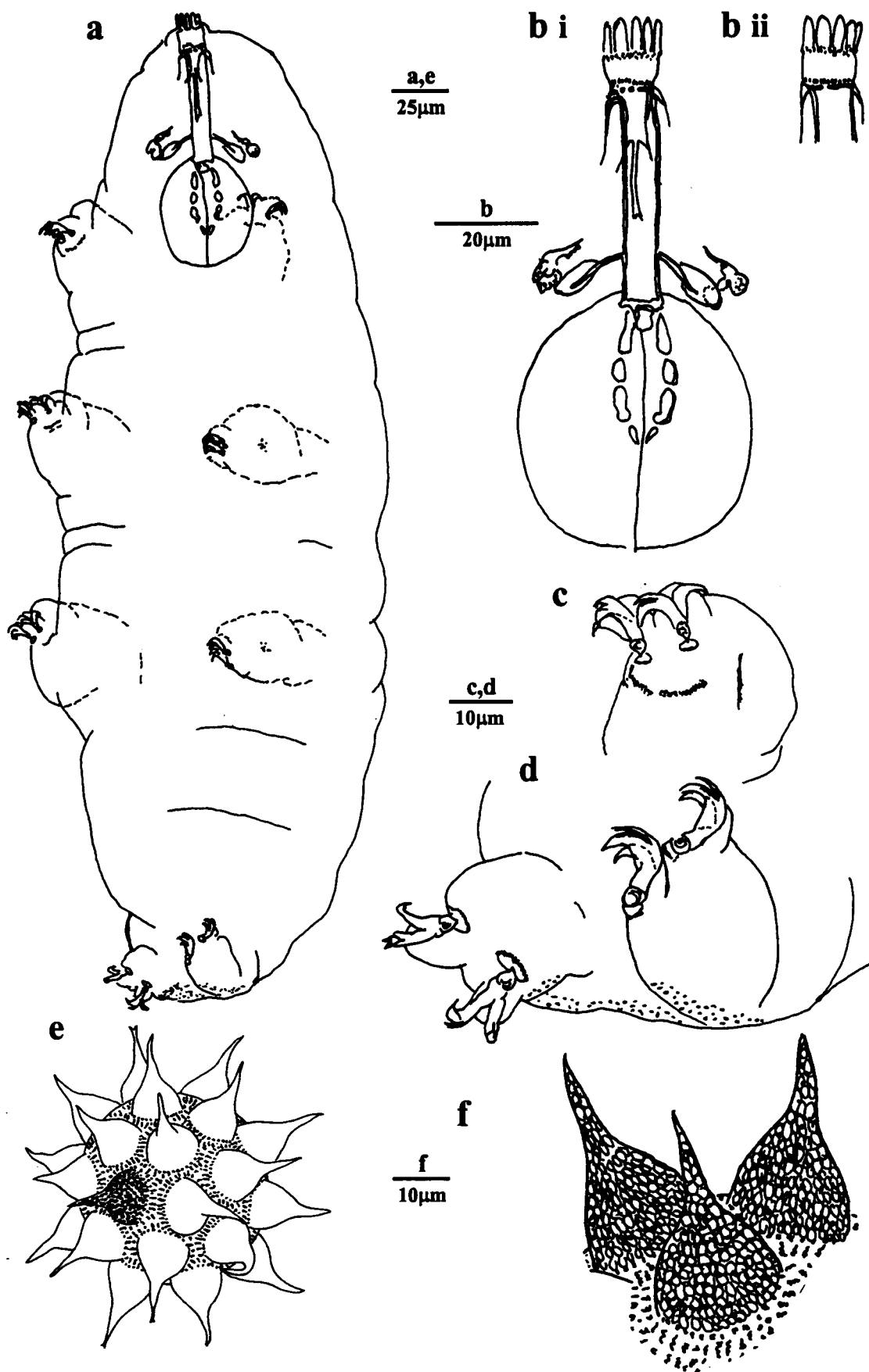


Figure 107: *Macrobotus calcareus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

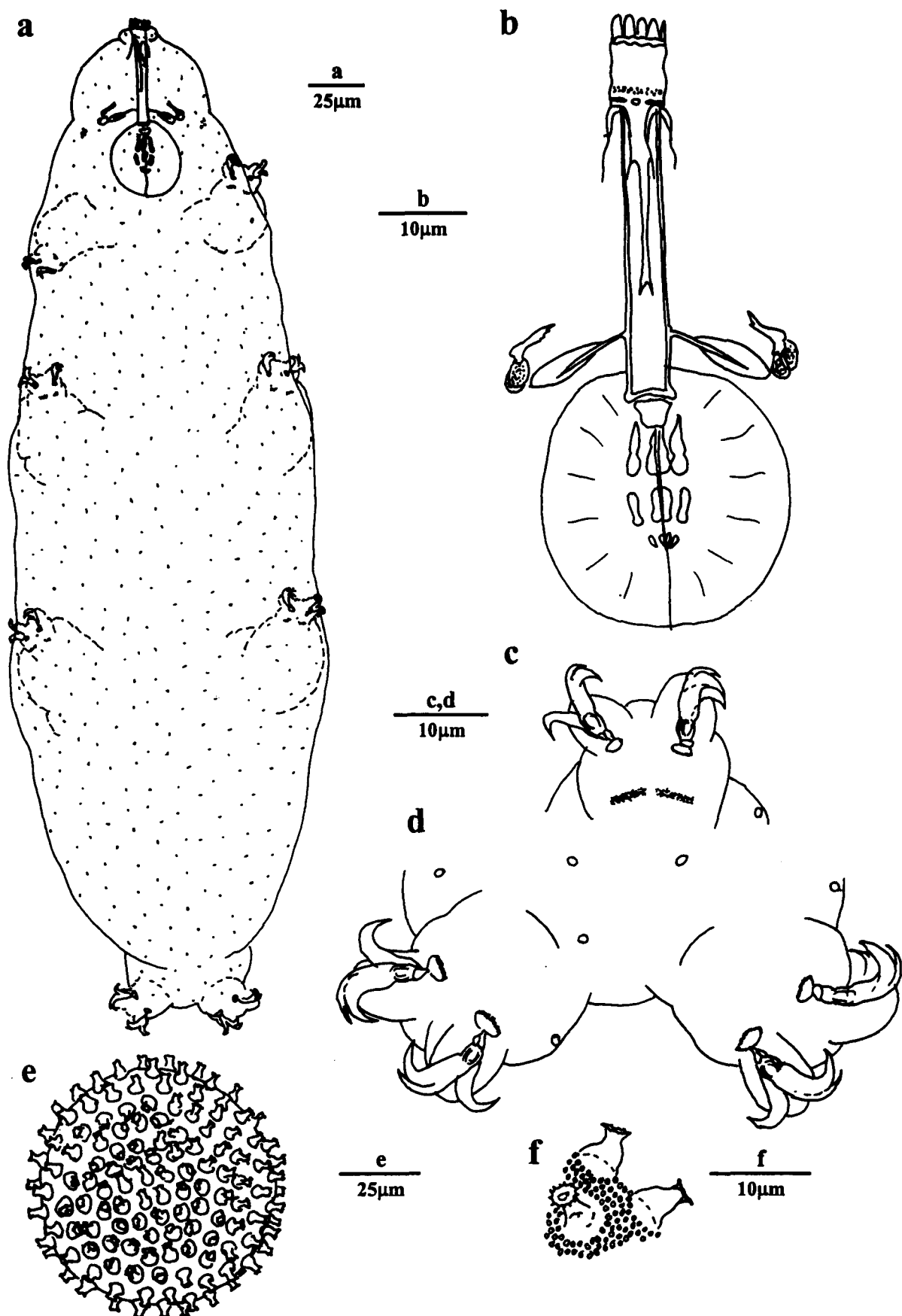


Figure 108: *Macrobiotus caniensis* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

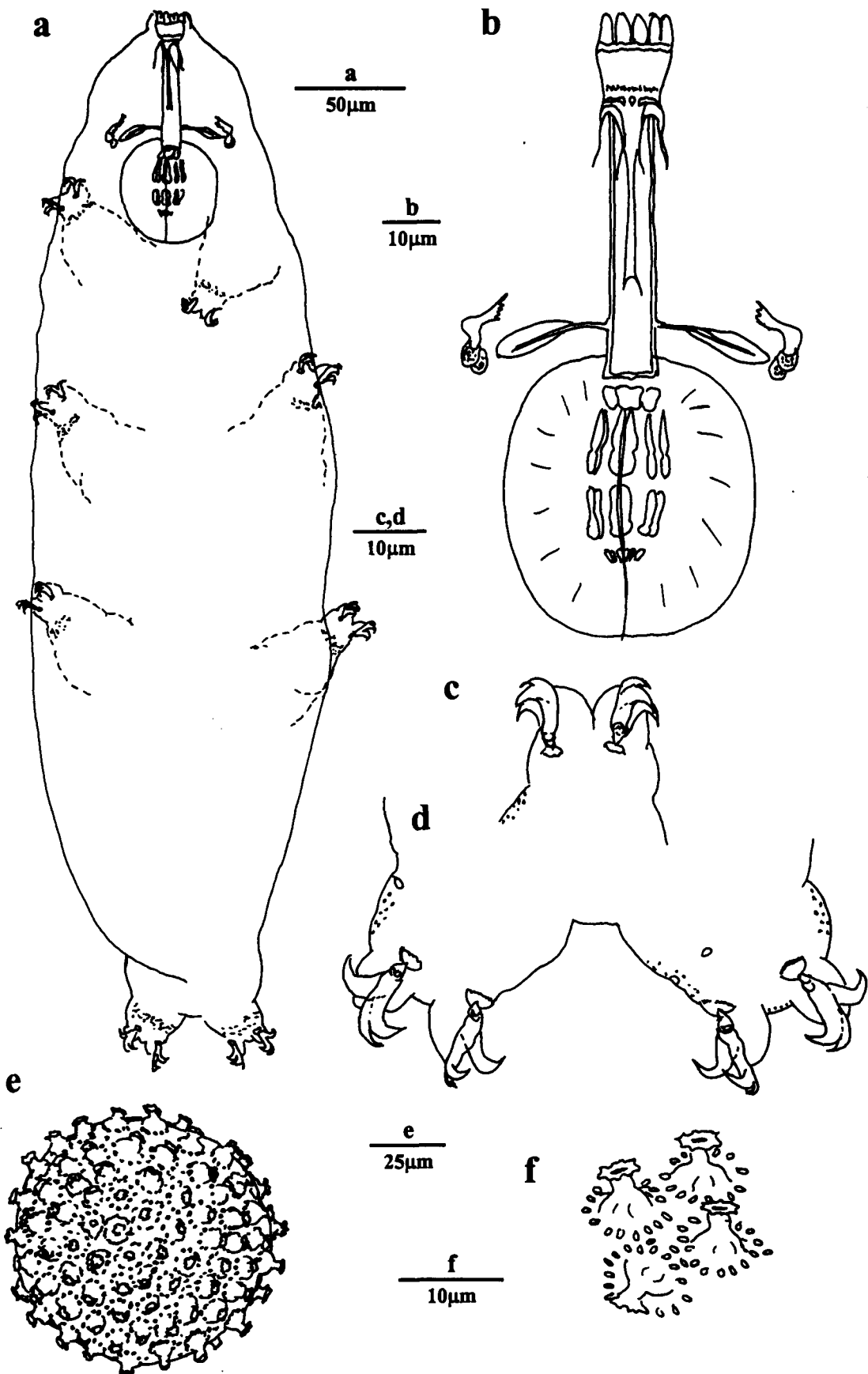


Figure 109: *Macrobiotus clivus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

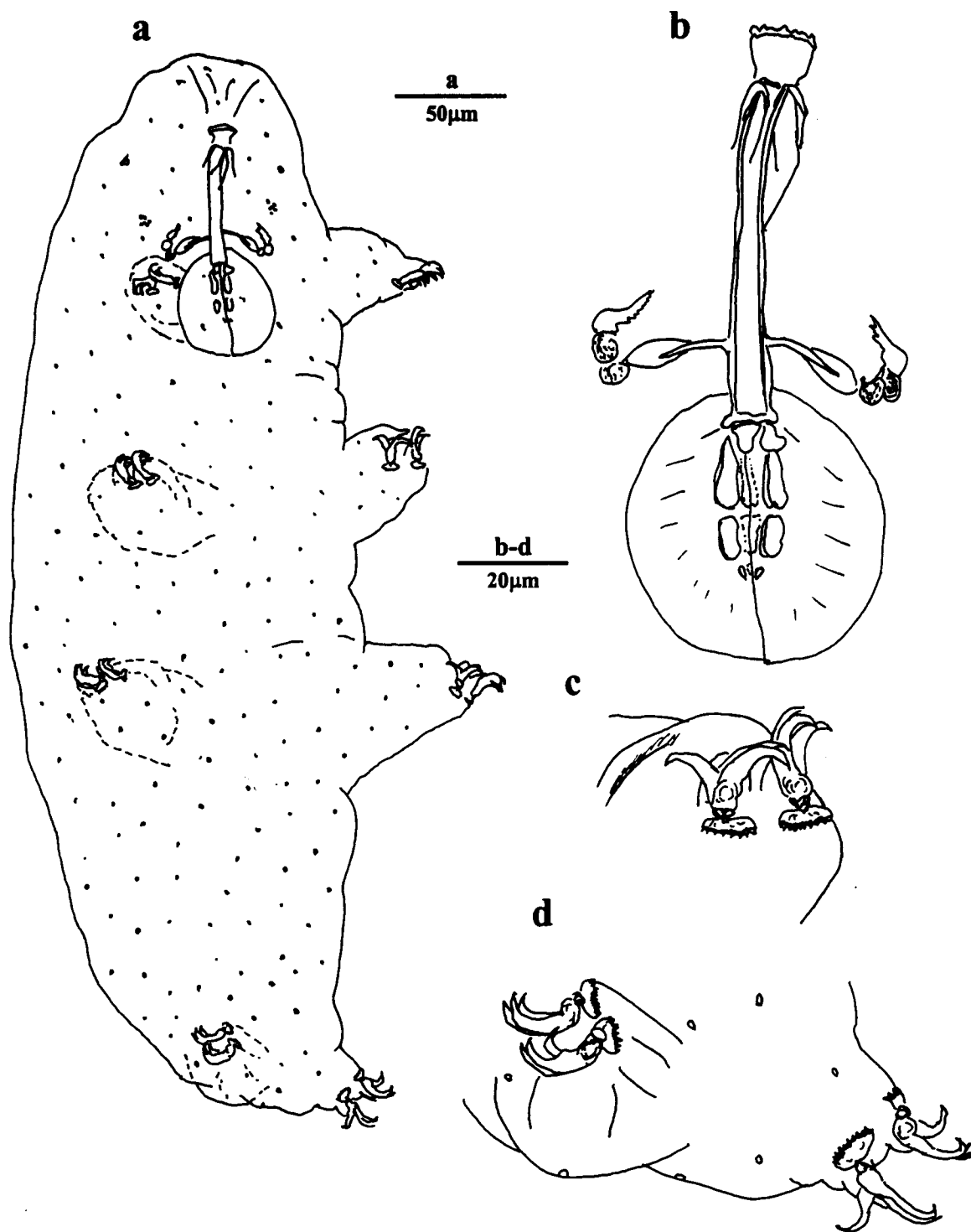


Figure 110: *Macrobiotus echinatus* sp. n. a. habitus (dorsolateral view);
b. buccopharyngeal apparatus (ventrolateral view); c. claws of second leg;
d. claws of fourth pair of legs.

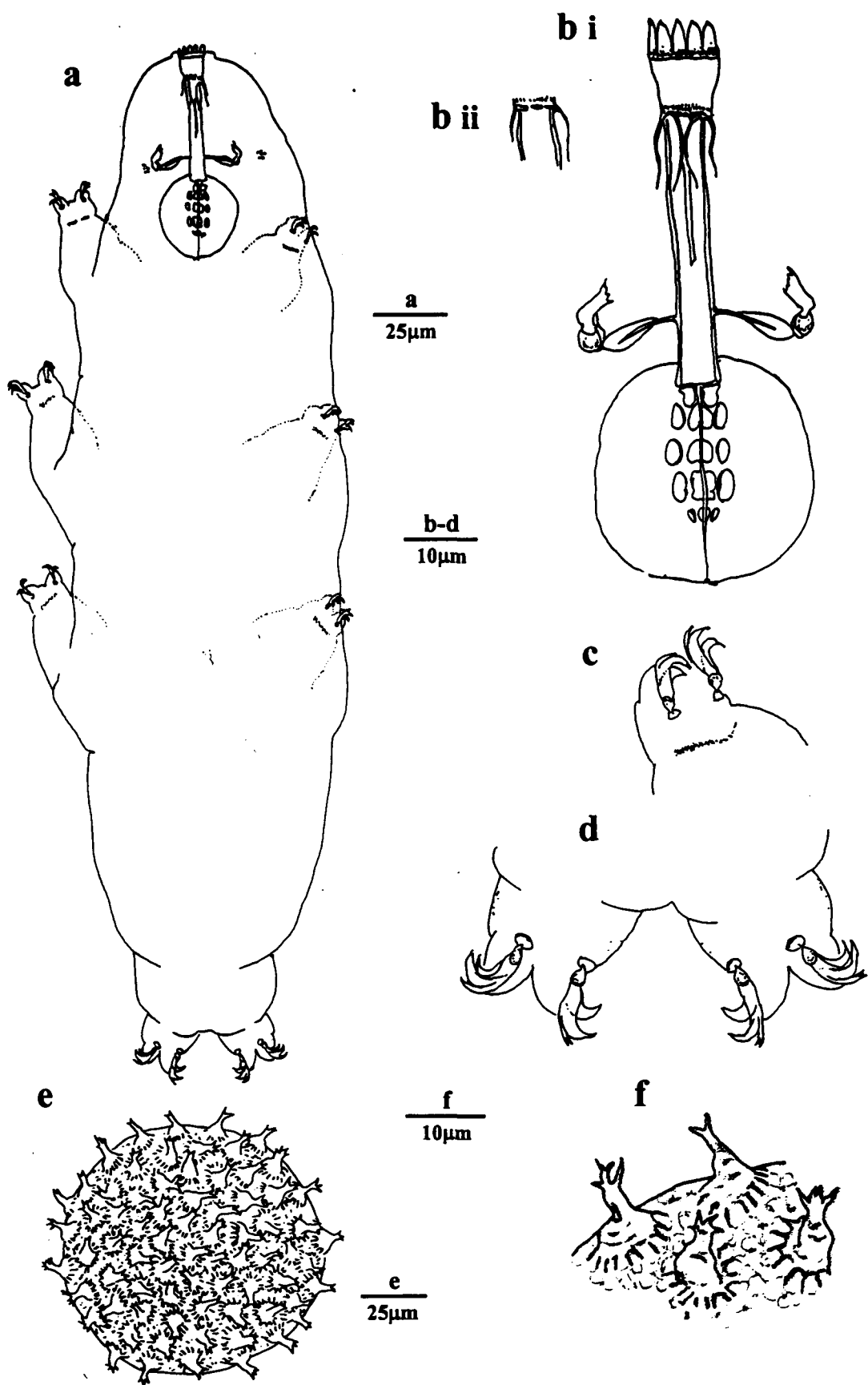


Figure 111: *Macrobotus furciger* Murray, 1906. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

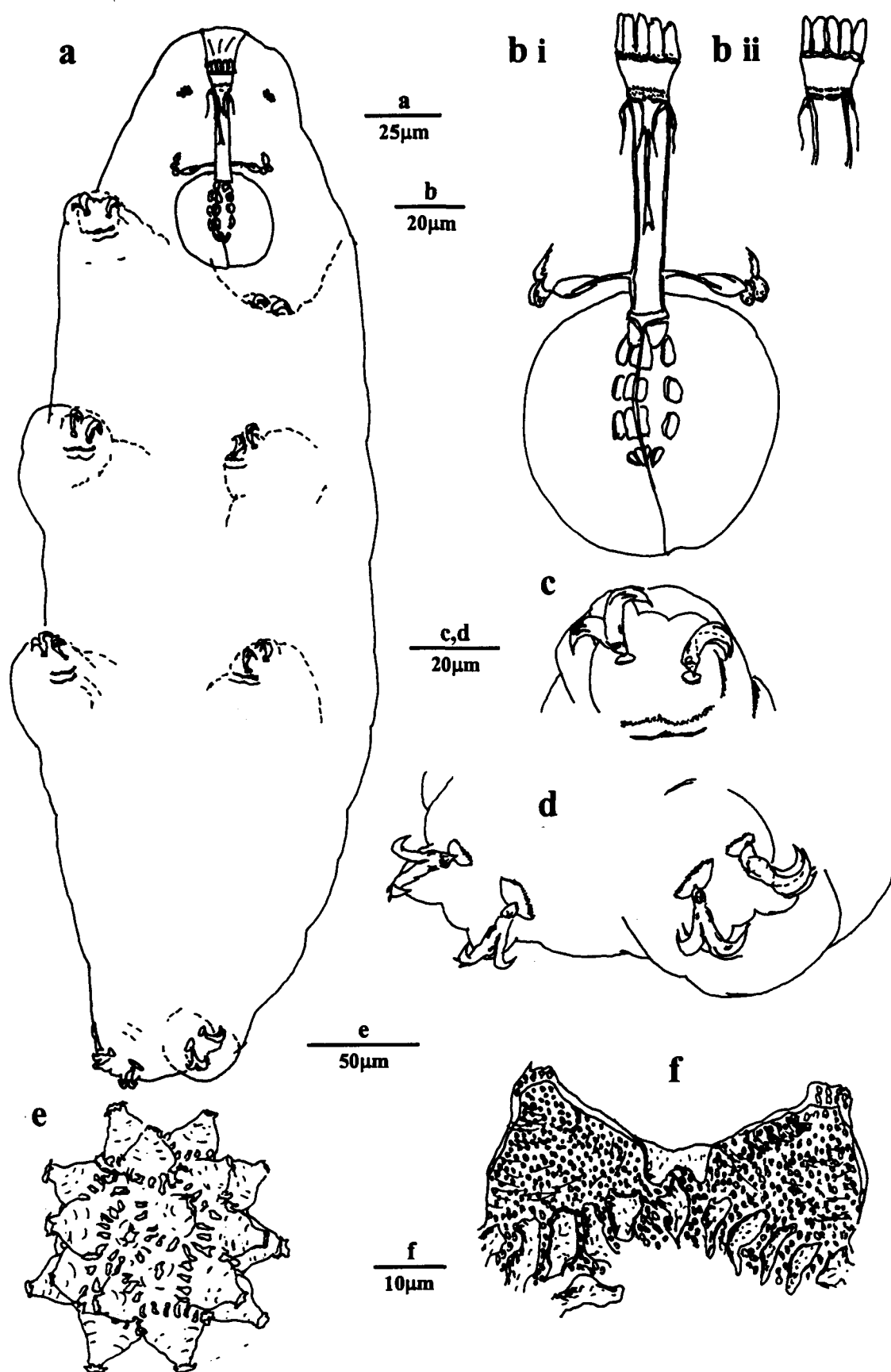


Figure 112: *Macrobiotus fuscus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

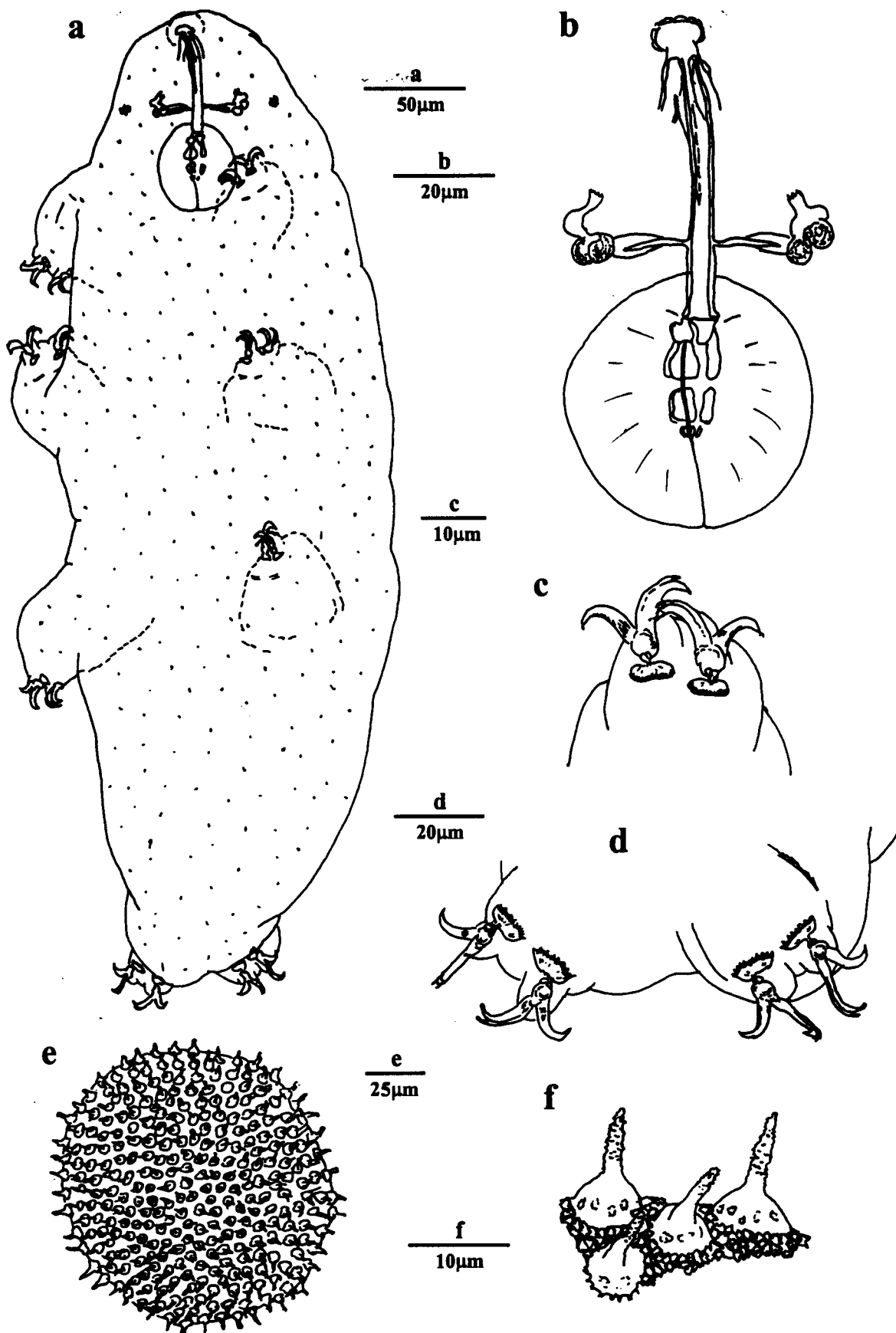


Figure 113: *Macrobiotus galorensis* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

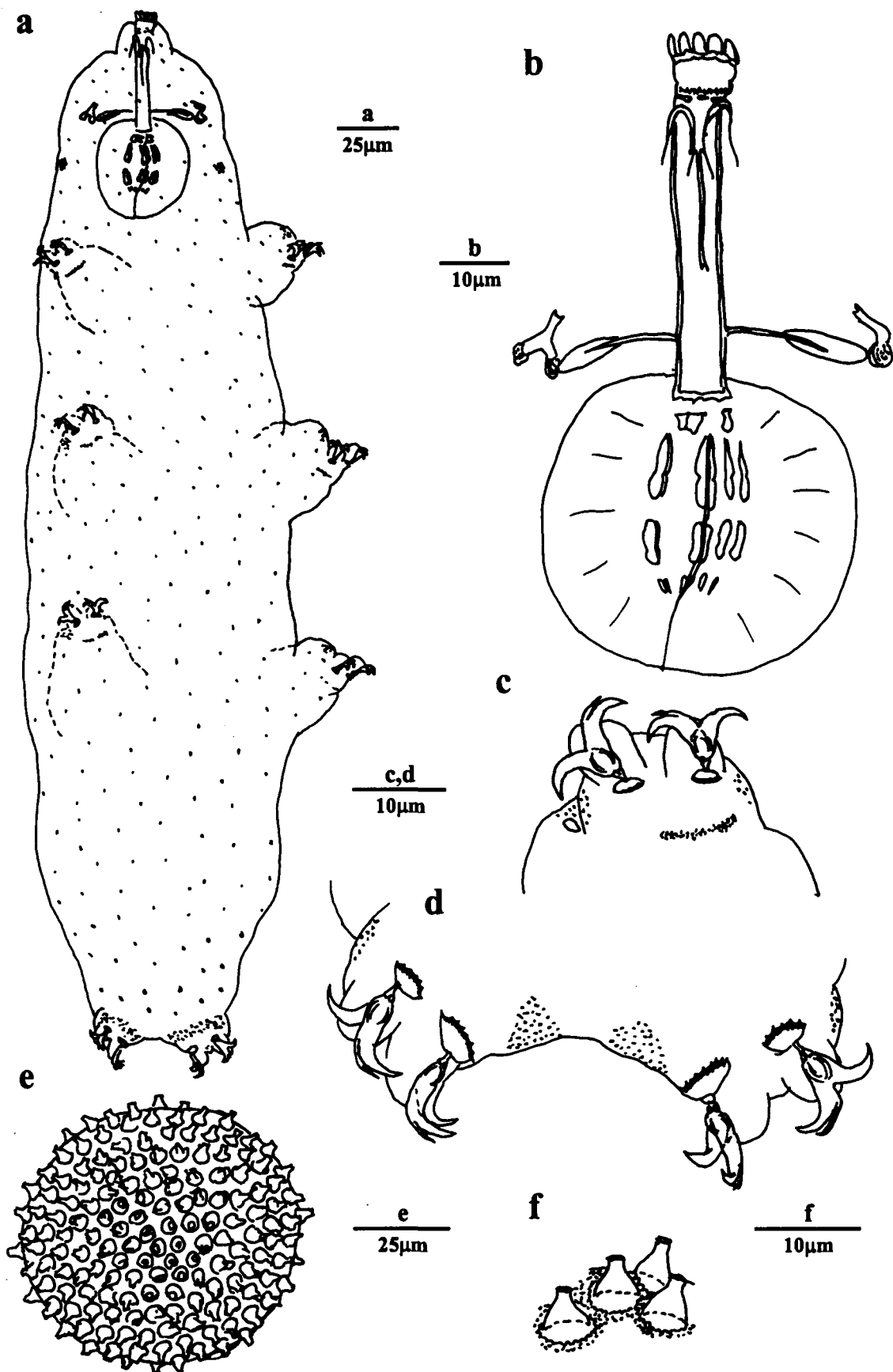


Figure 114: *Macrobotus guttus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

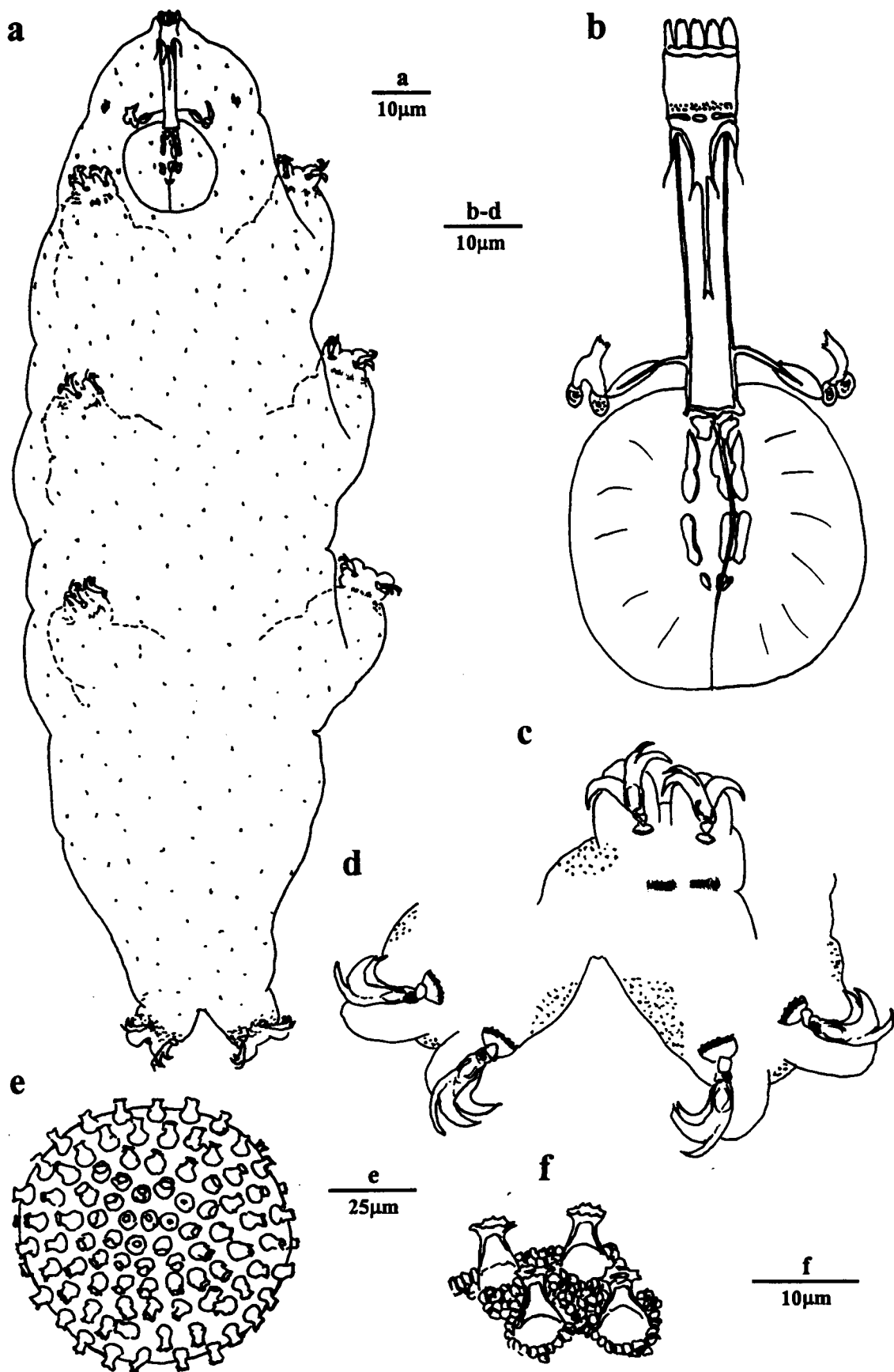


Figure 115: *Macrobotus hesperius* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

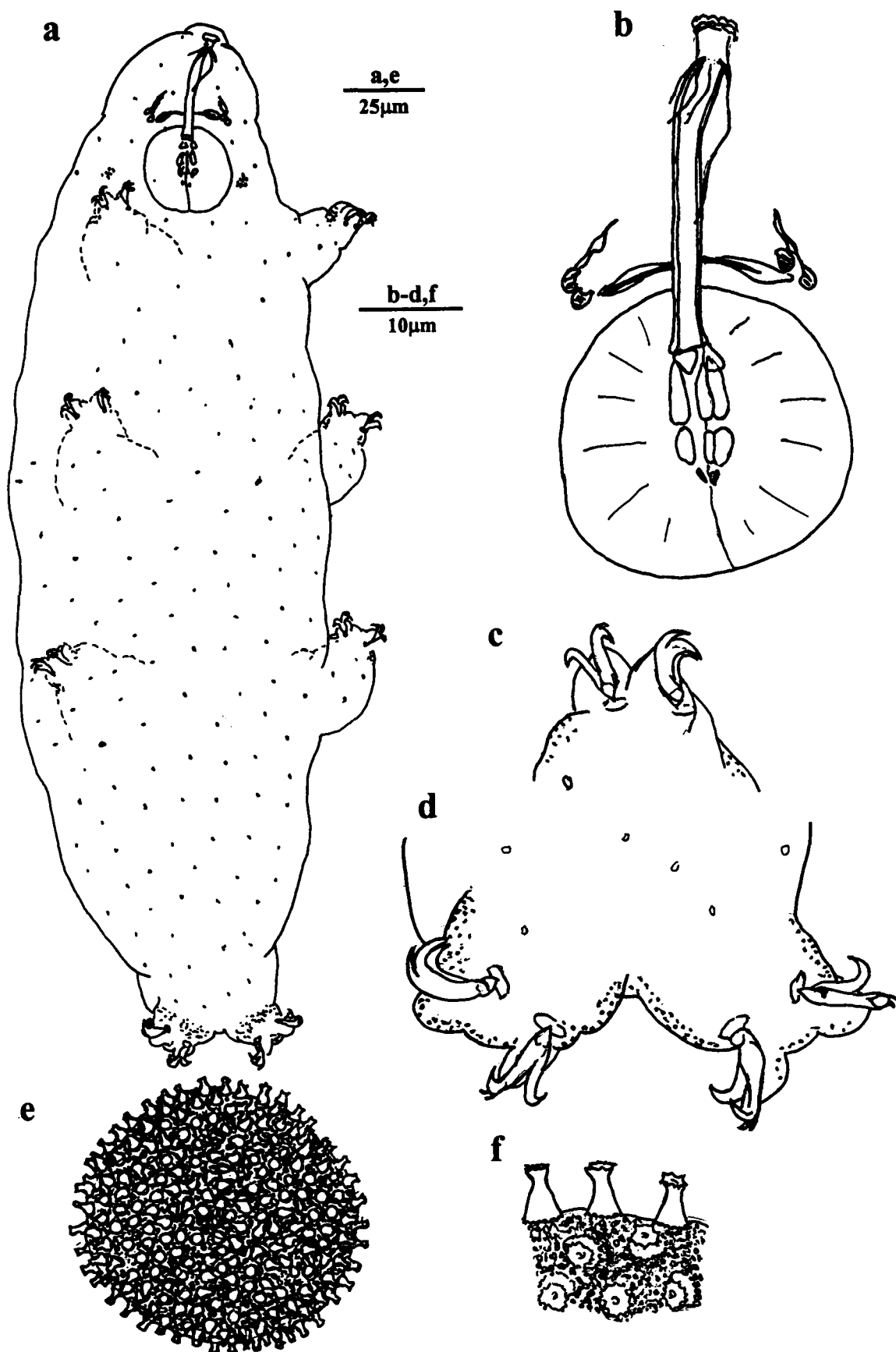


Figure 116: *Macrobotus hibiscus* de Barros, 1942. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

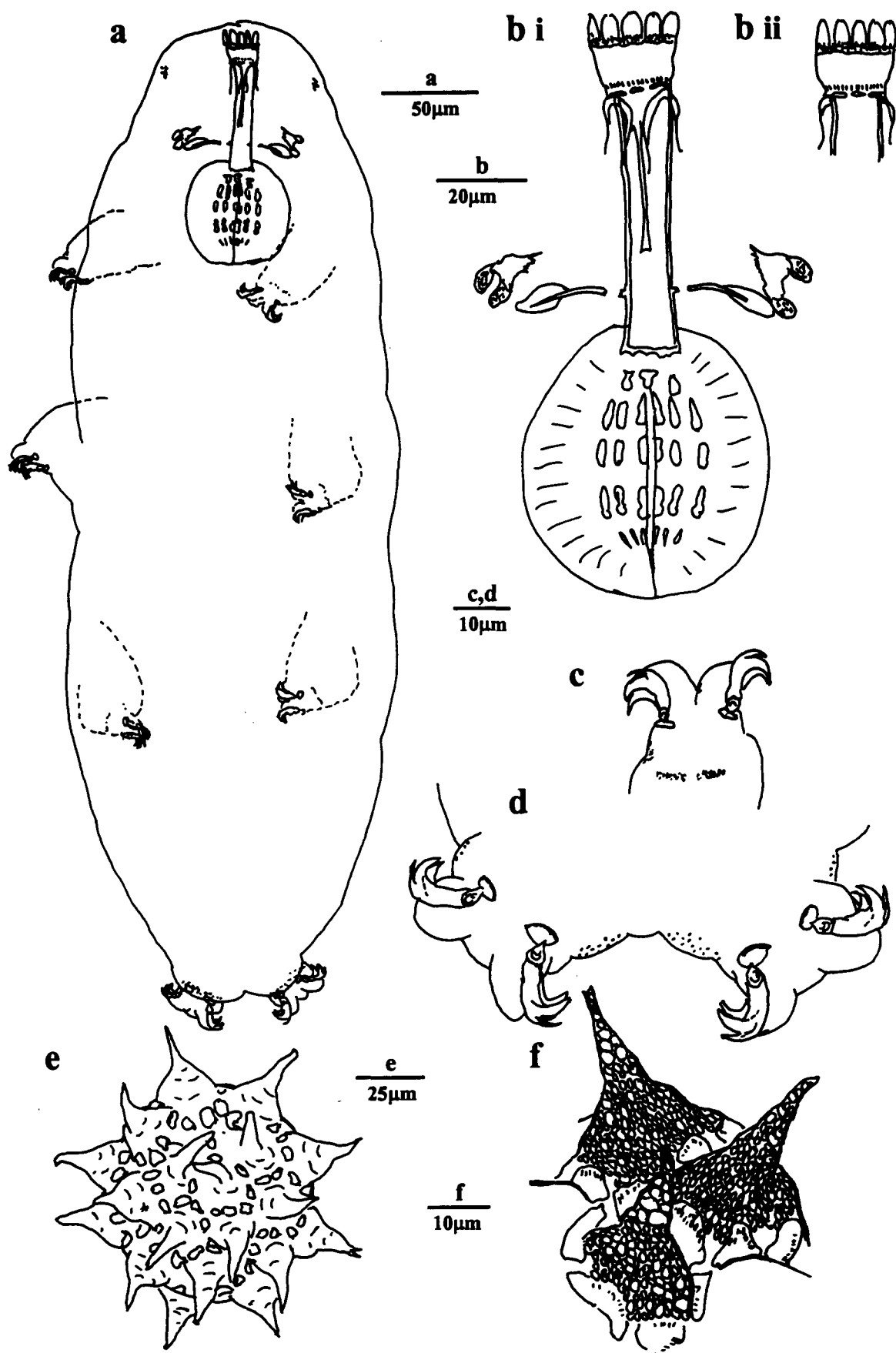


Figure 117: *Macrobiotus hieronimi* Pilato & Claxton, 1988. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

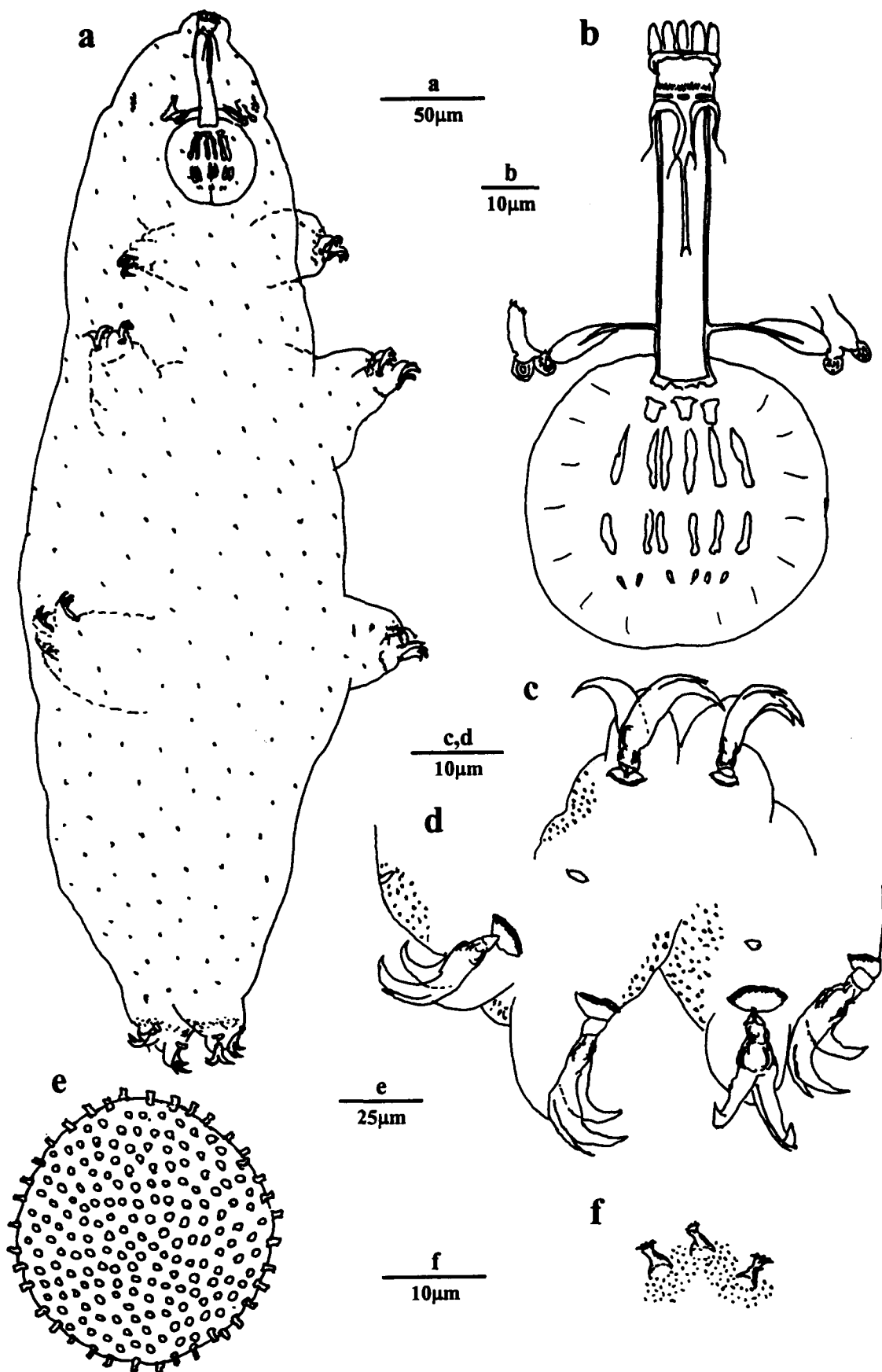


Figure 118: *Macrobiotus microcalix* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

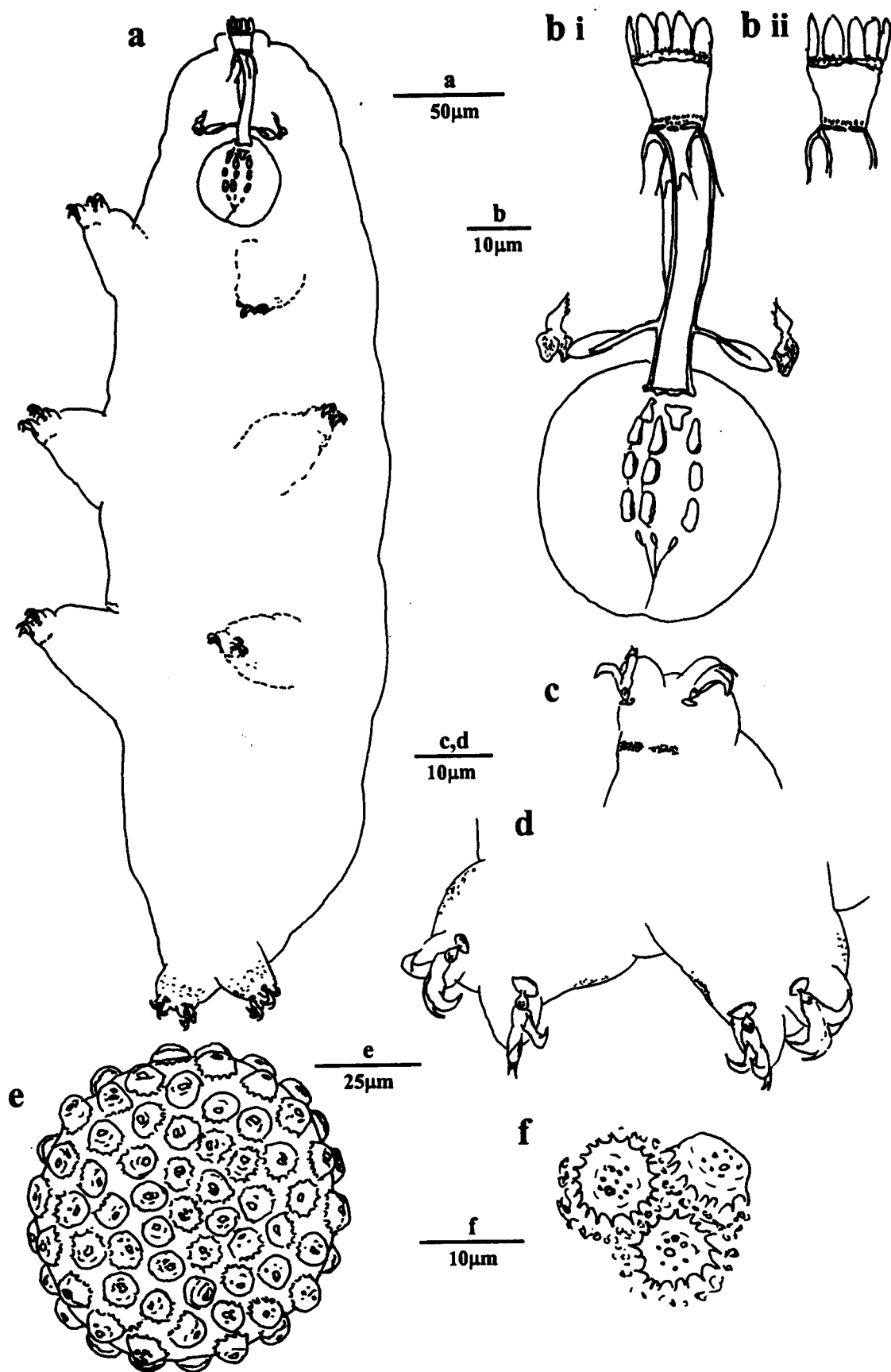


Figure 119: *Macrobiotus montanus* Murray, 1910. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

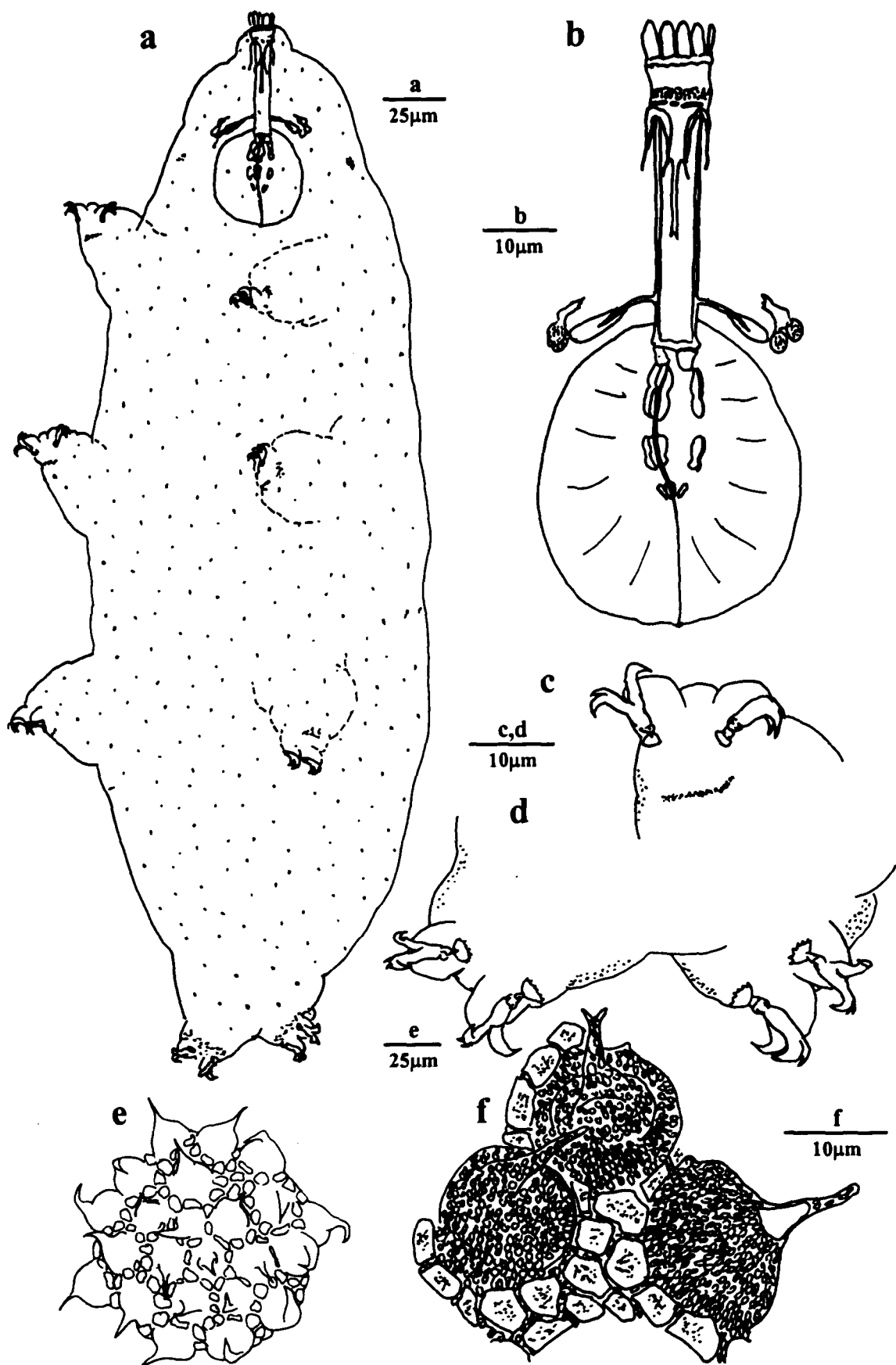


Figure 120: *Macrobiotus nemus* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

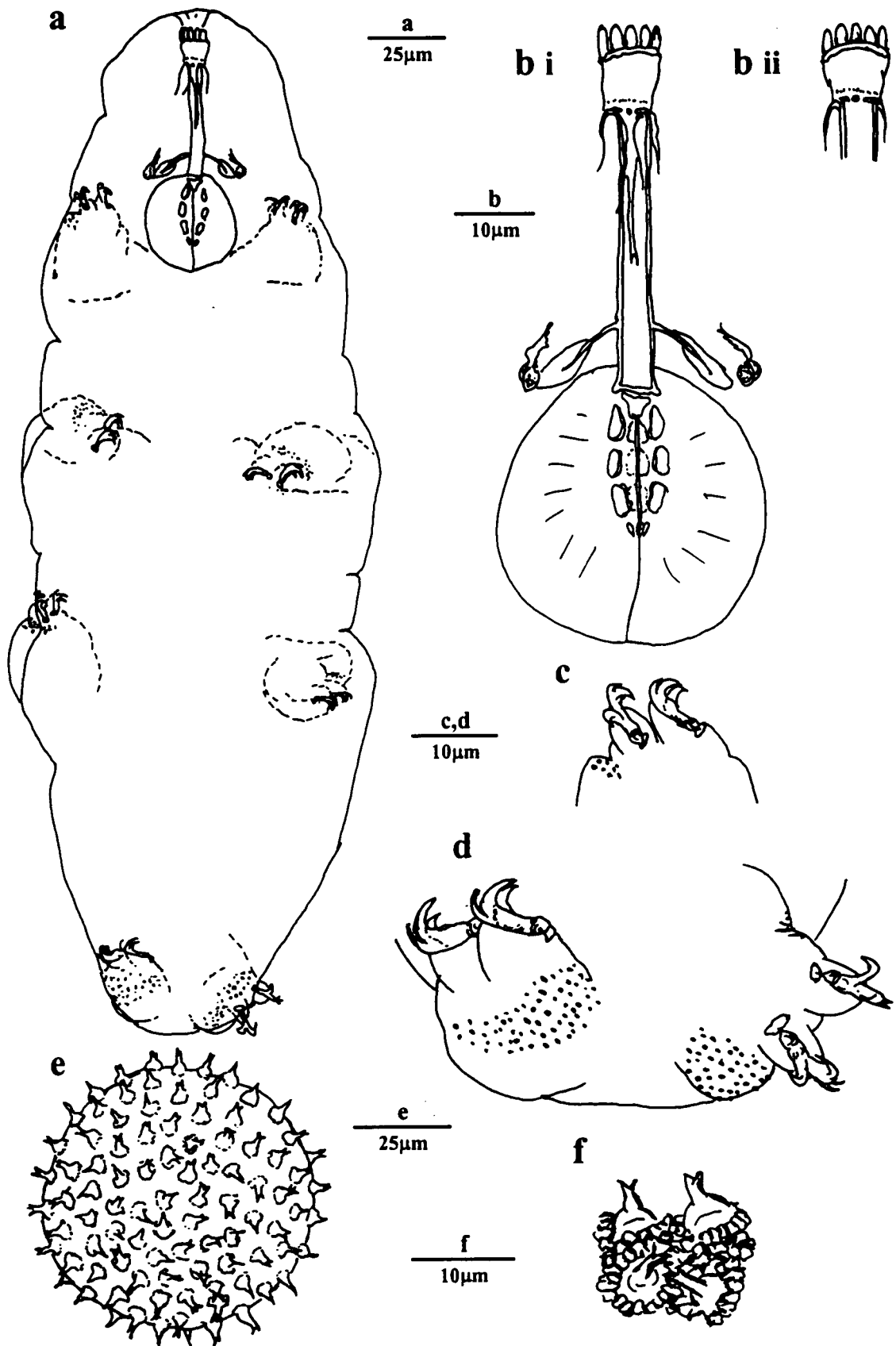


Figure 121: *Macrobiotus orcadensis* Murray, 1907. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

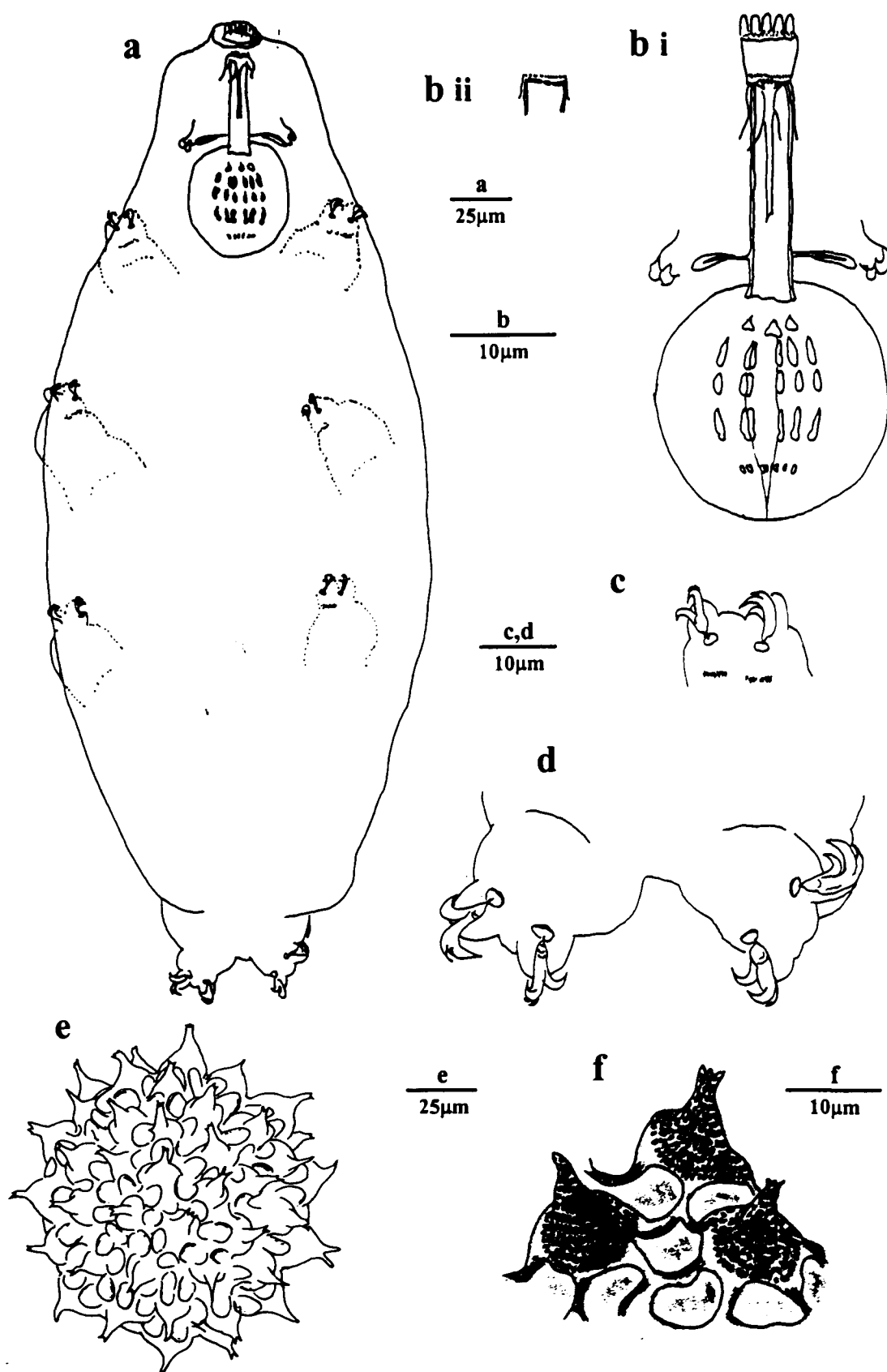


Figure 122: *Macrobiotus peteri* Pilato, Claxton & Binda, 1989. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

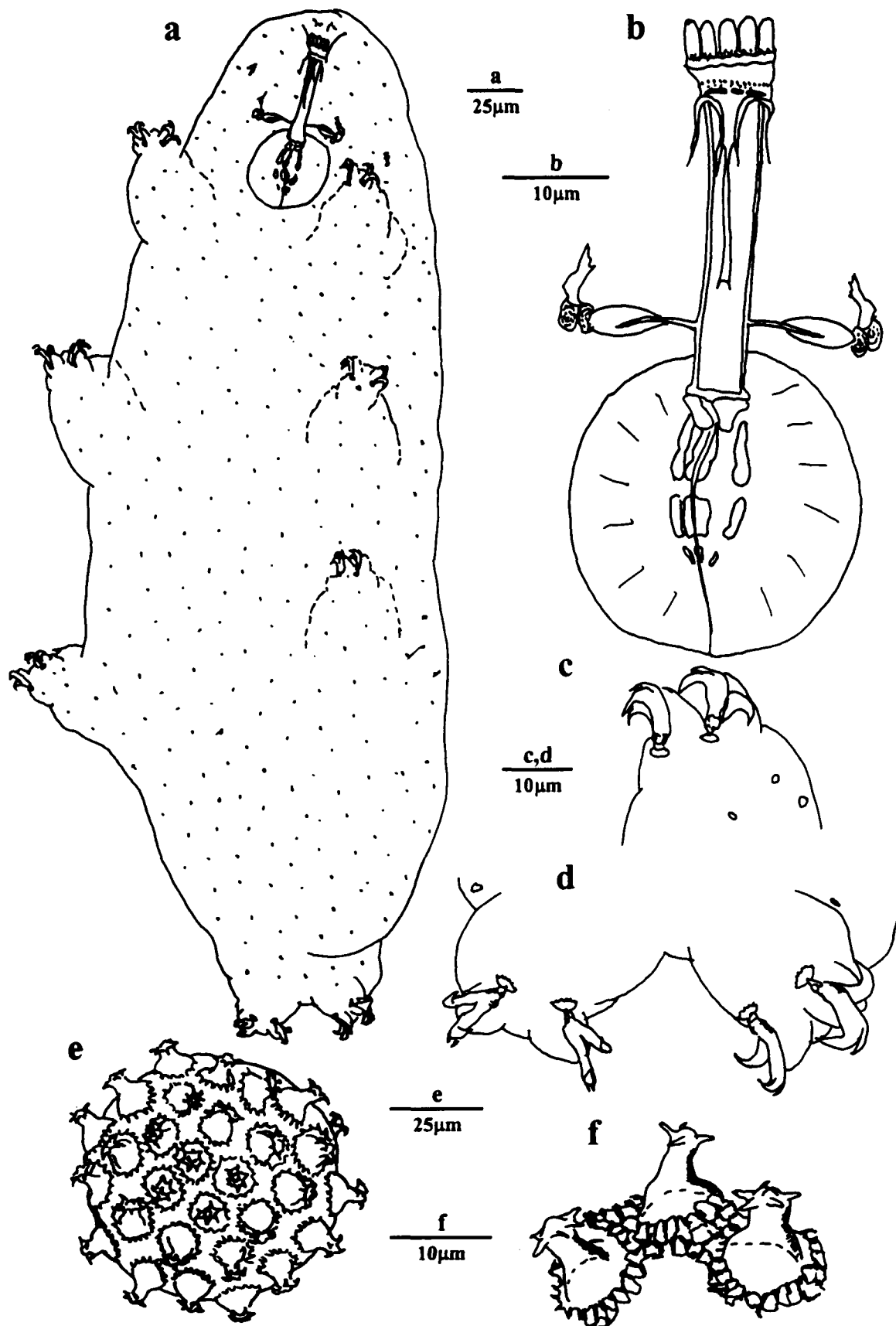


Figure 123: *Macrobotus purpureus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

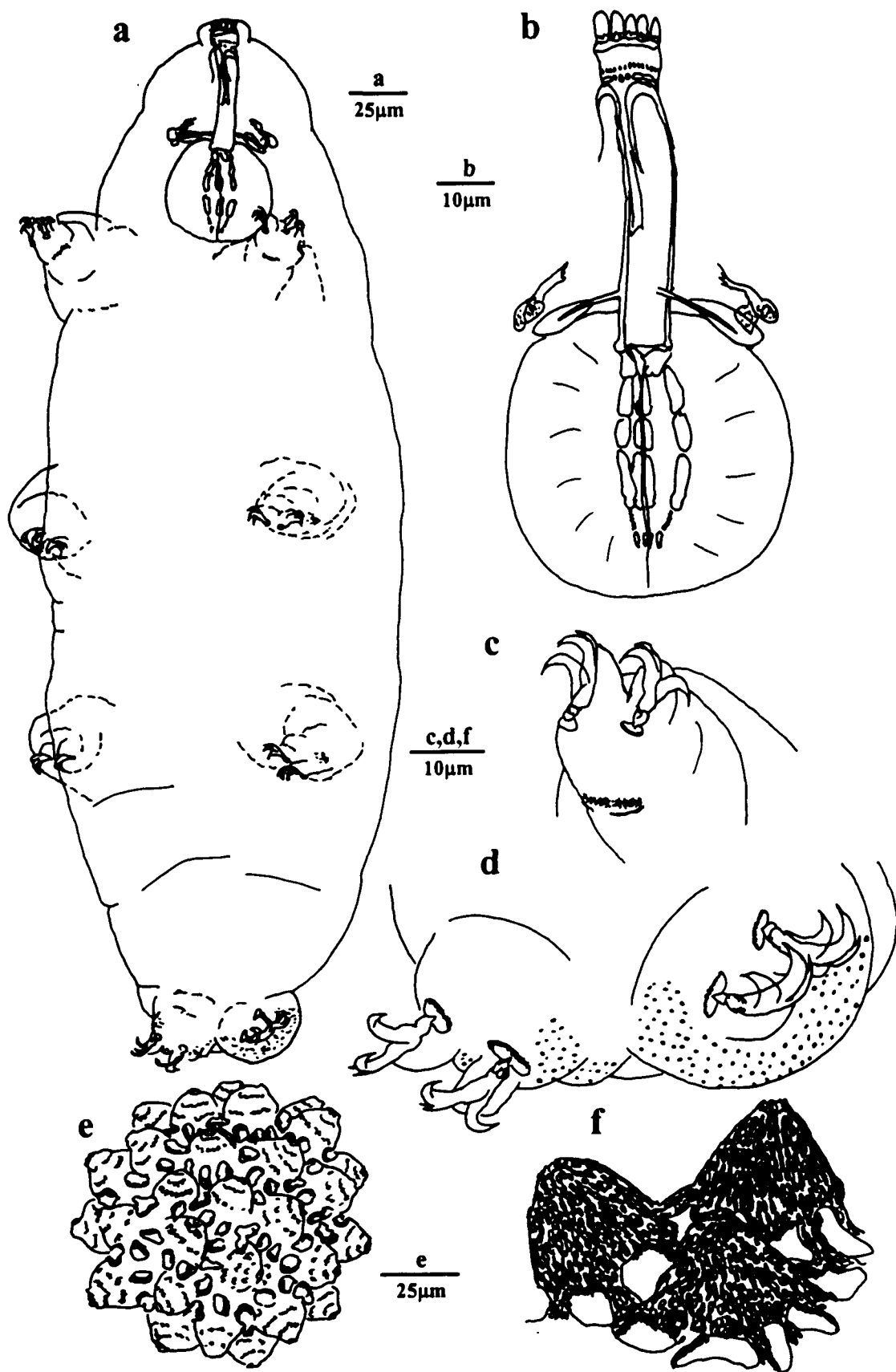


Figure 124: *Macrobiotus richtersi* Murray, 1911. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

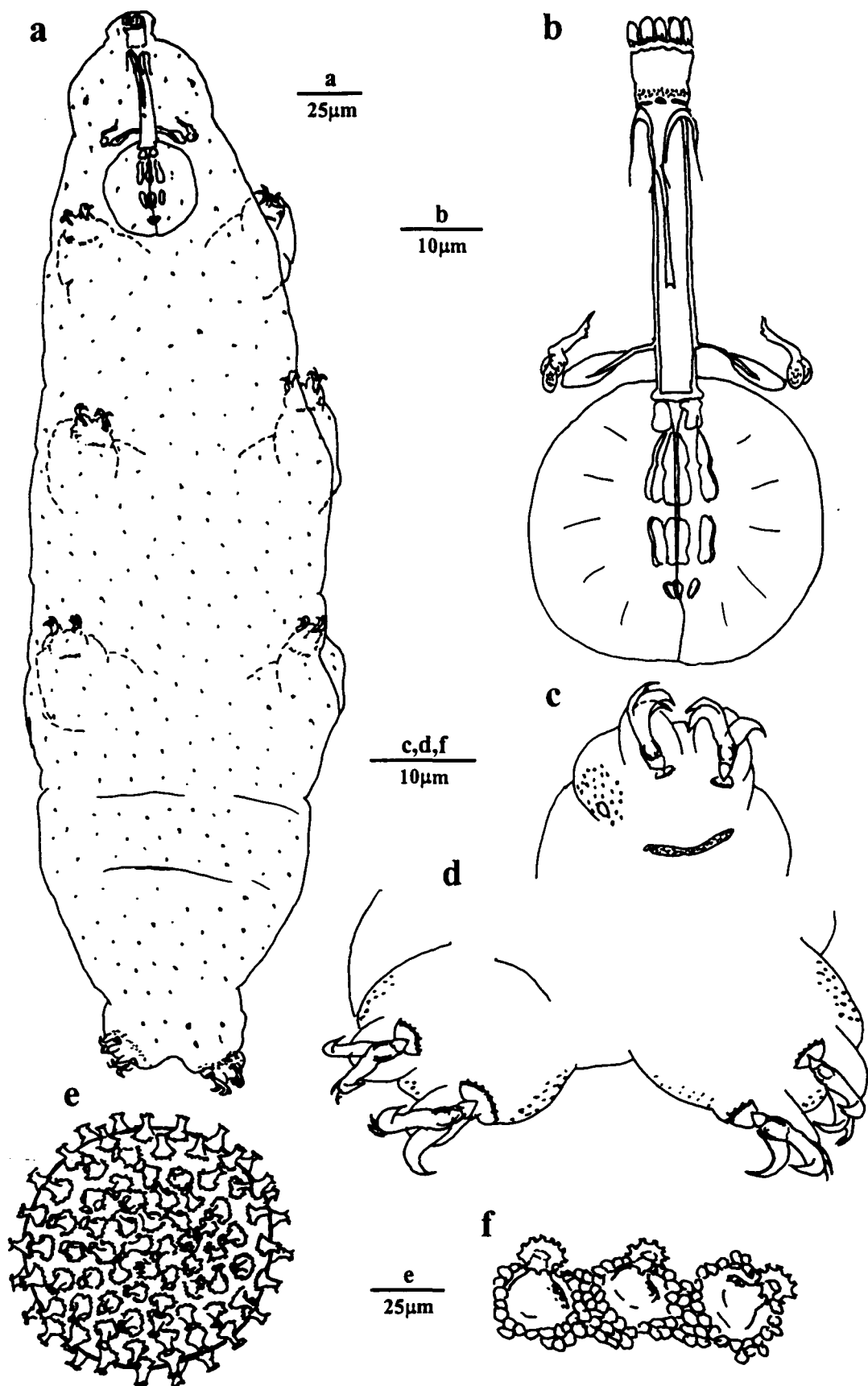


Figure 125: *Macrobiotus rigatus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

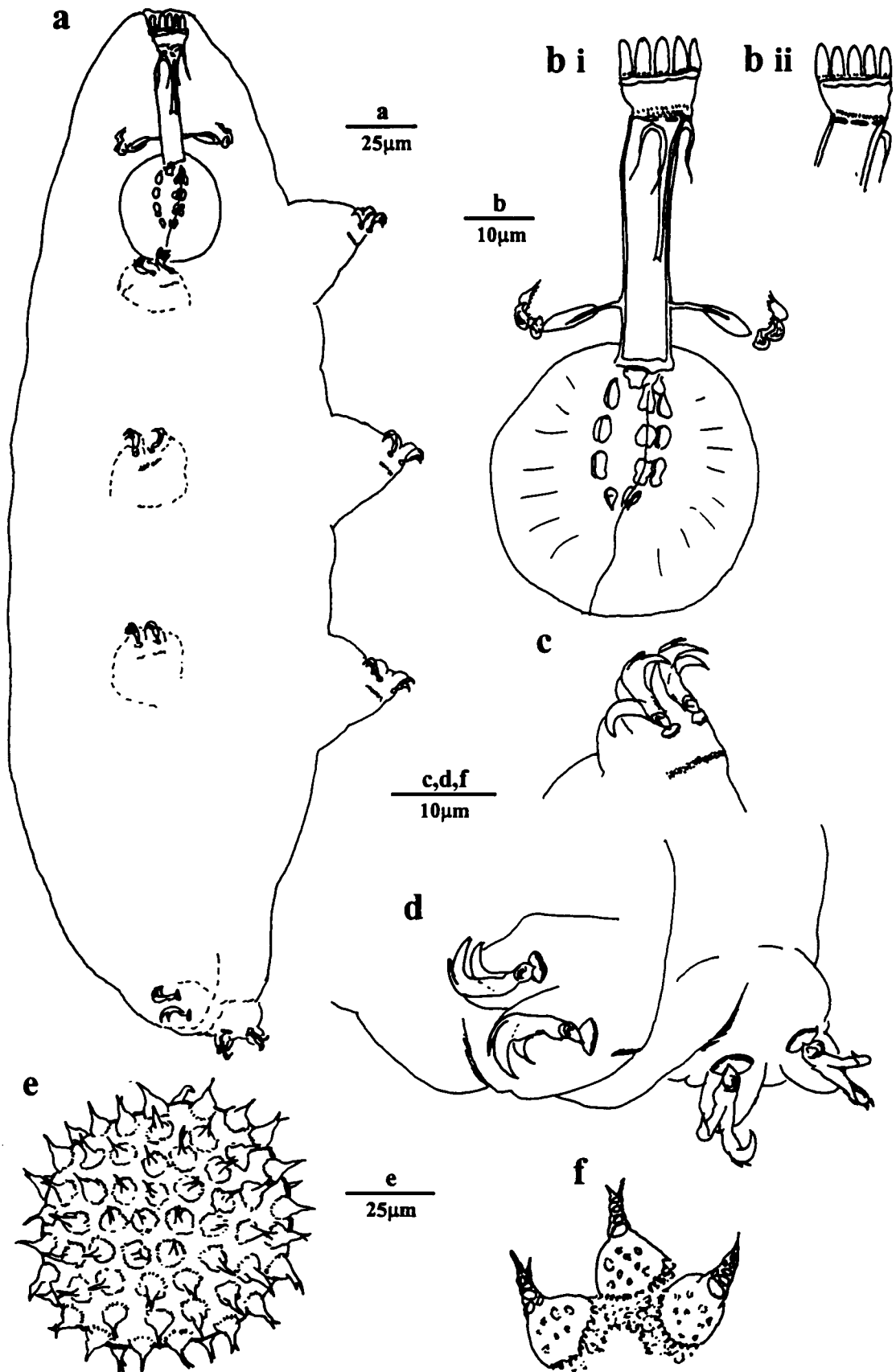


Figure 126: *Macrobiotus saltus* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

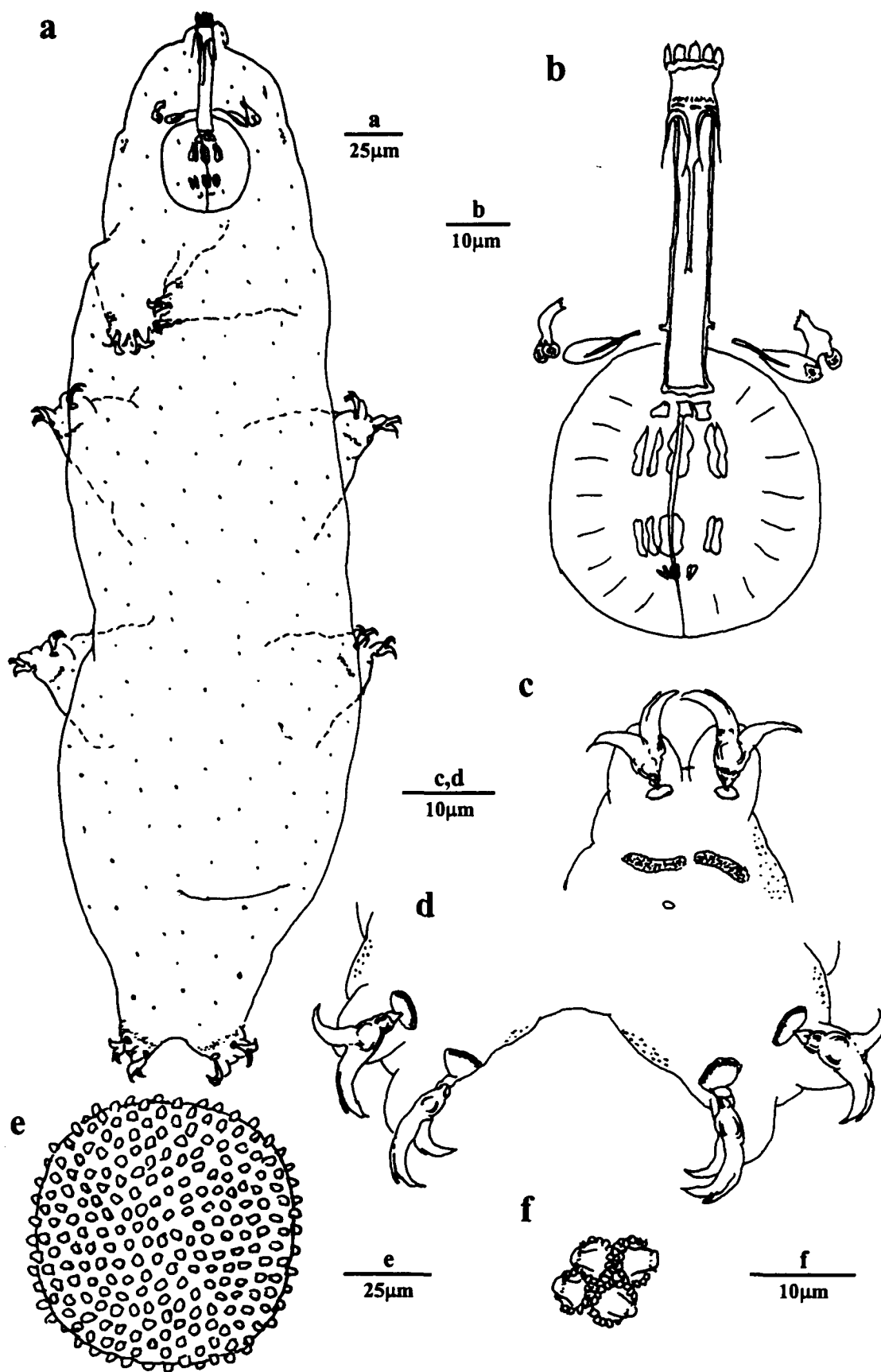


Figure 127: *Macrobiotus santoroi* Pilato & D'Urso, 1976. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

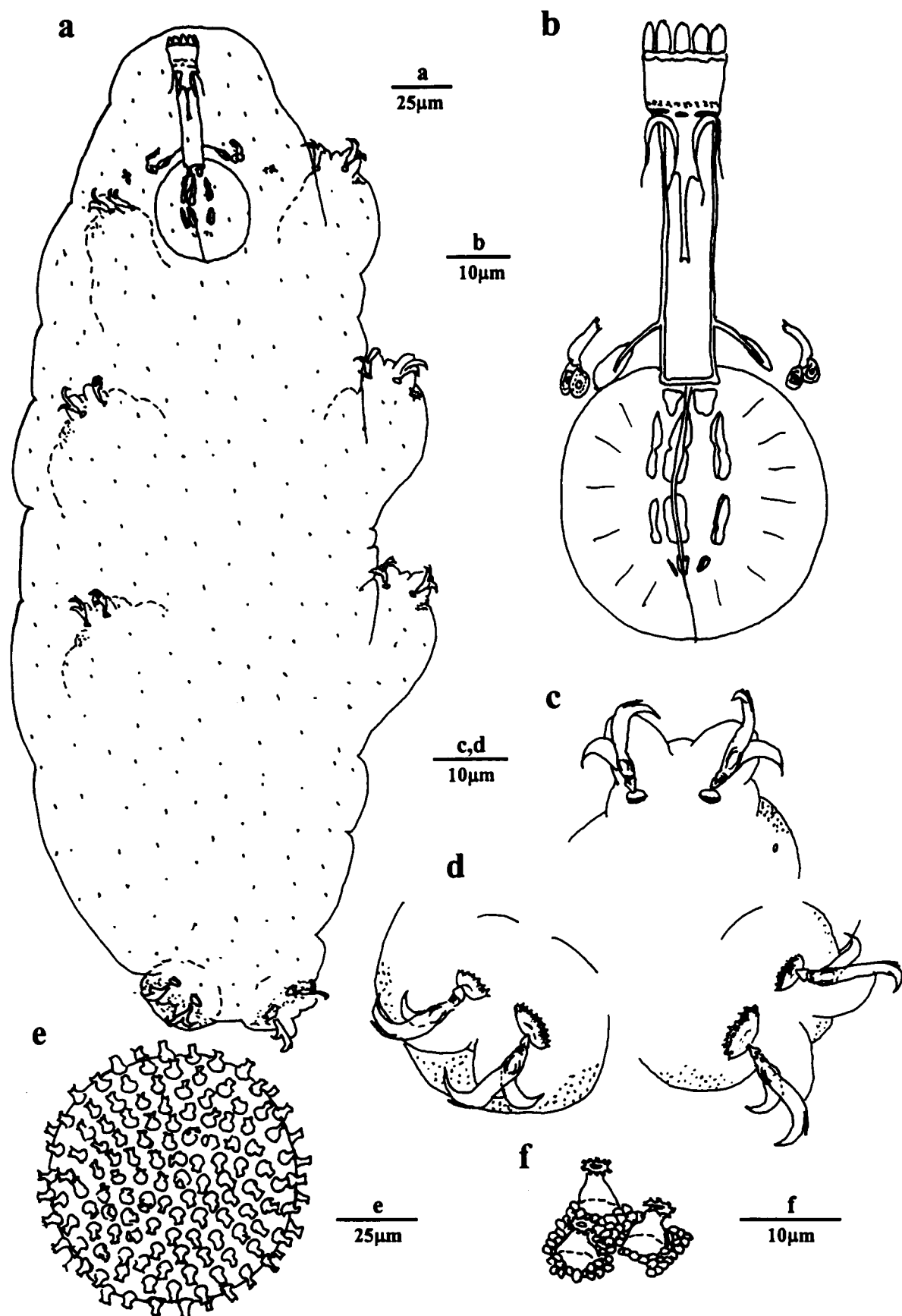


Figure 128: *Macrobiotus saxatilis* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

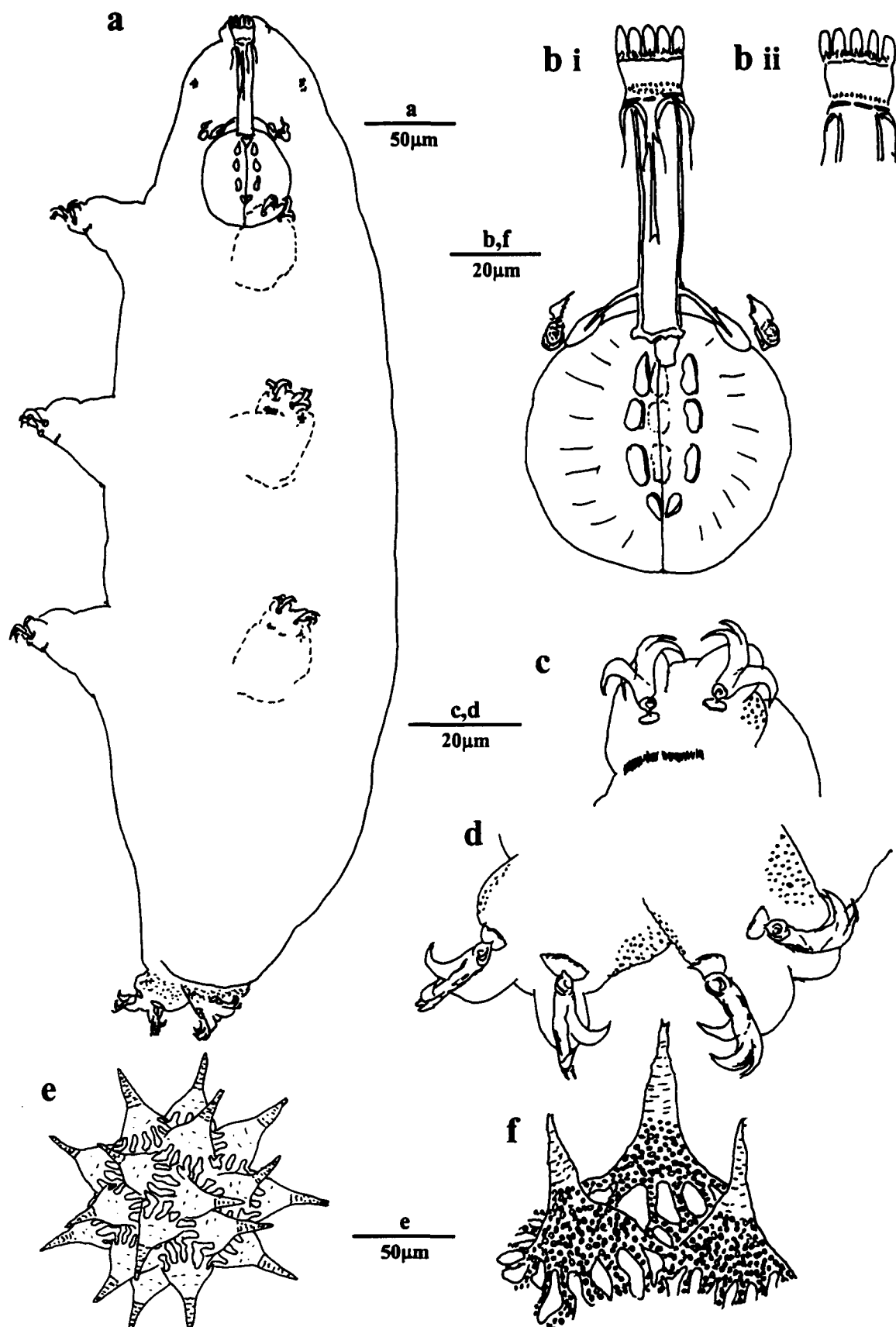


Figure 129: *Macrobiotus tasmanicus* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of second leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

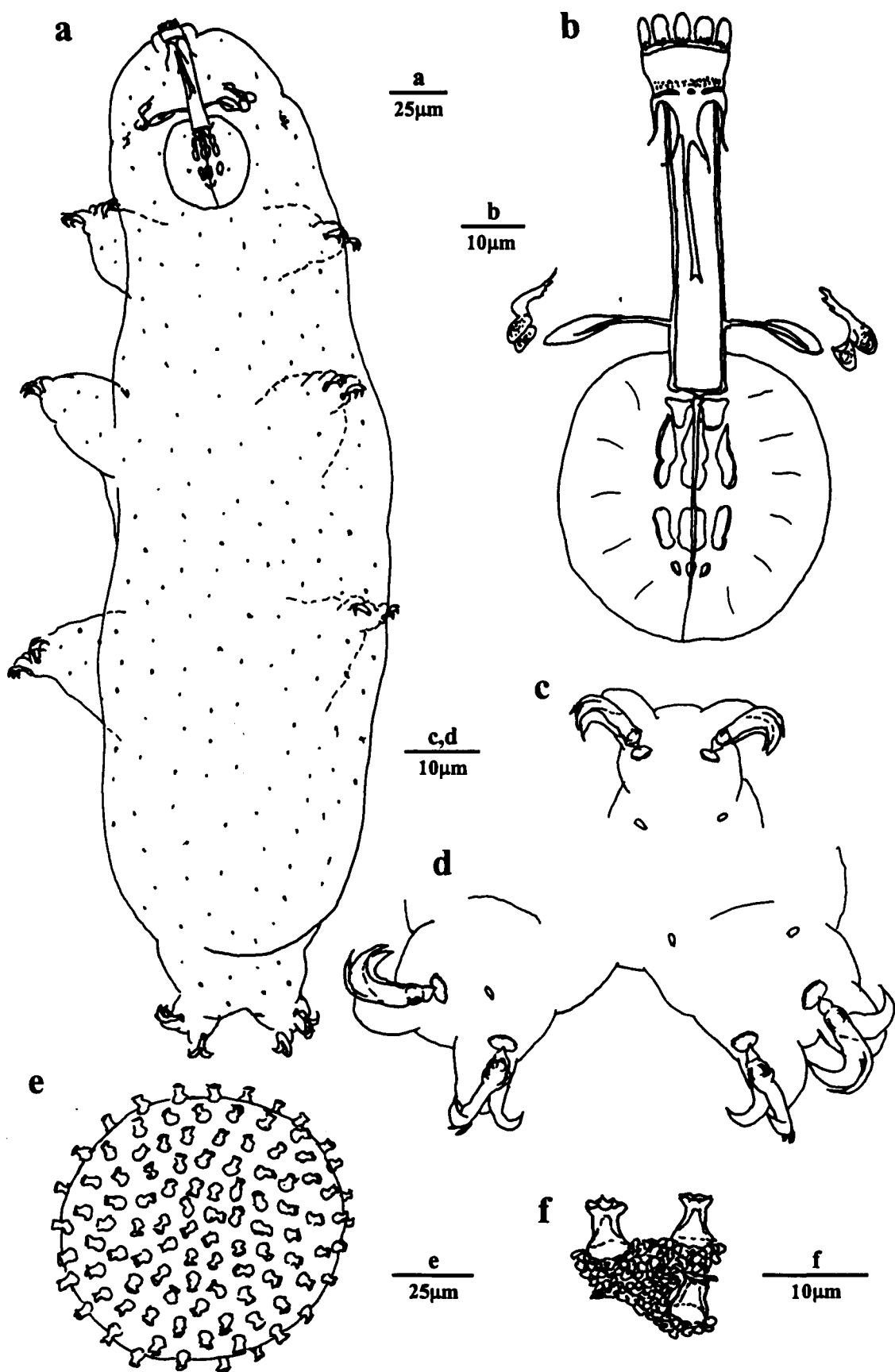


Figure 130: *Macrobiotus torridus* sp. n. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

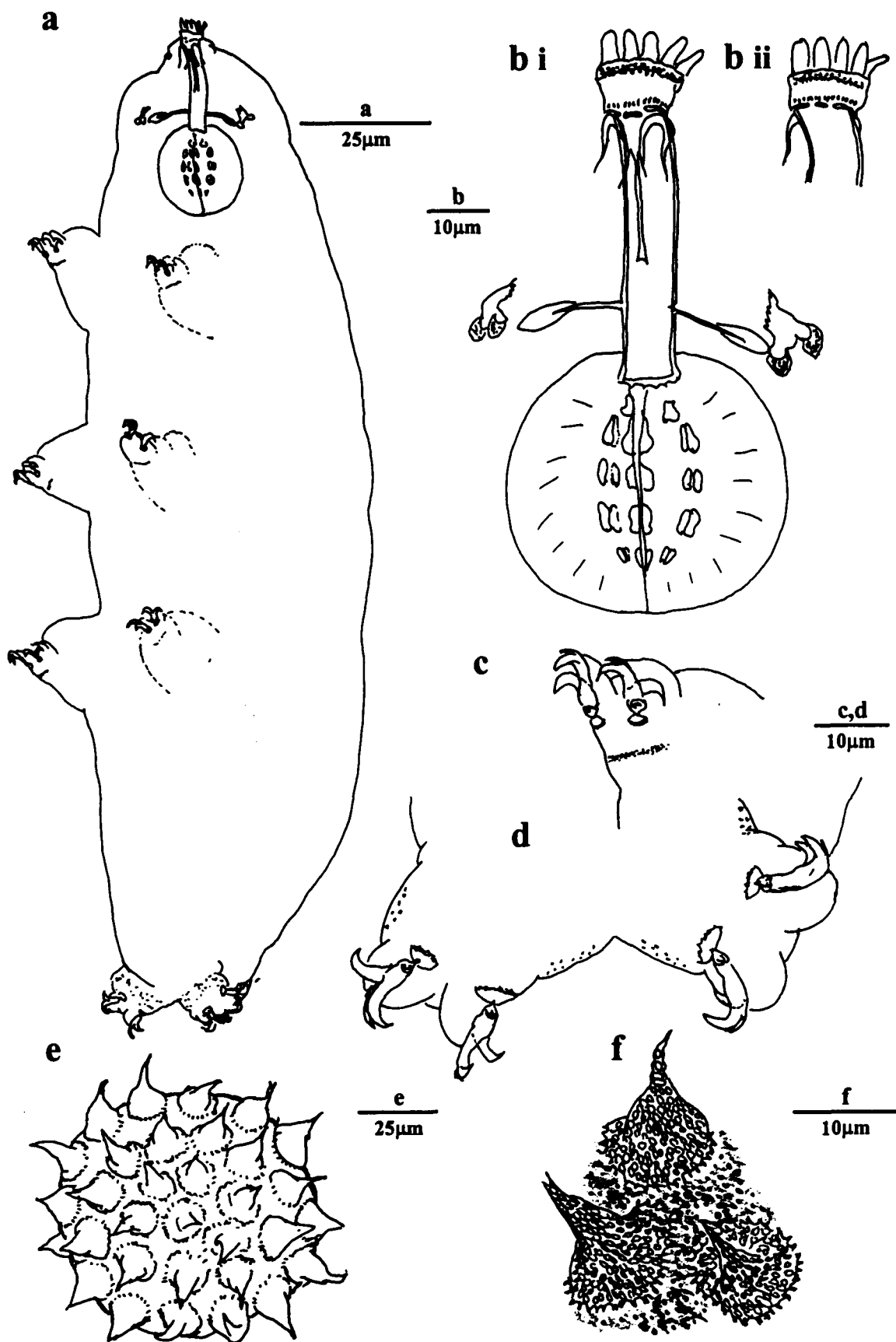


Figure 131: *Macrobiotus woodyi* sp. n. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

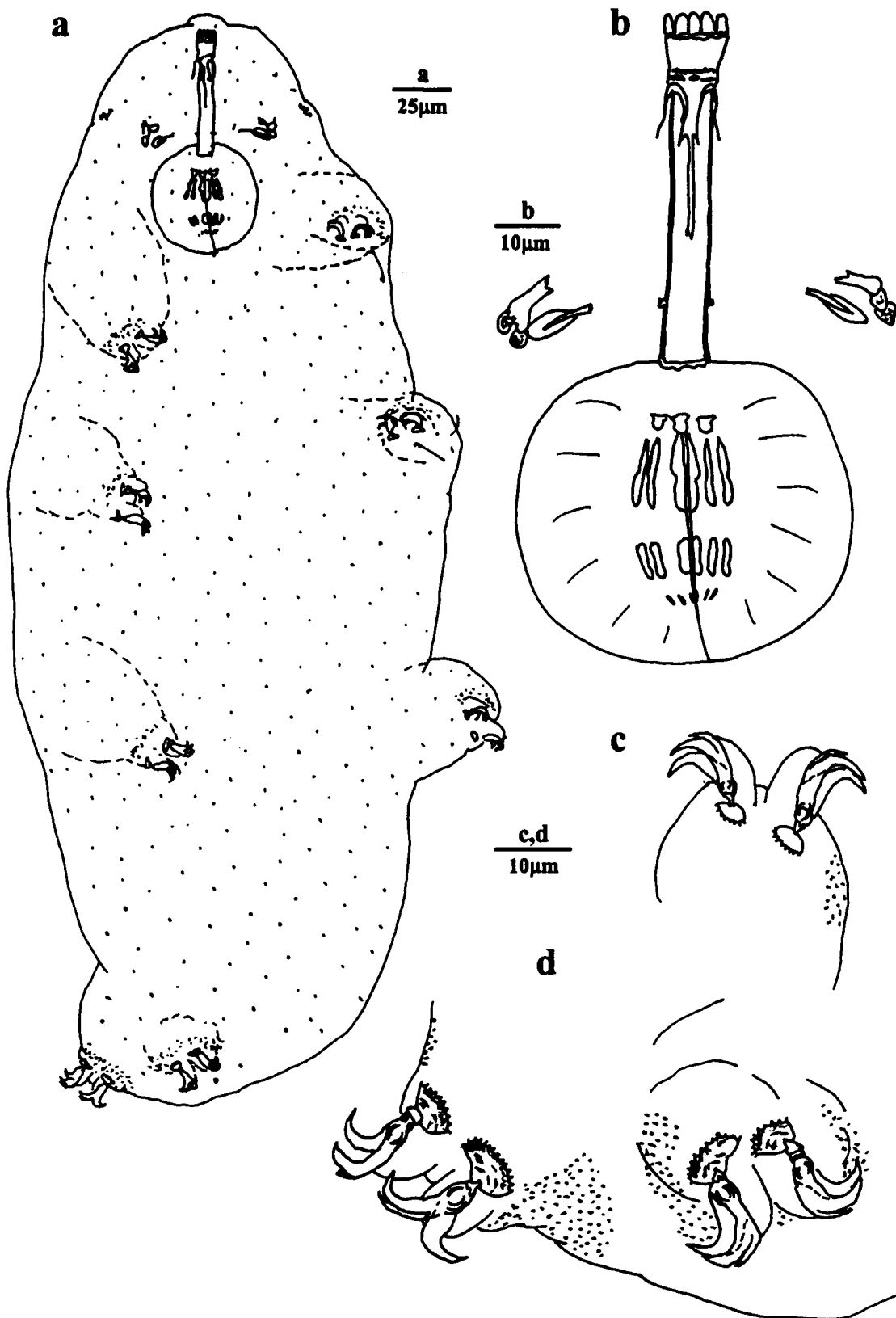


Figure 132: *Macrobiotus* sp. 1. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

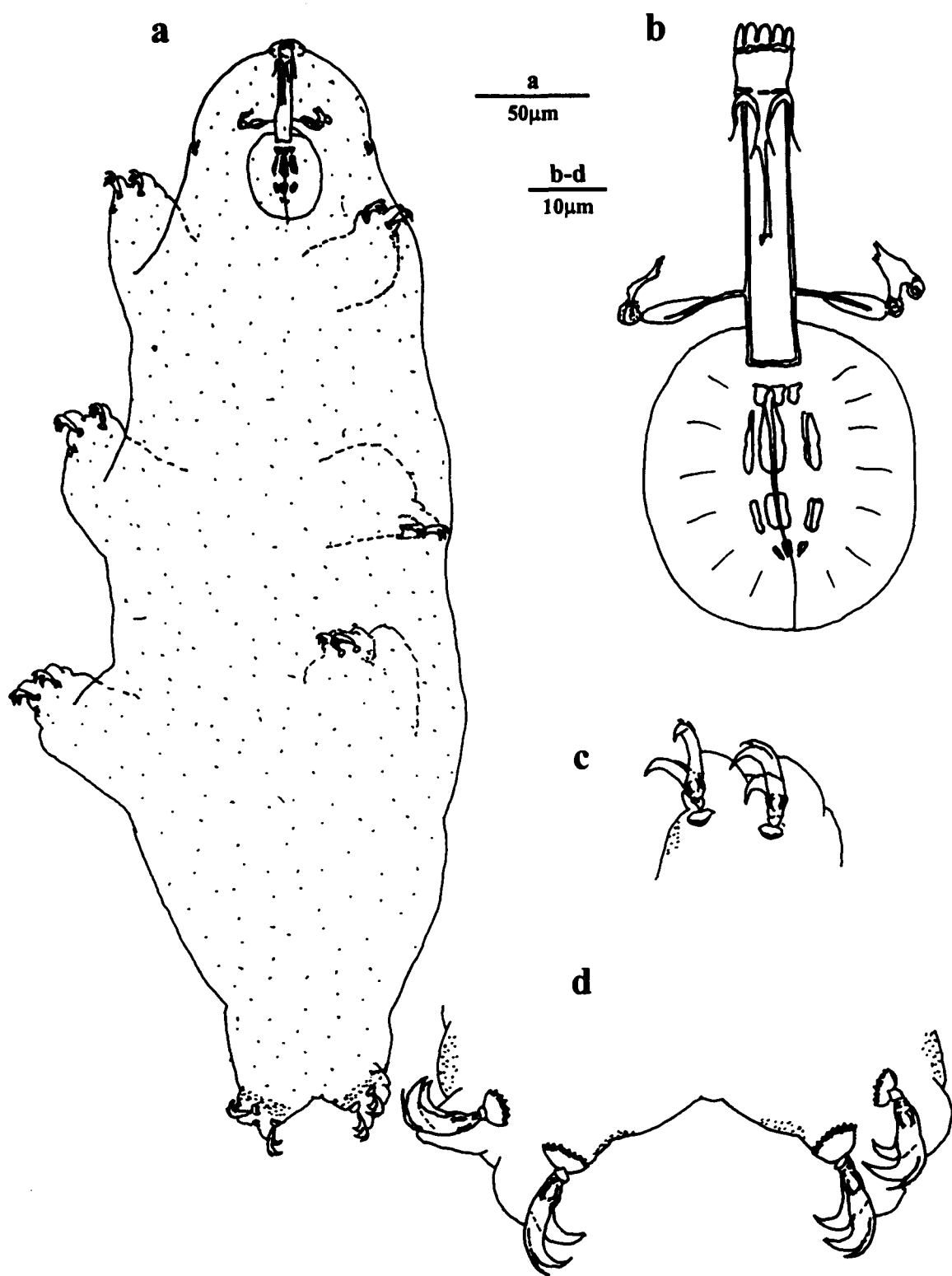


Figure 133: *Macrobiotus* sp. 2. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

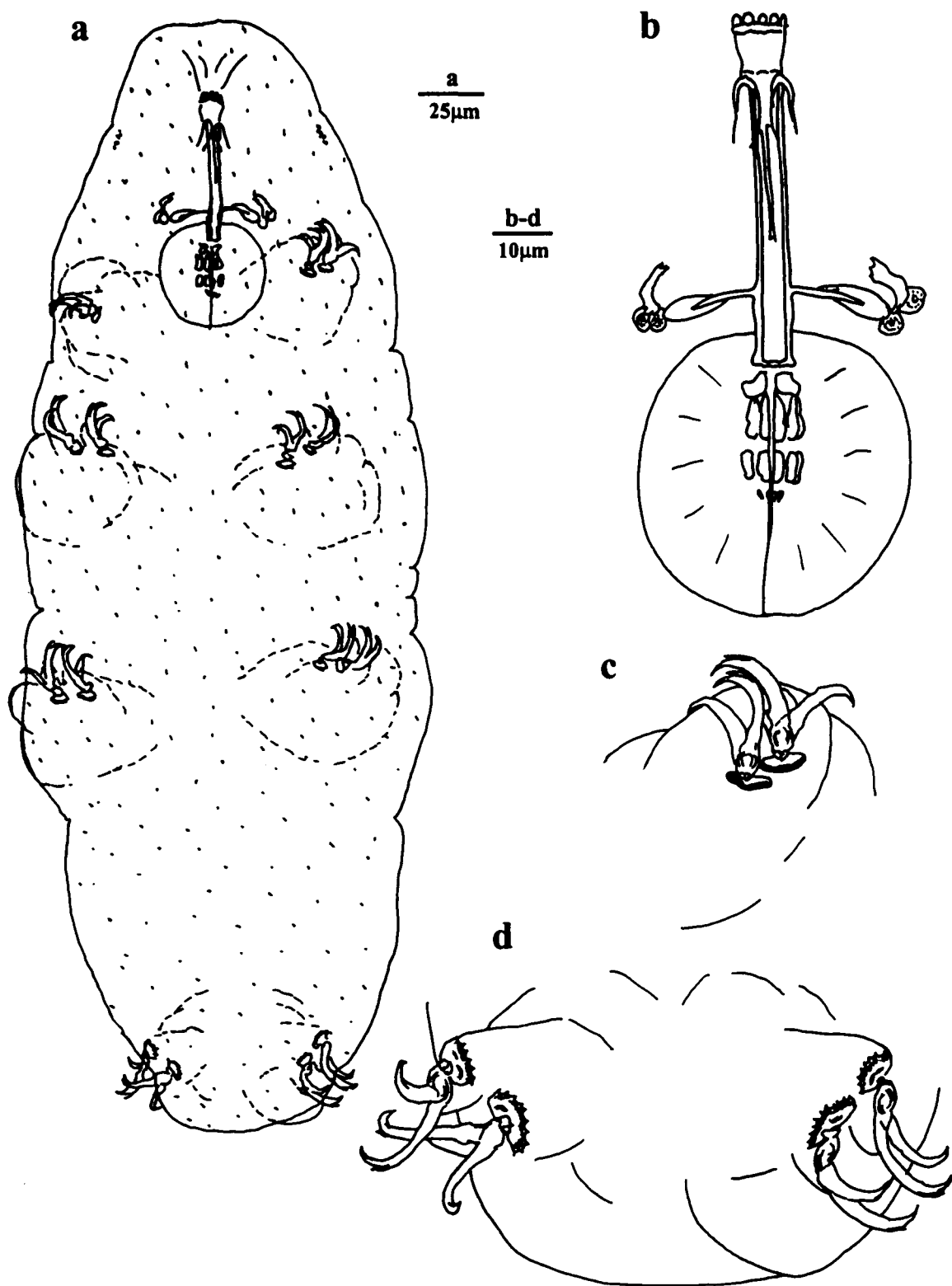


Figure 134: *Macrobiotus* sp. 3. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

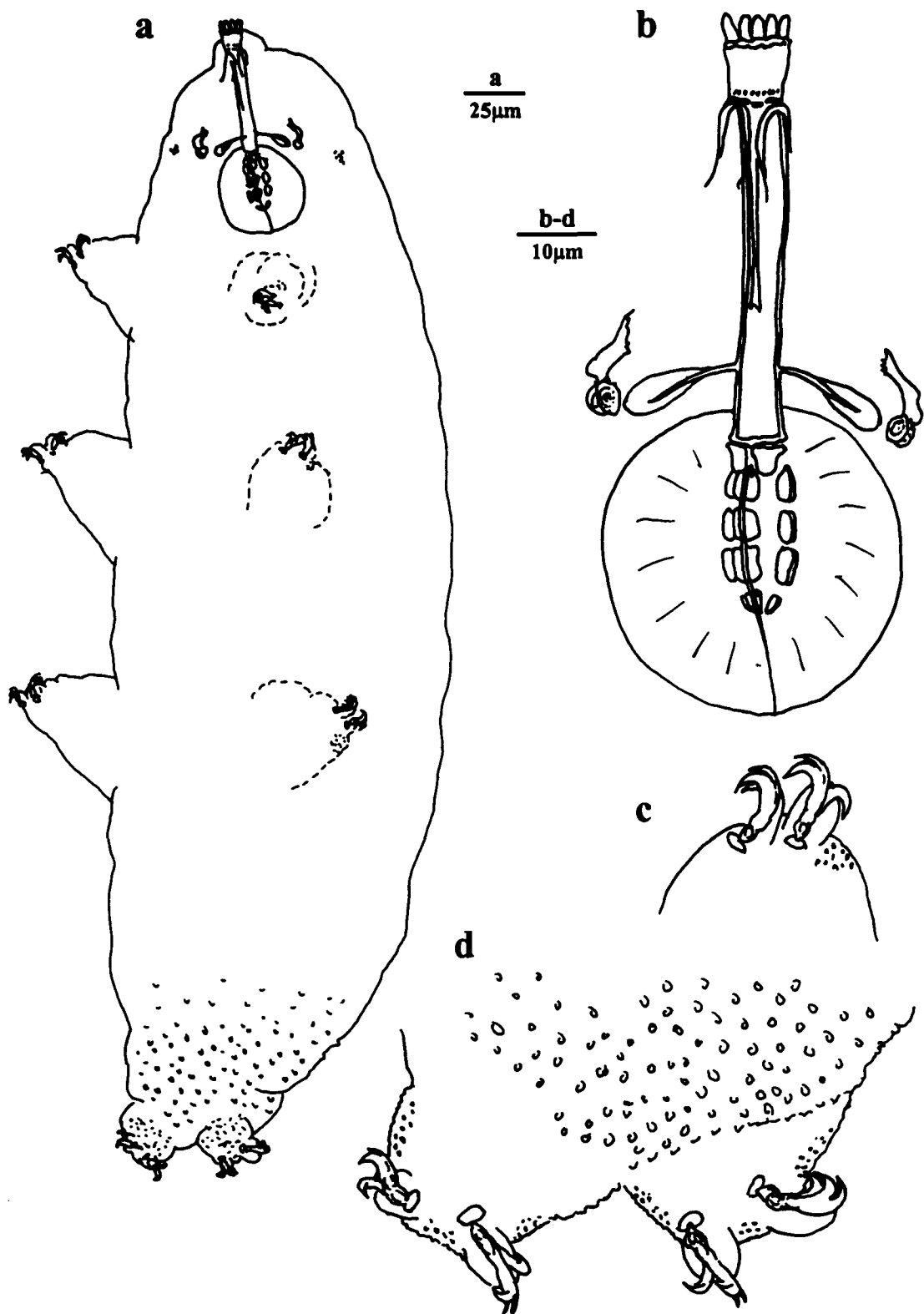


Figure 135: *Macrobiotus* sp. 4. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

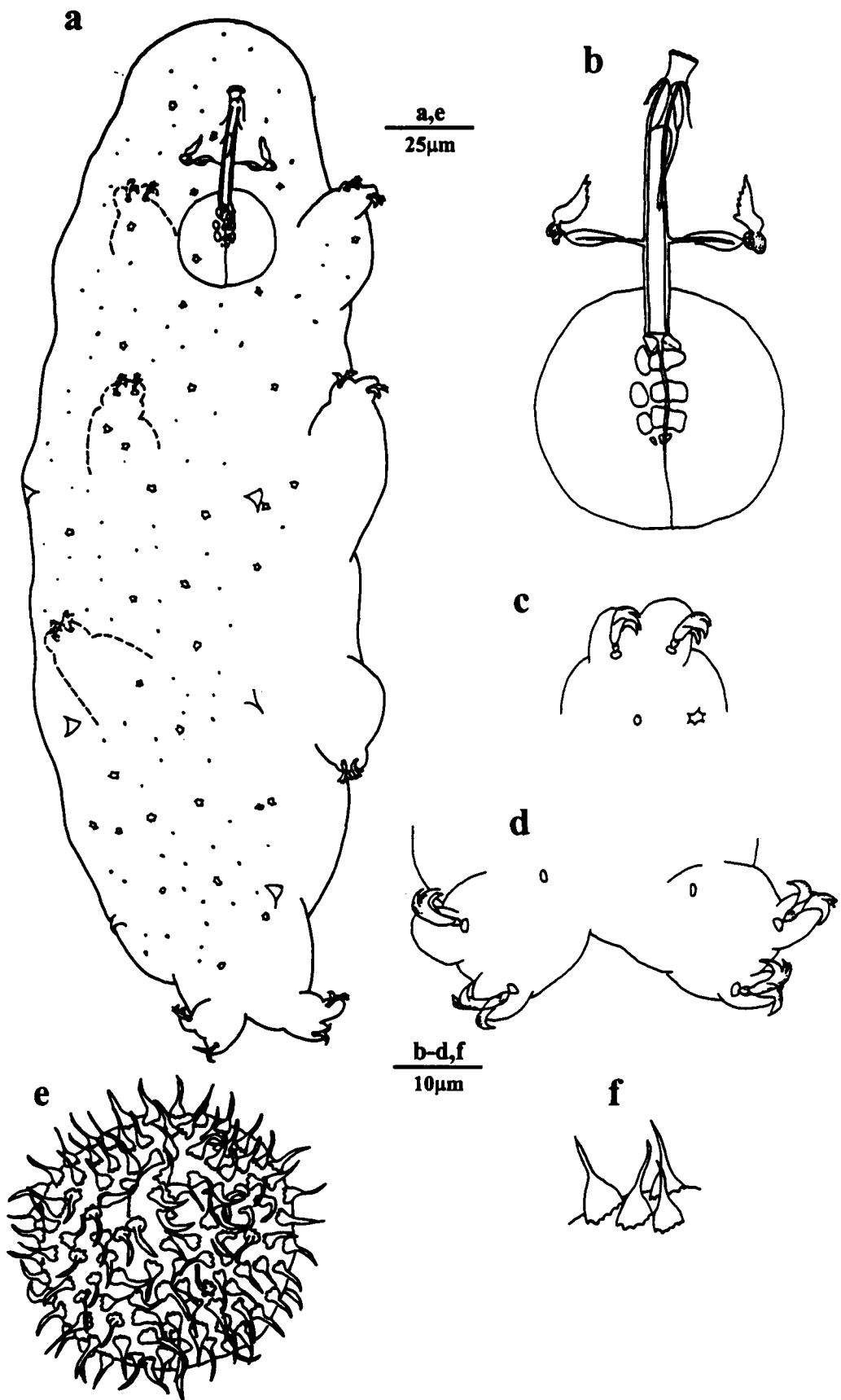


Figure 136: *Minibiotus aculeatus* (Murray, 1910). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

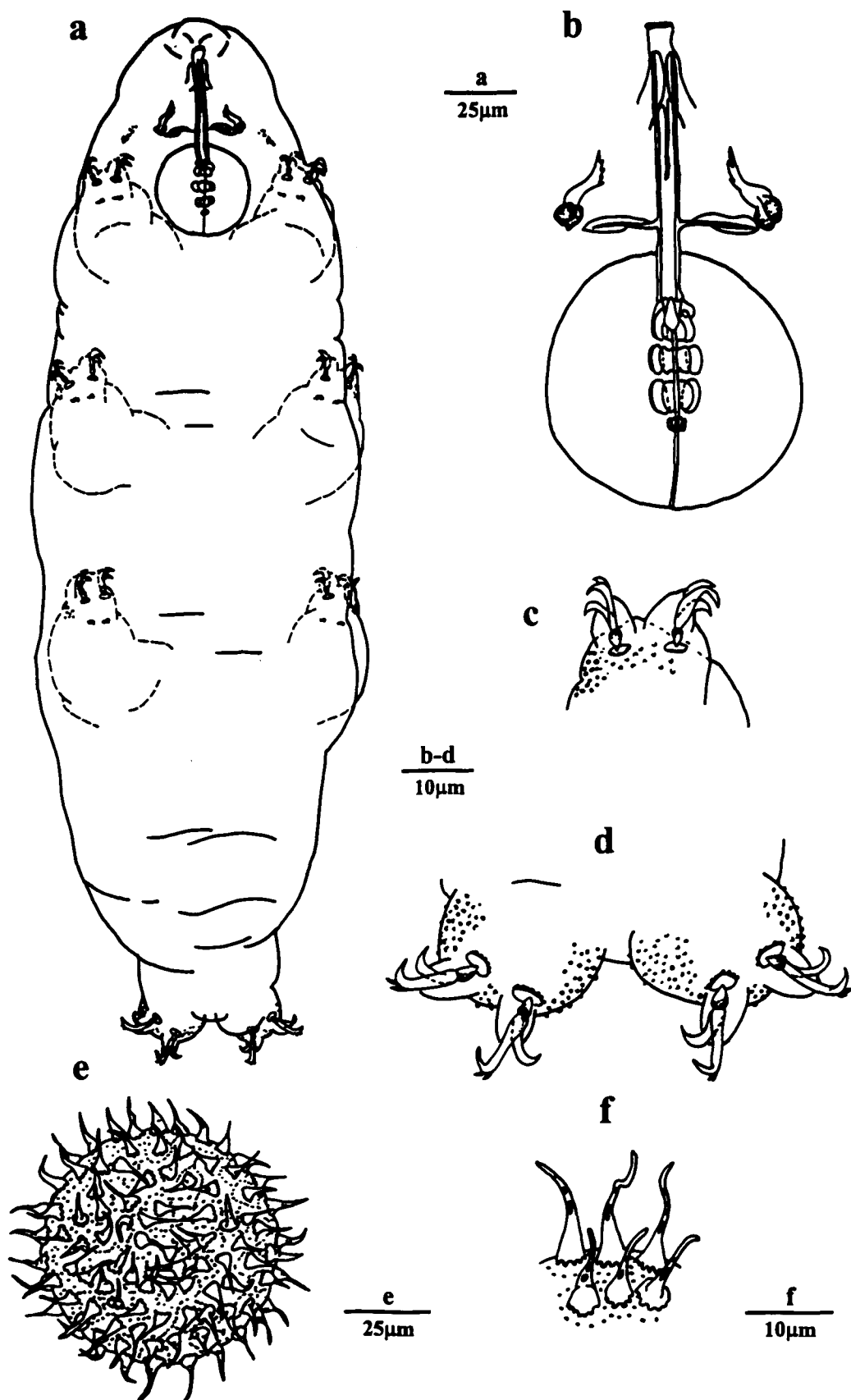


Figure 137: *Minibiotus aquatilis* Claxton, 1998. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

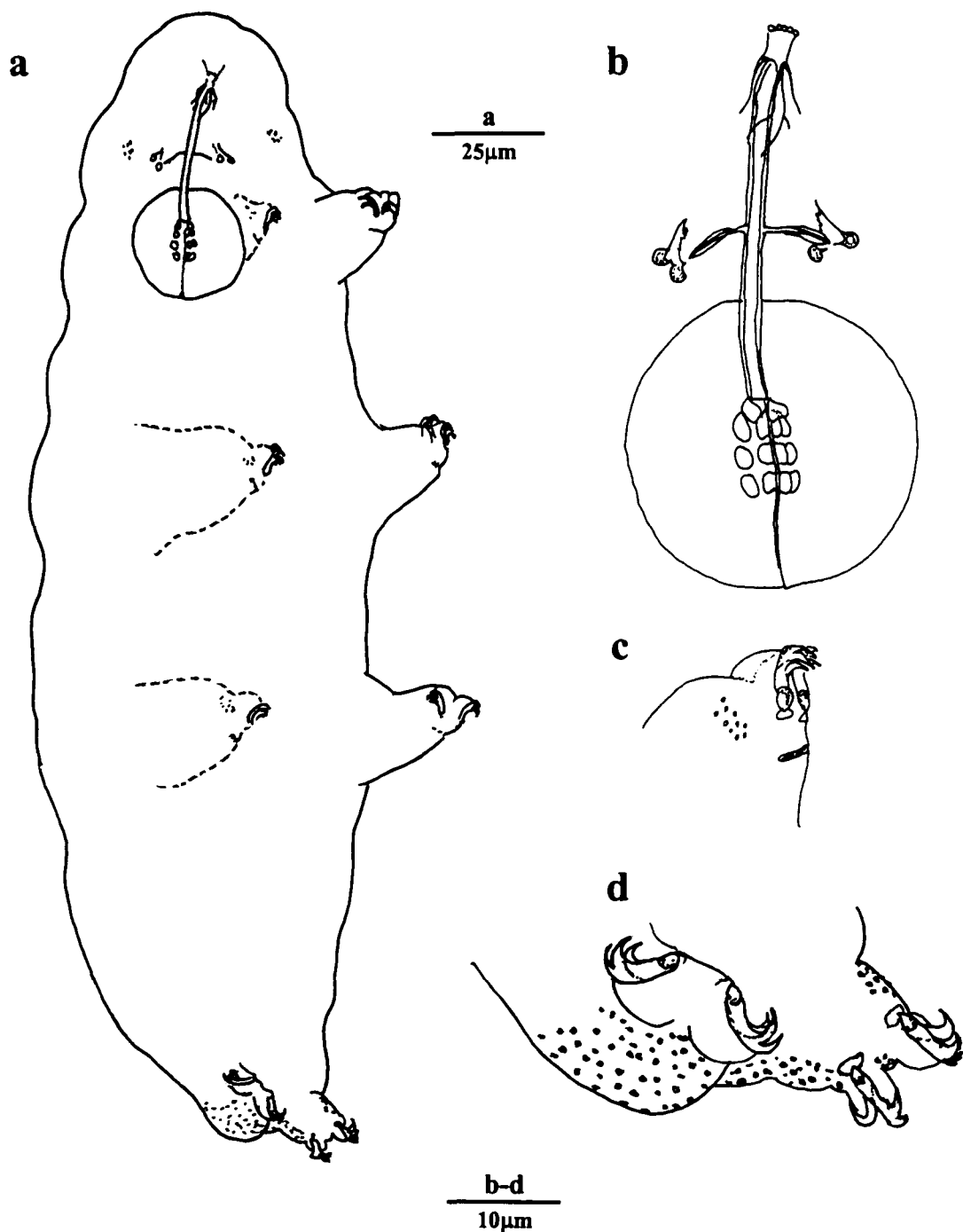


Figure 138: *Minibiotus arcanus* sp. n. a. habitus (dorsolateral view);
 b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg;
 d. claws of fourth pair of legs.

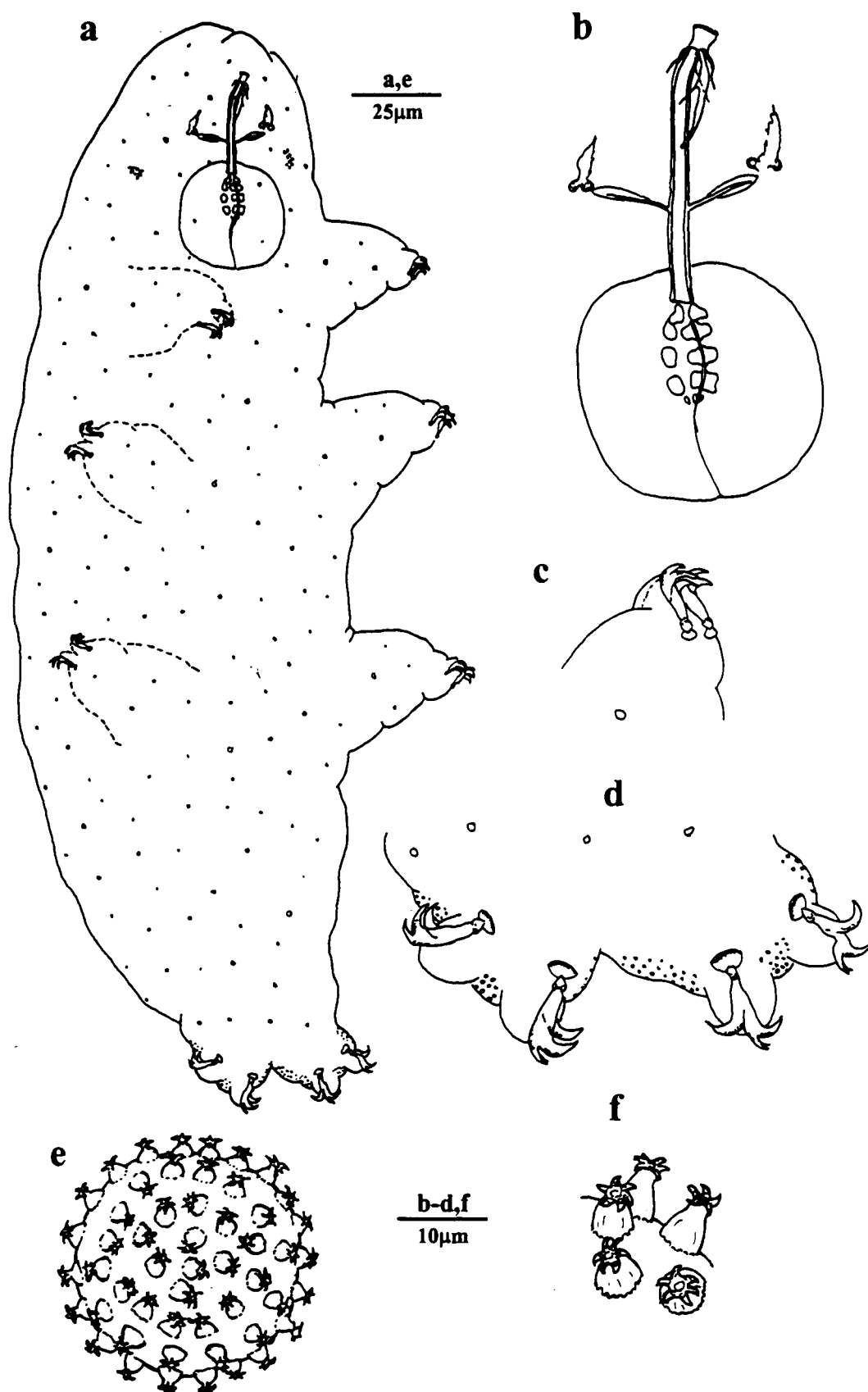


Figure 139: *Minibiotus asteris* Claxton, 1998. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

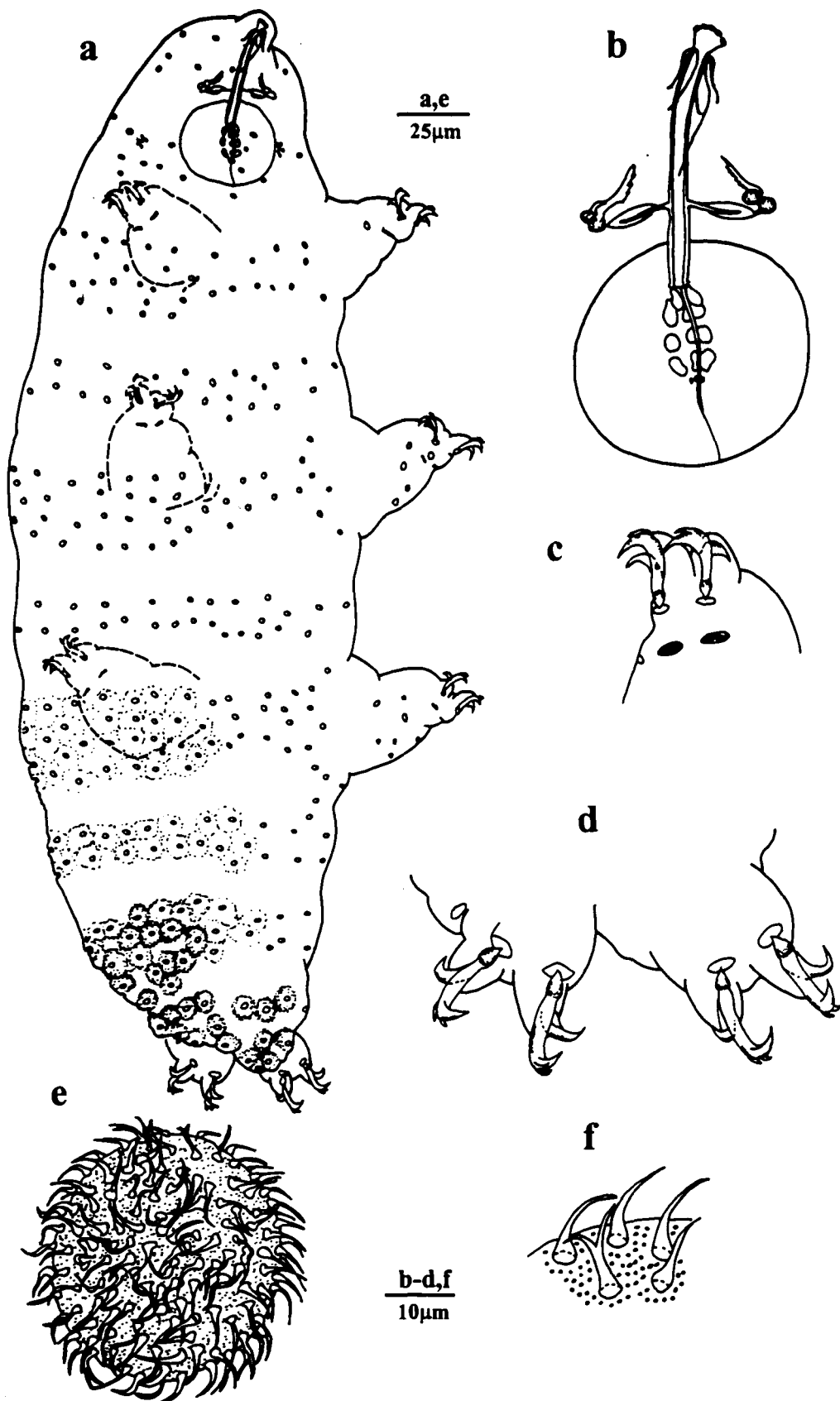


Figure 140: *Minibiotus ethelae* Claxton, 1998. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

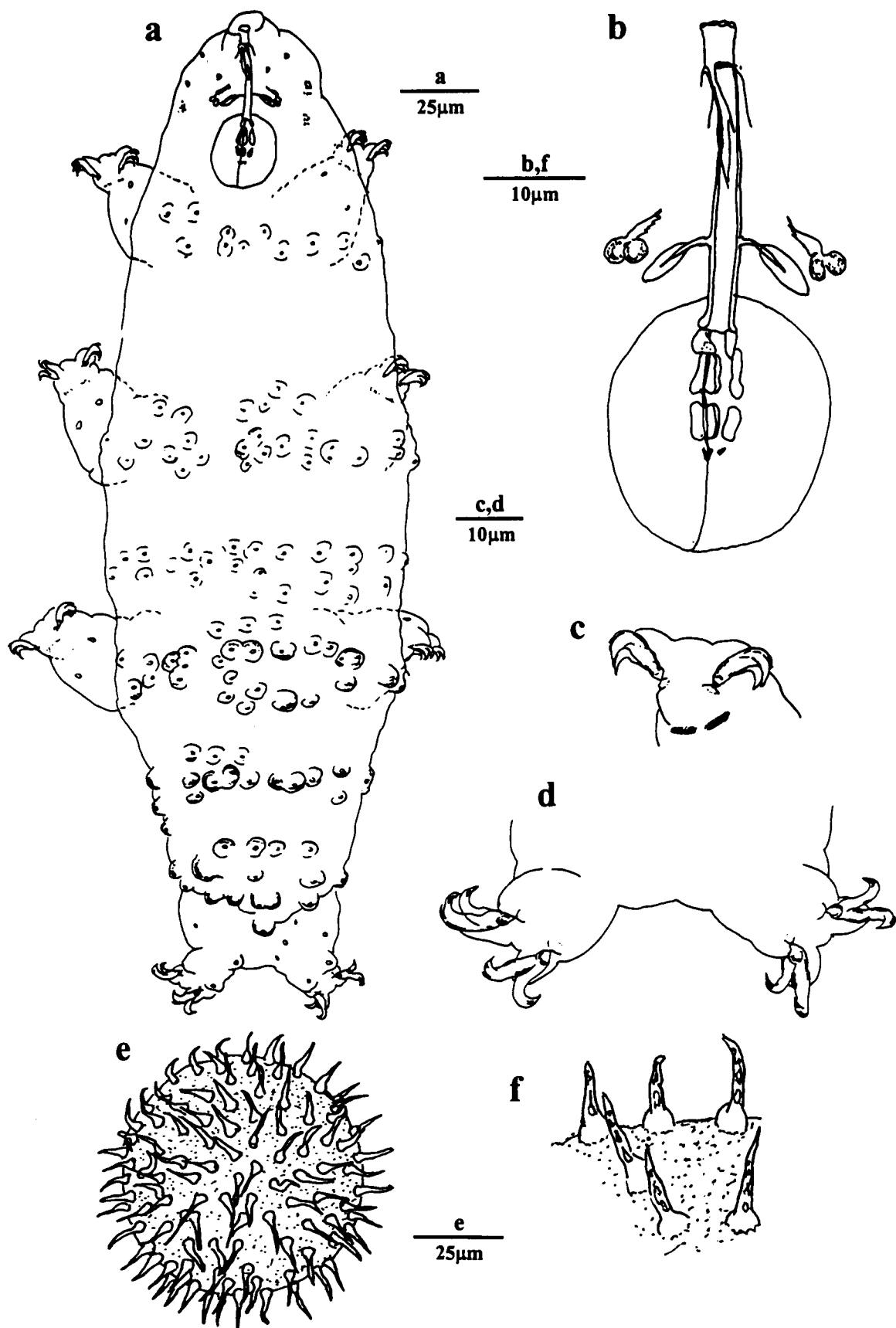


Figure 141: *Minibiotus fallax* Pilato, Claxton & Binda, 1989. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

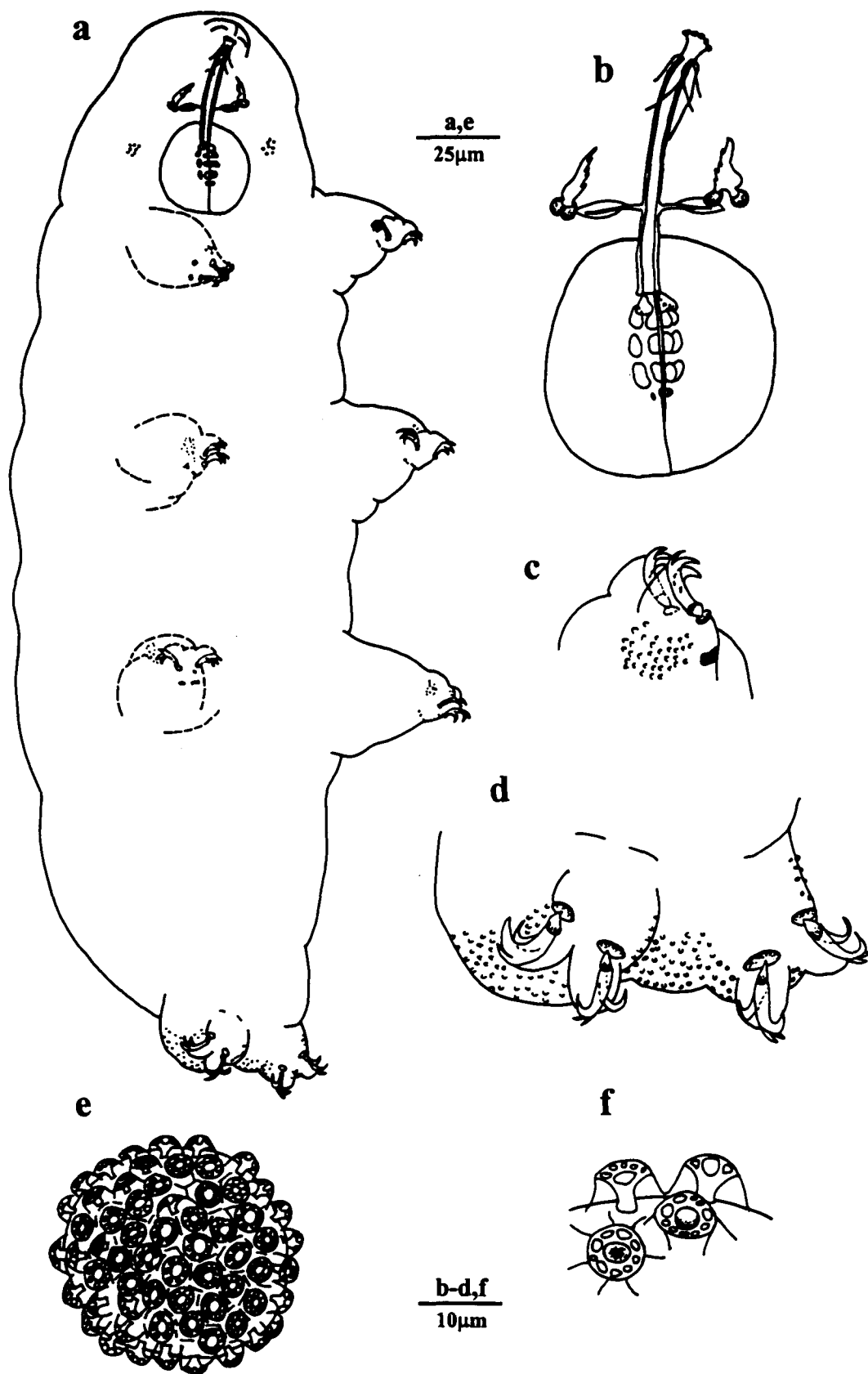


Figure 142: *Minibiotus floriparus* Claxton, 1998. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

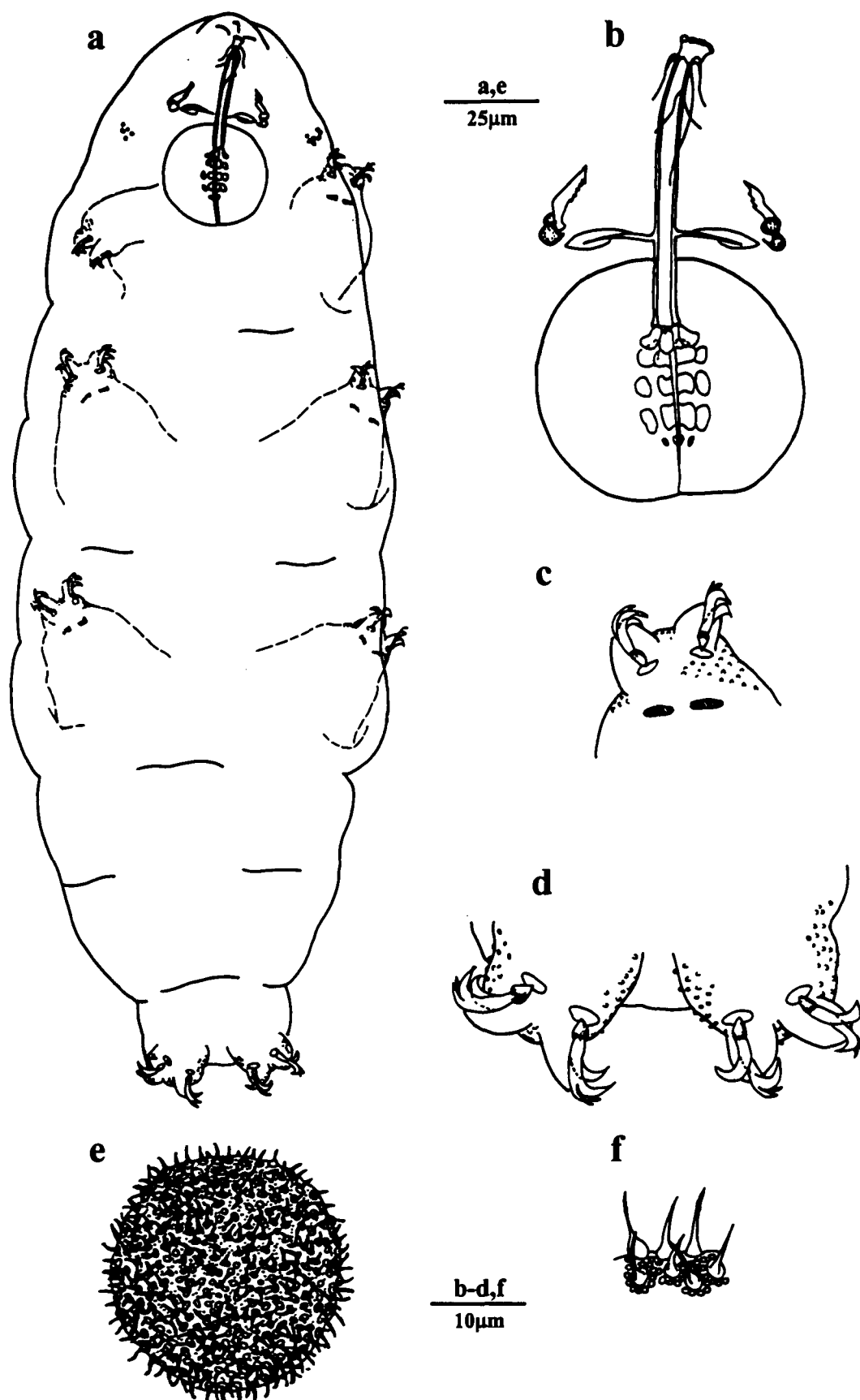


Figure 143: *Minibiotus hispidus* Claxton, 1998. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

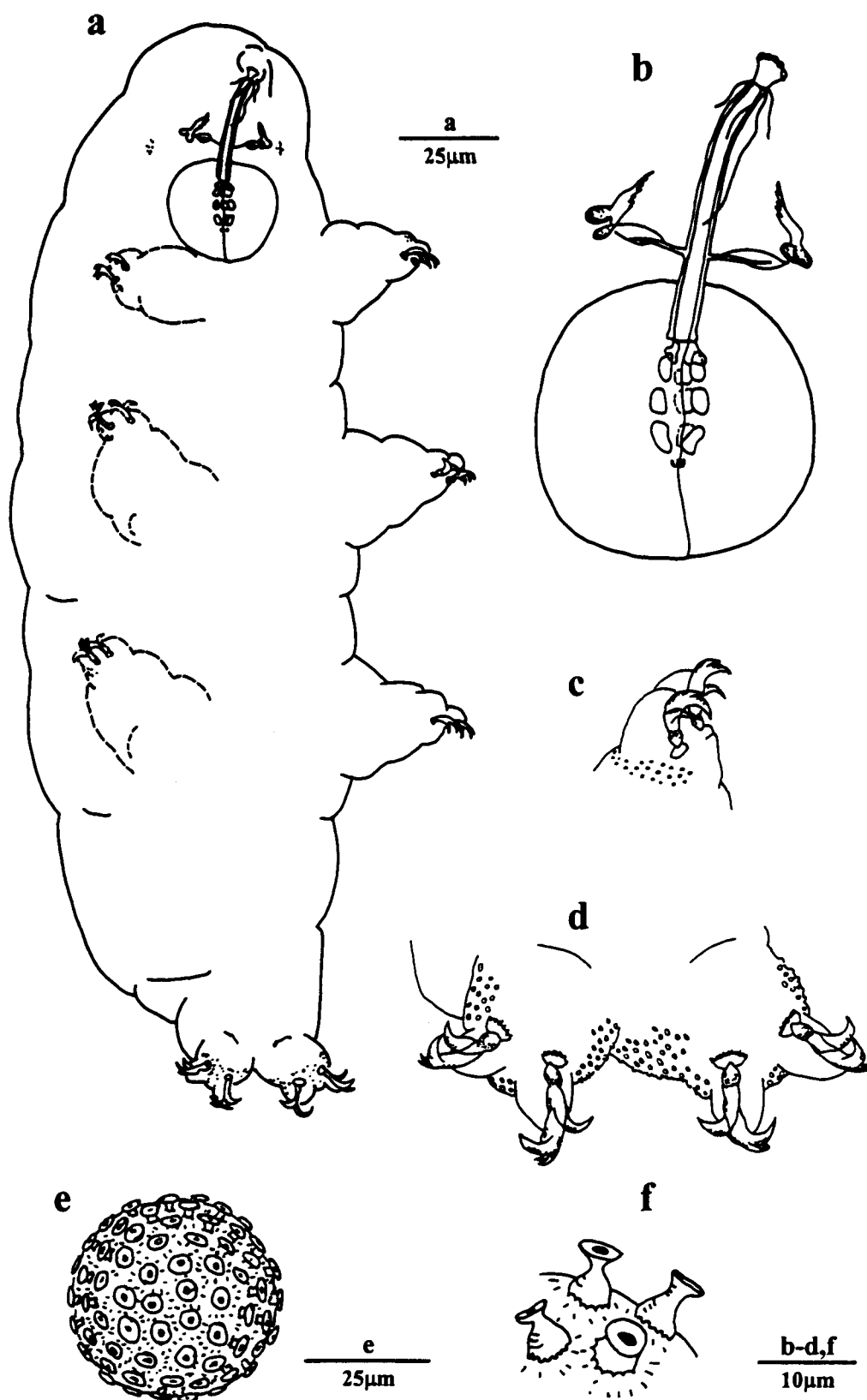


Figure 144: *Minibiotus hufelandioides* (Murray, 1910). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

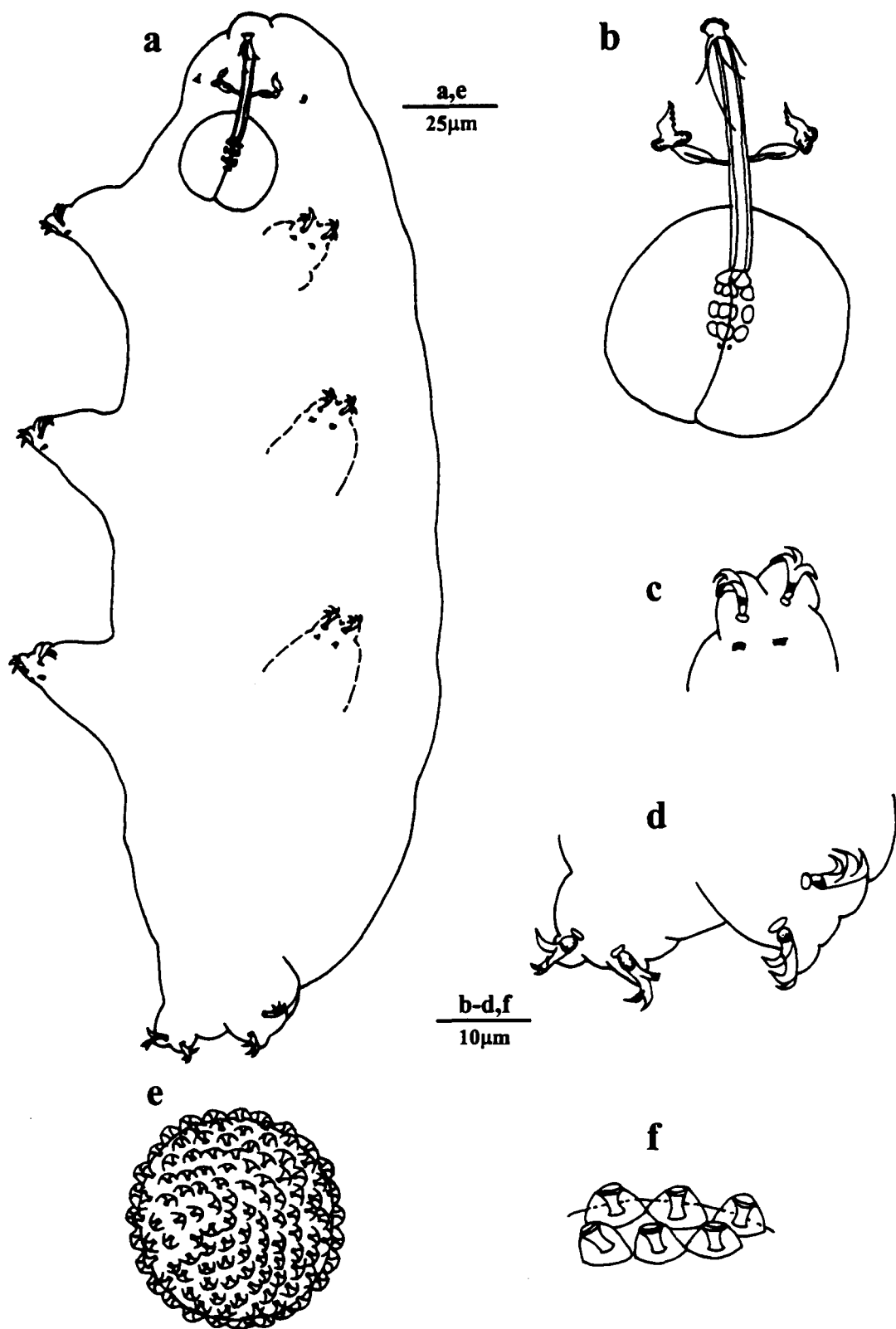


Figure 145: *Minibiotus intermedius* (Plate, 1888). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

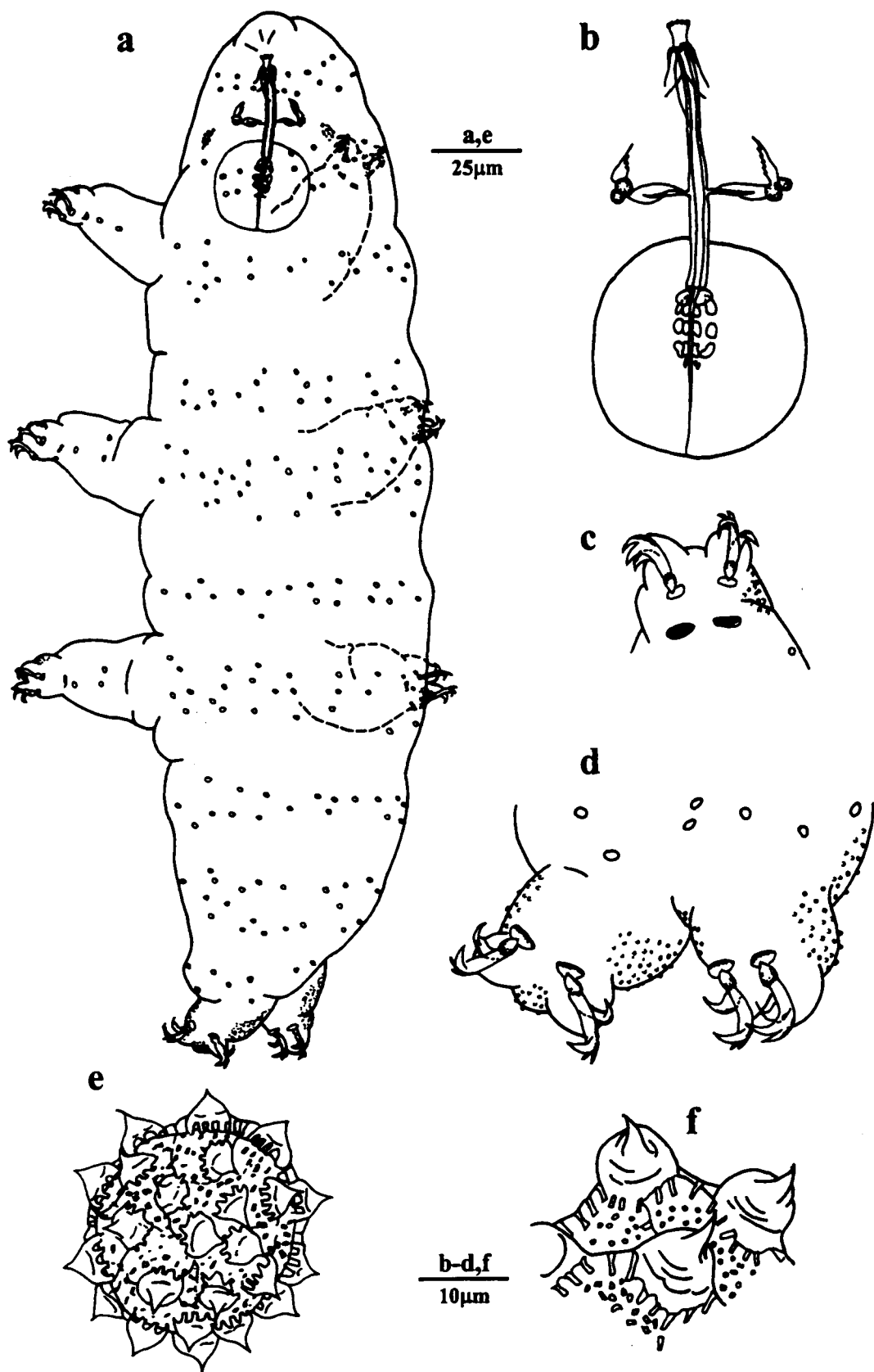


Figure 146: *Minibiotus keppelensis* Claxton, 1998. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

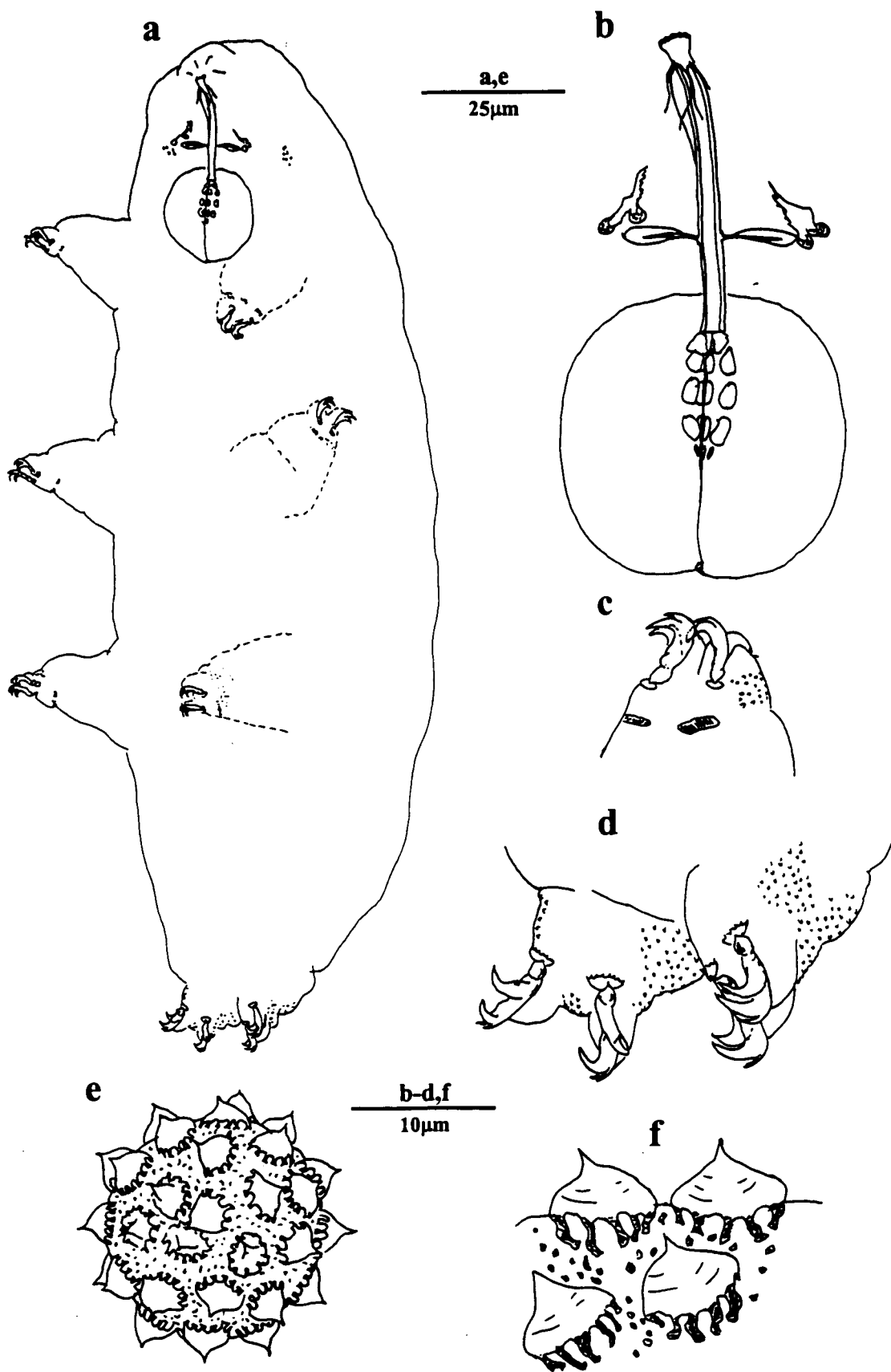


Figure 147: *Minibiotus maculartus* Pilato & Claxton, 1988. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

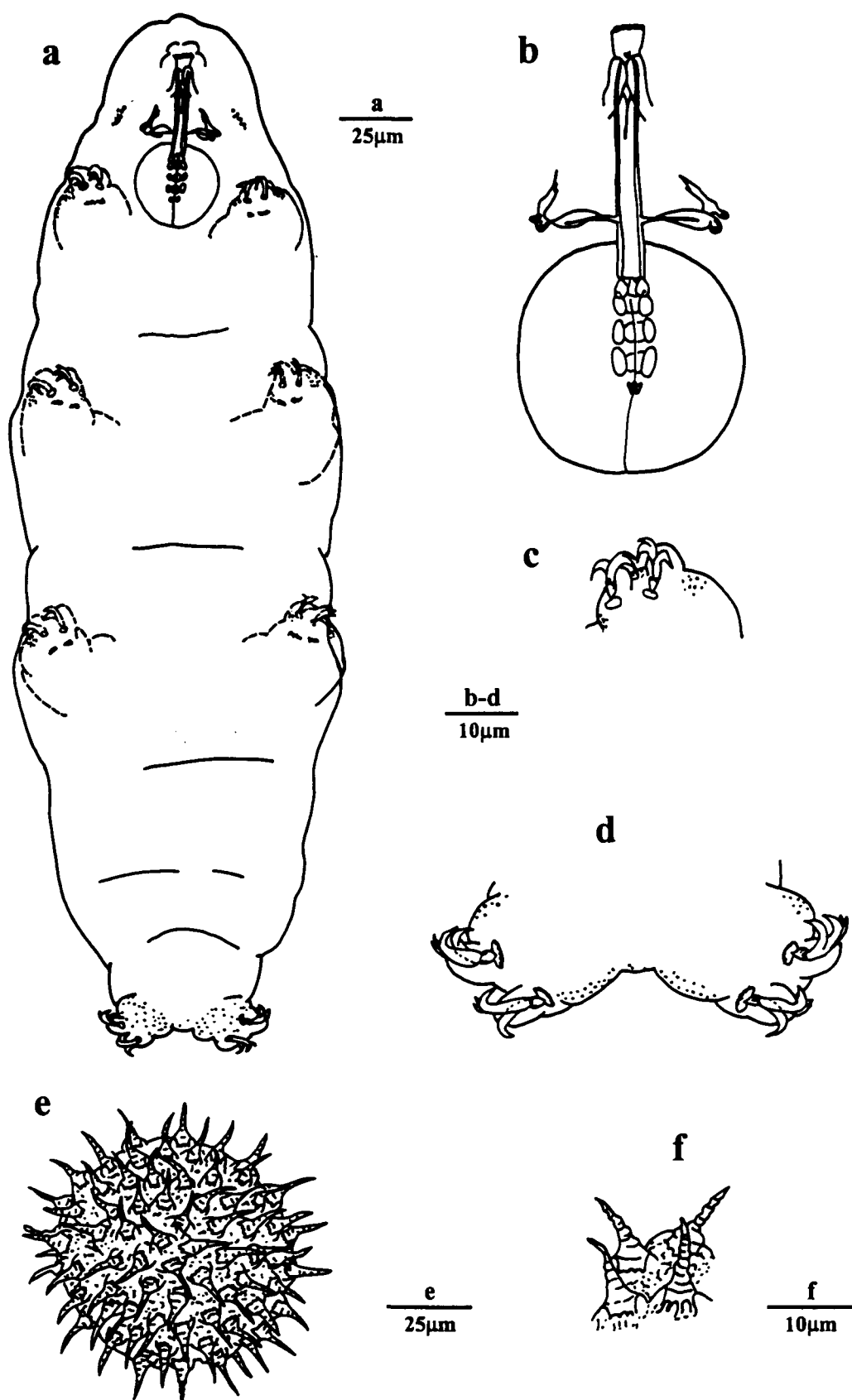


Figure 148: *Minibiotus milleri* Claxton, 1998. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

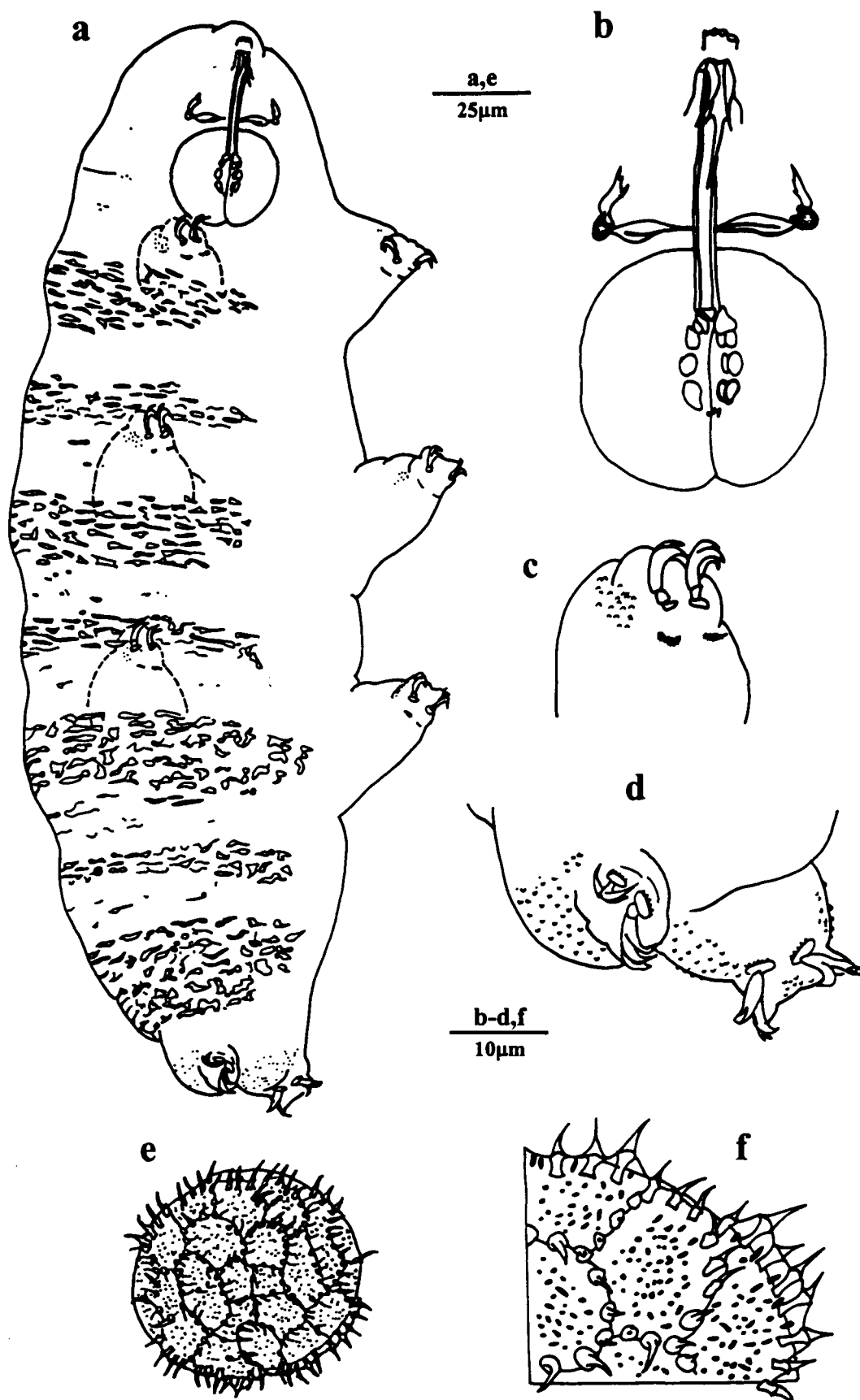


Figure 149: *Minibiotus pilatus* Claxton, 1998. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

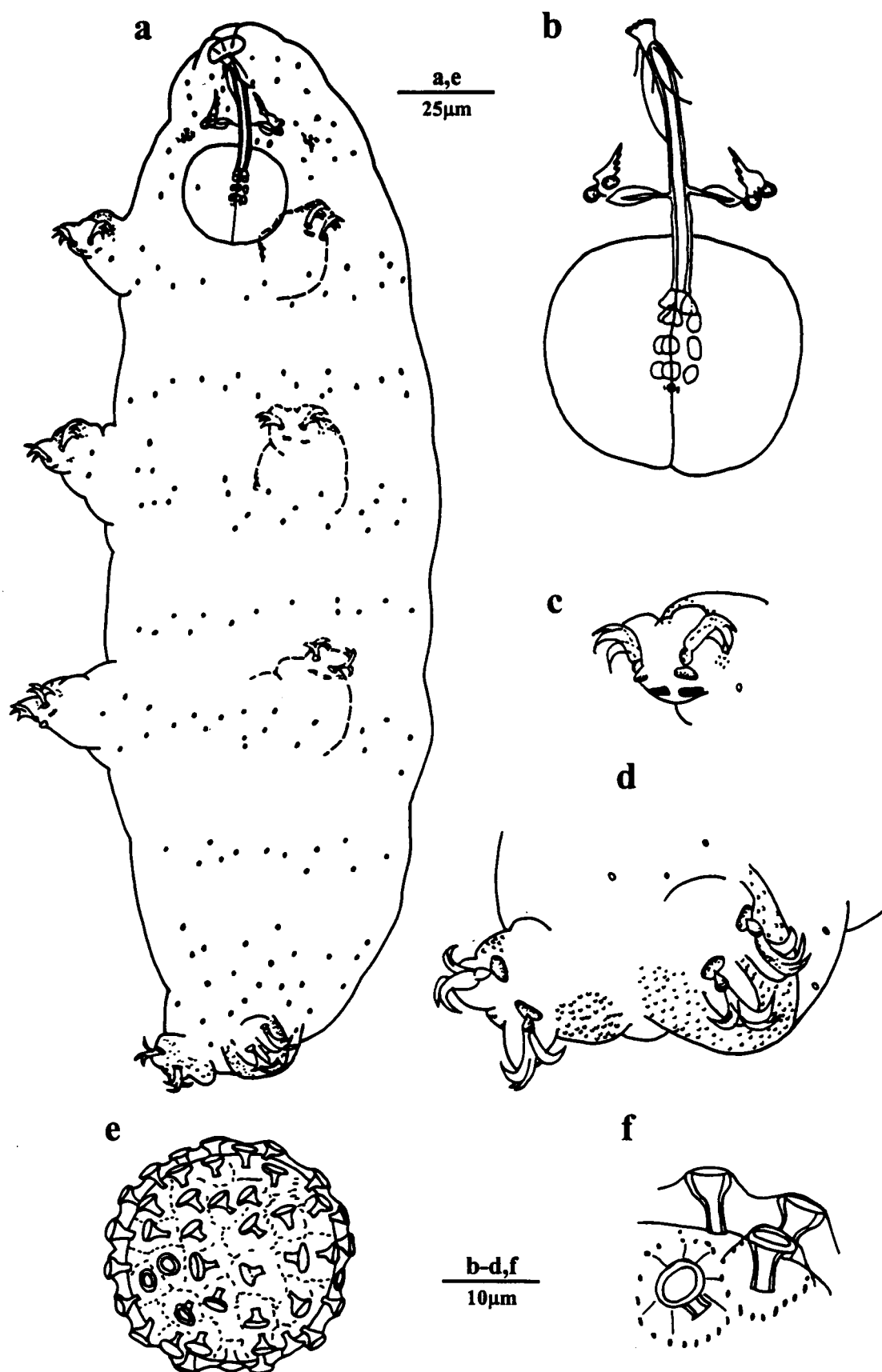


Figure 150: *Minibiotus poricinctus* Claxton, 1998. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

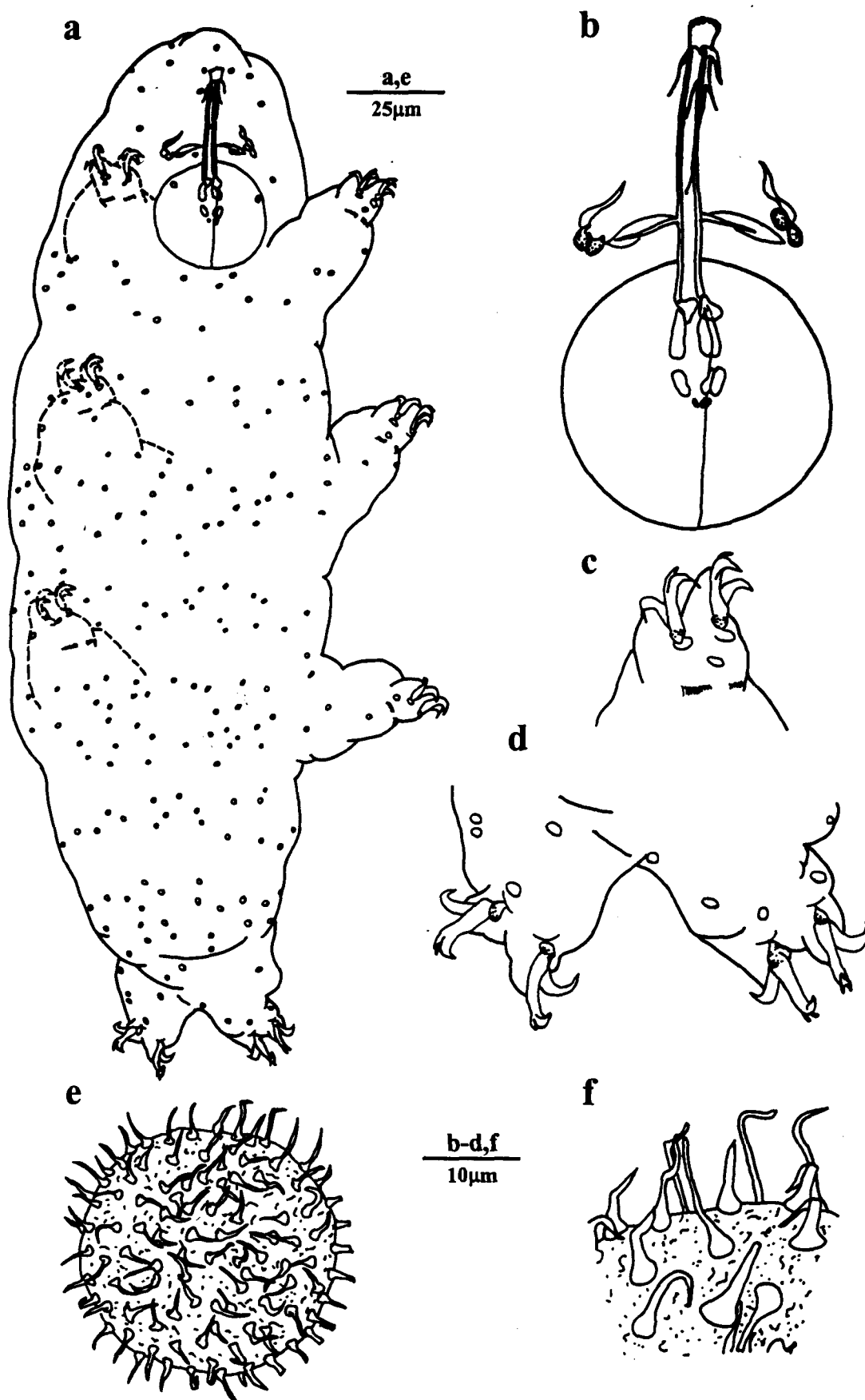


Figure 151: *Minibiotus scopulus* Claxton, 1998. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

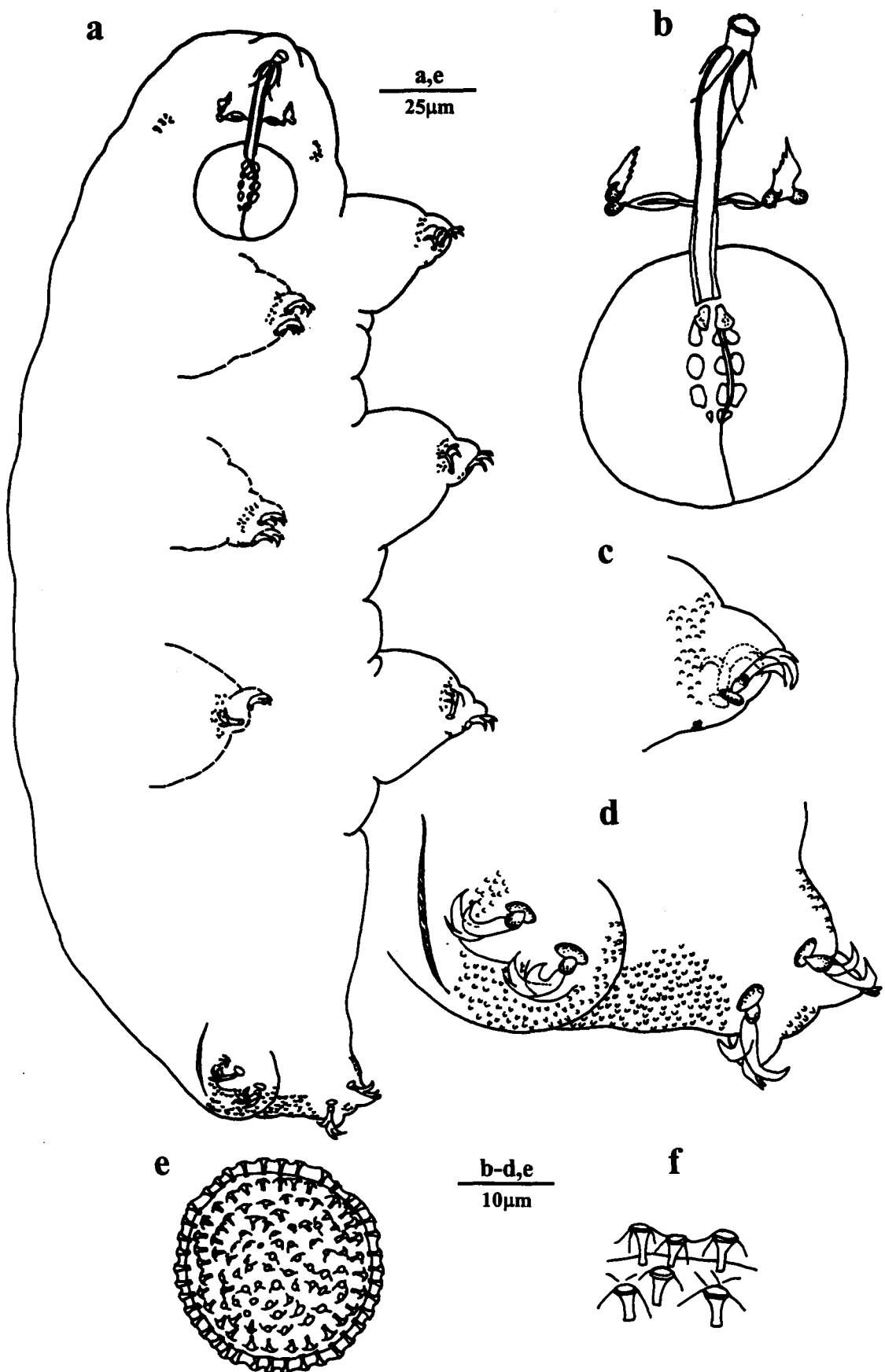


Figure 152: *Minibiotus taiti* Claxton, 1998. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

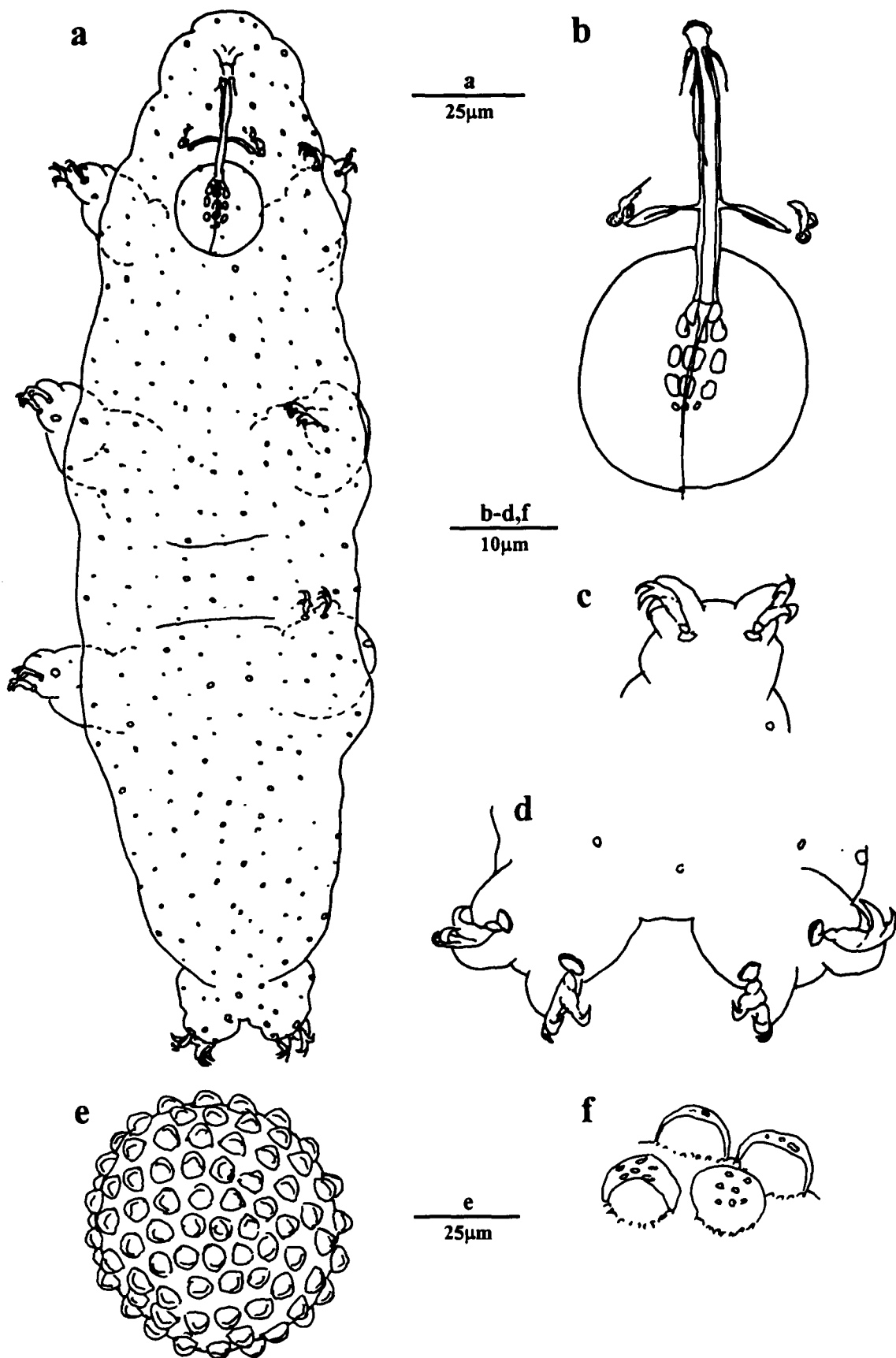


Figure 153: *Minibiotus* cf. *weinerorum*. a. habitus (dorsal view); b. buccopharyngeal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

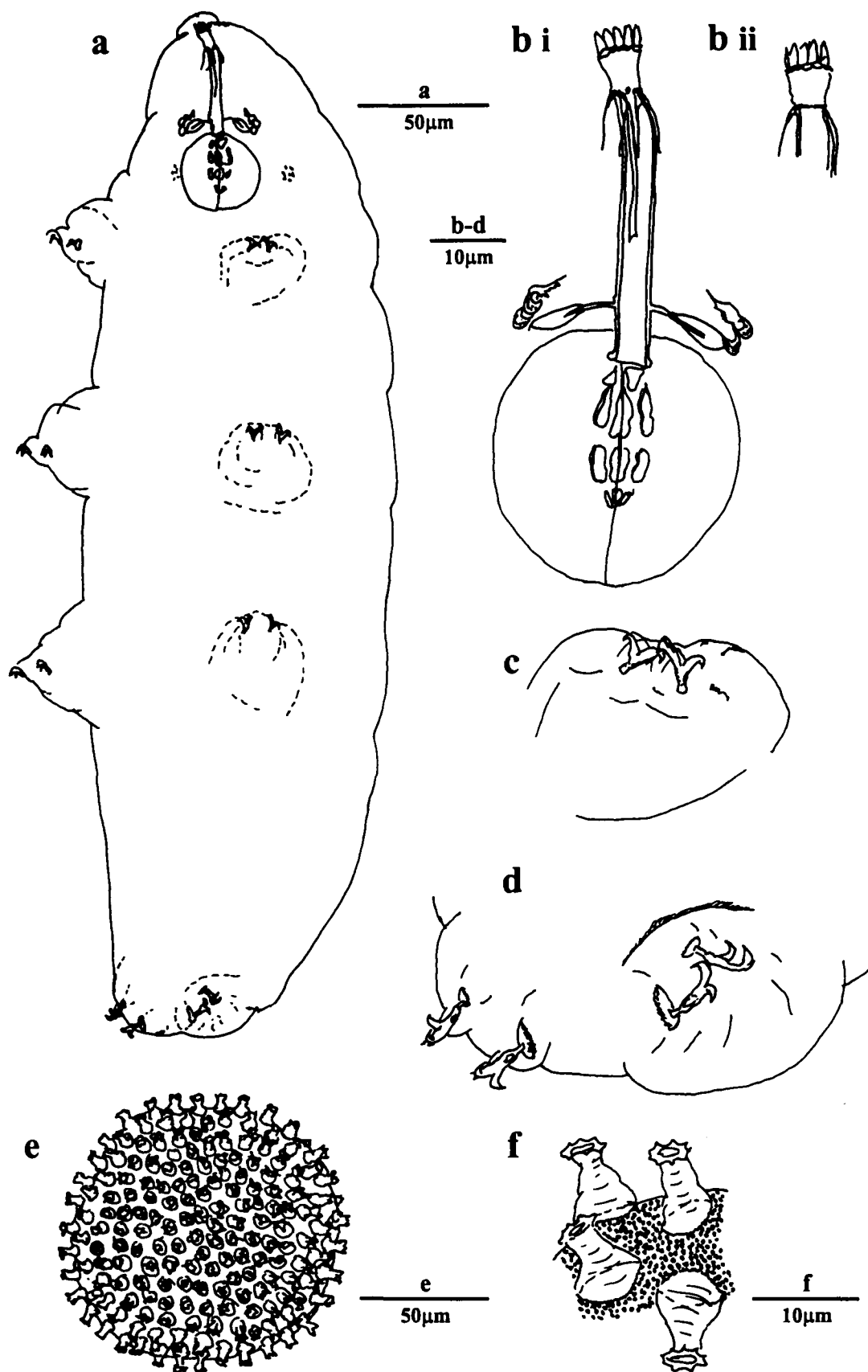


Figure 154: *Xerobiotus pseudohufelandi* (Itharos, 1966). a. habitus (dorsolateral view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs; e. egg; f. egg processes.

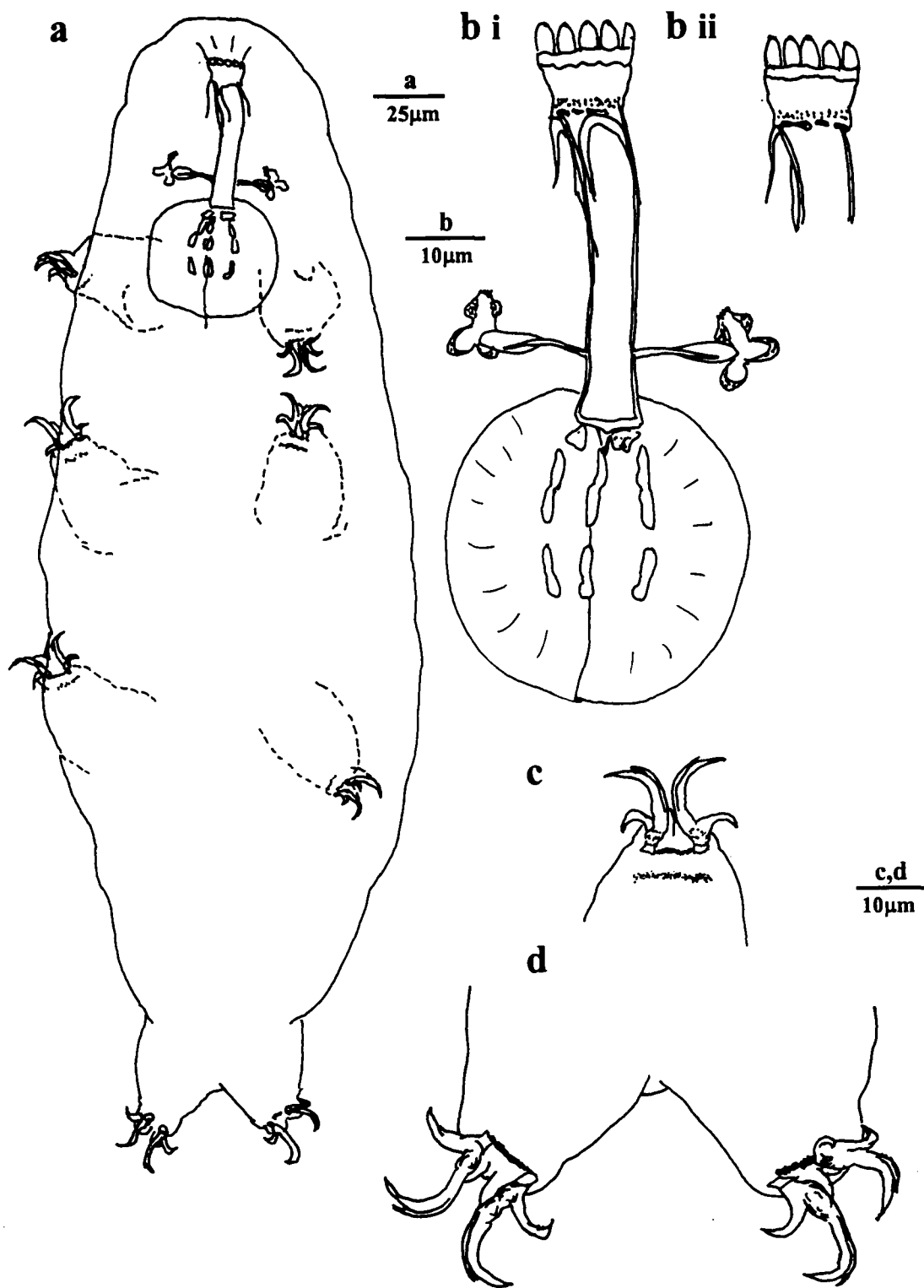


Figure 155: *Dactylobiotus* sp. a. habitus (dorsal view); b. buccopharyngeal apparatus (i) ventral view, (ii) dorsal view; c. claws of first leg; d. claws of fourth pair of legs.

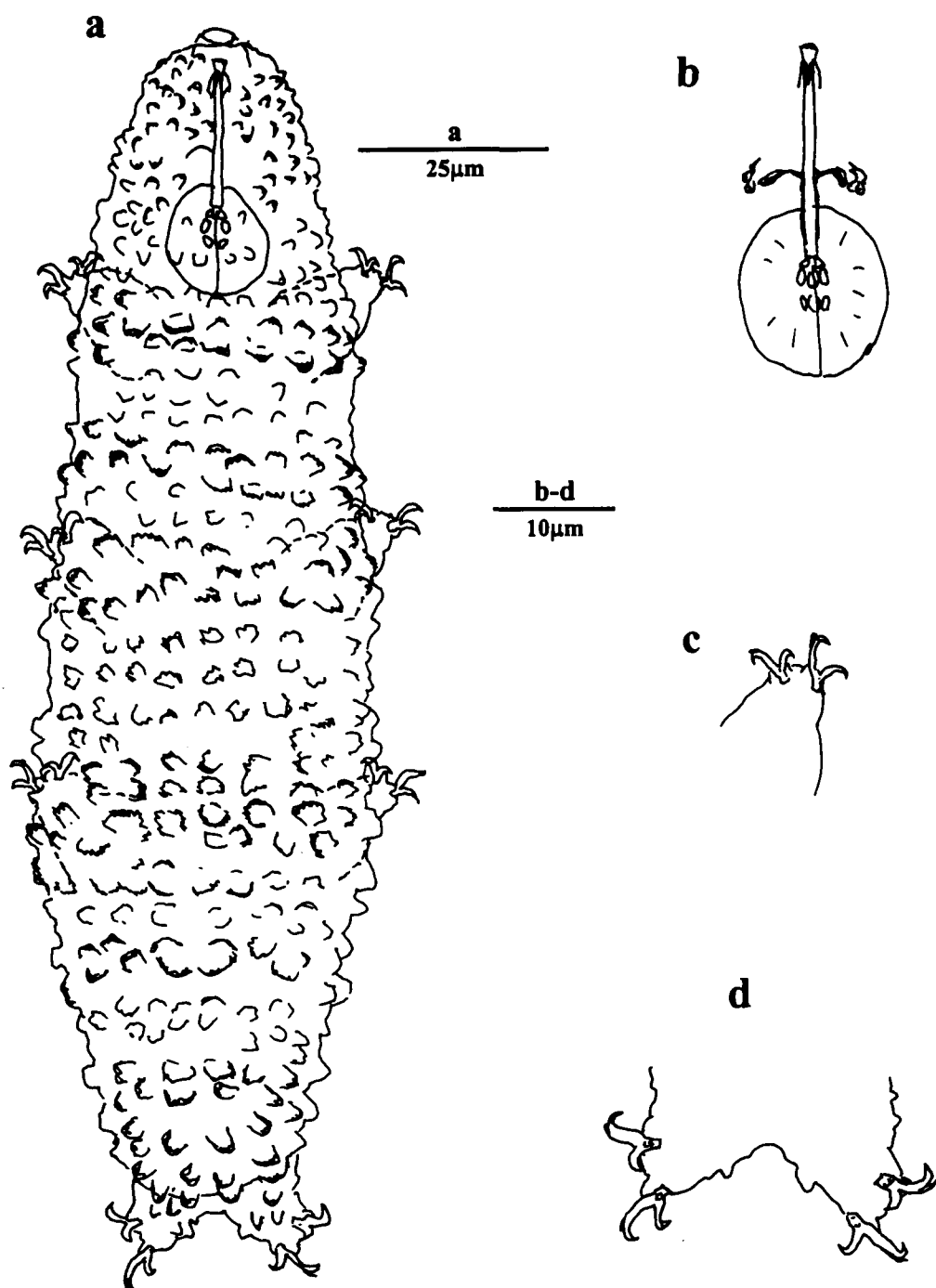


Figure 156: *Fractonotus caelatus* (Marcus, 1928). a. habitus (dorsal view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

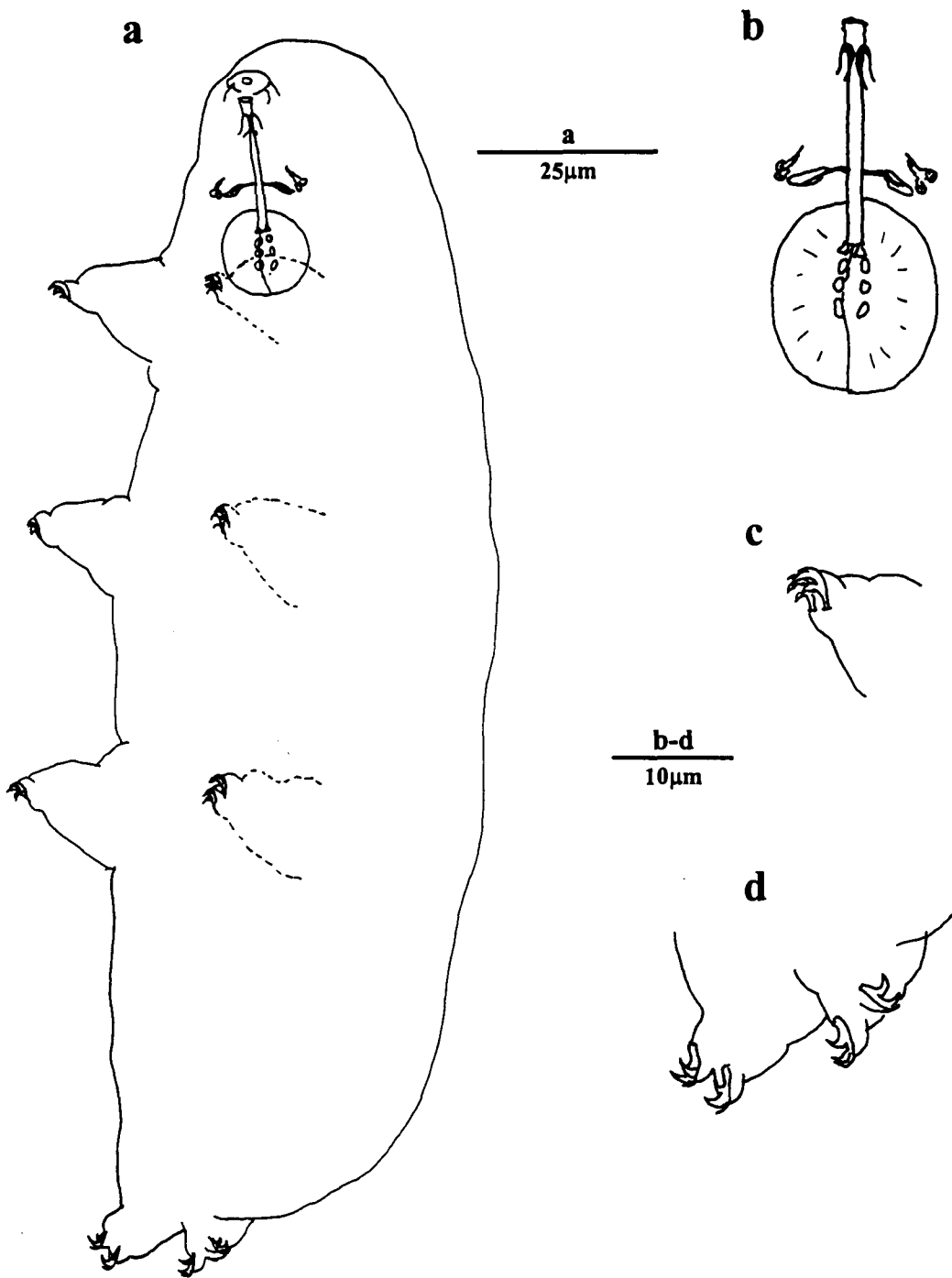


Figure 157: *Microhypsibius japonicus* Ito, 1991. a. habitus (dorsolateral view); b. buccopharyngeal apparatus (ventral view); c. claws of first leg; d. claws of fourth pair of legs.

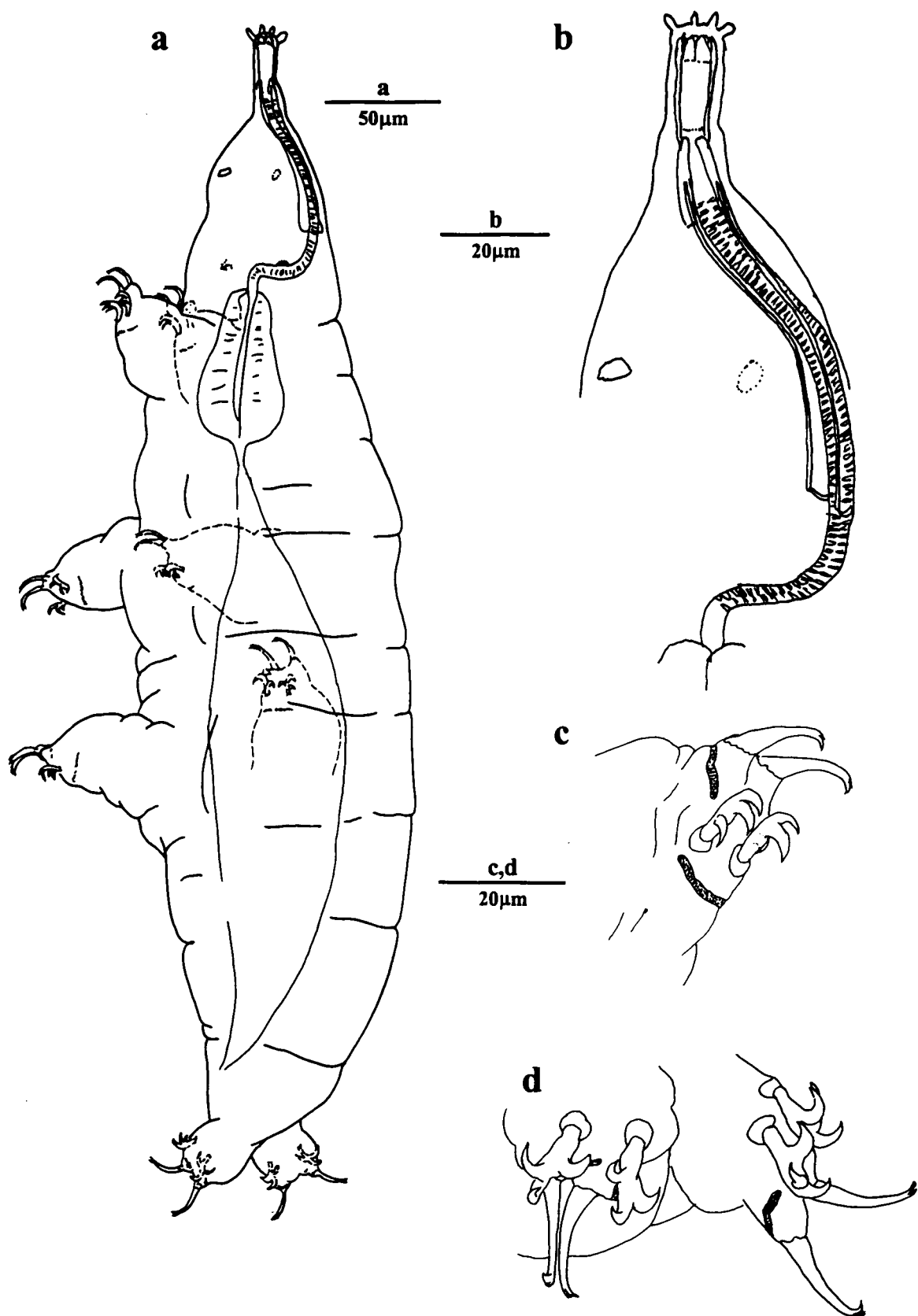


Figure 158: *Limmenius porcellus* Horning, Schuster & Grigarick, 1978. a. habitus (dorsolateral view); b. buccal apparatus (ventrolateral view); c. claws of first leg; d. claws of fourth pair of legs.

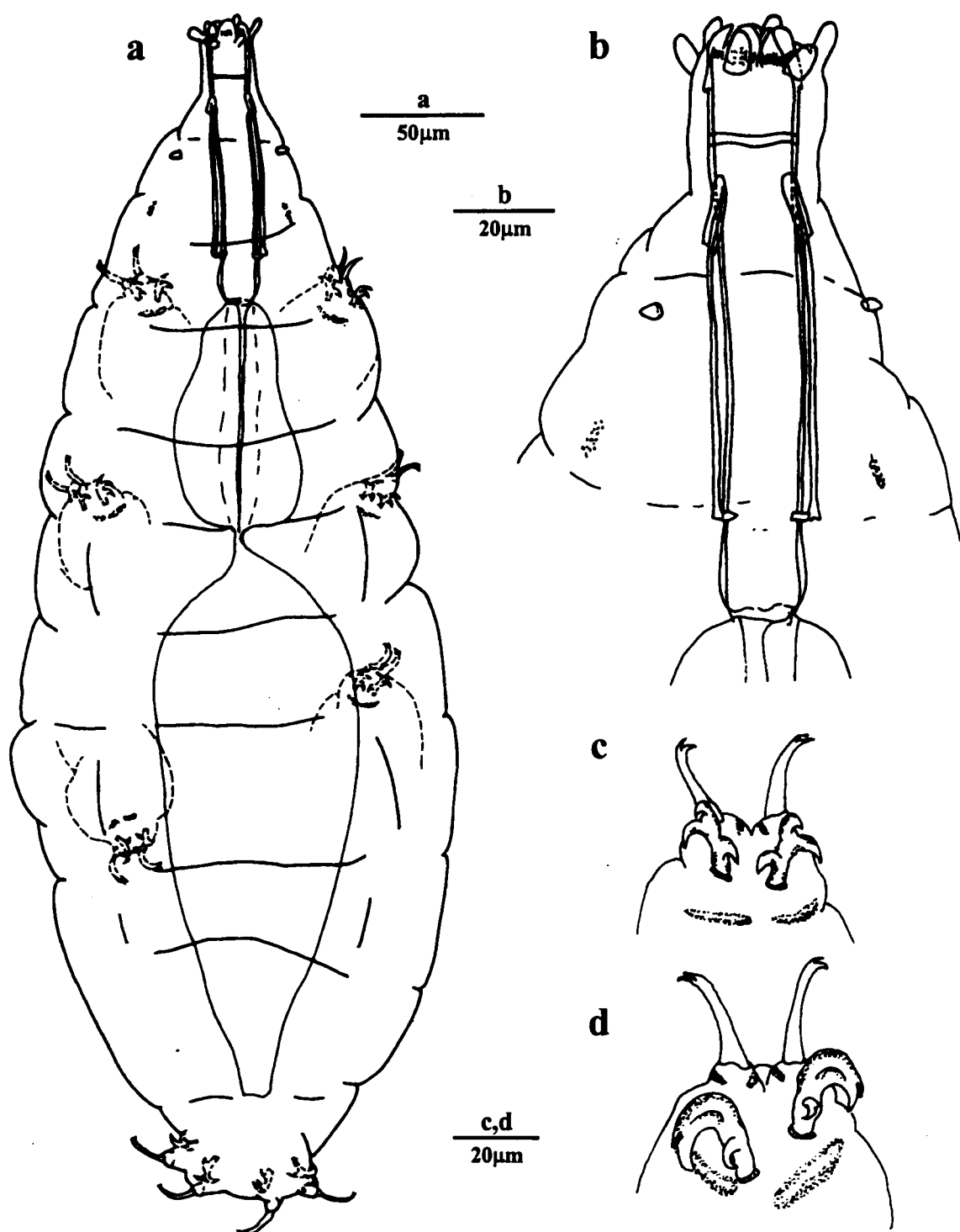


Figure 159: *Milnesioides exsertum* Claxton, 1999. a. habitus (dorsal view); b. buccal apparatus (ventral view); c. claws of first leg of female; d. claws of first leg of male.

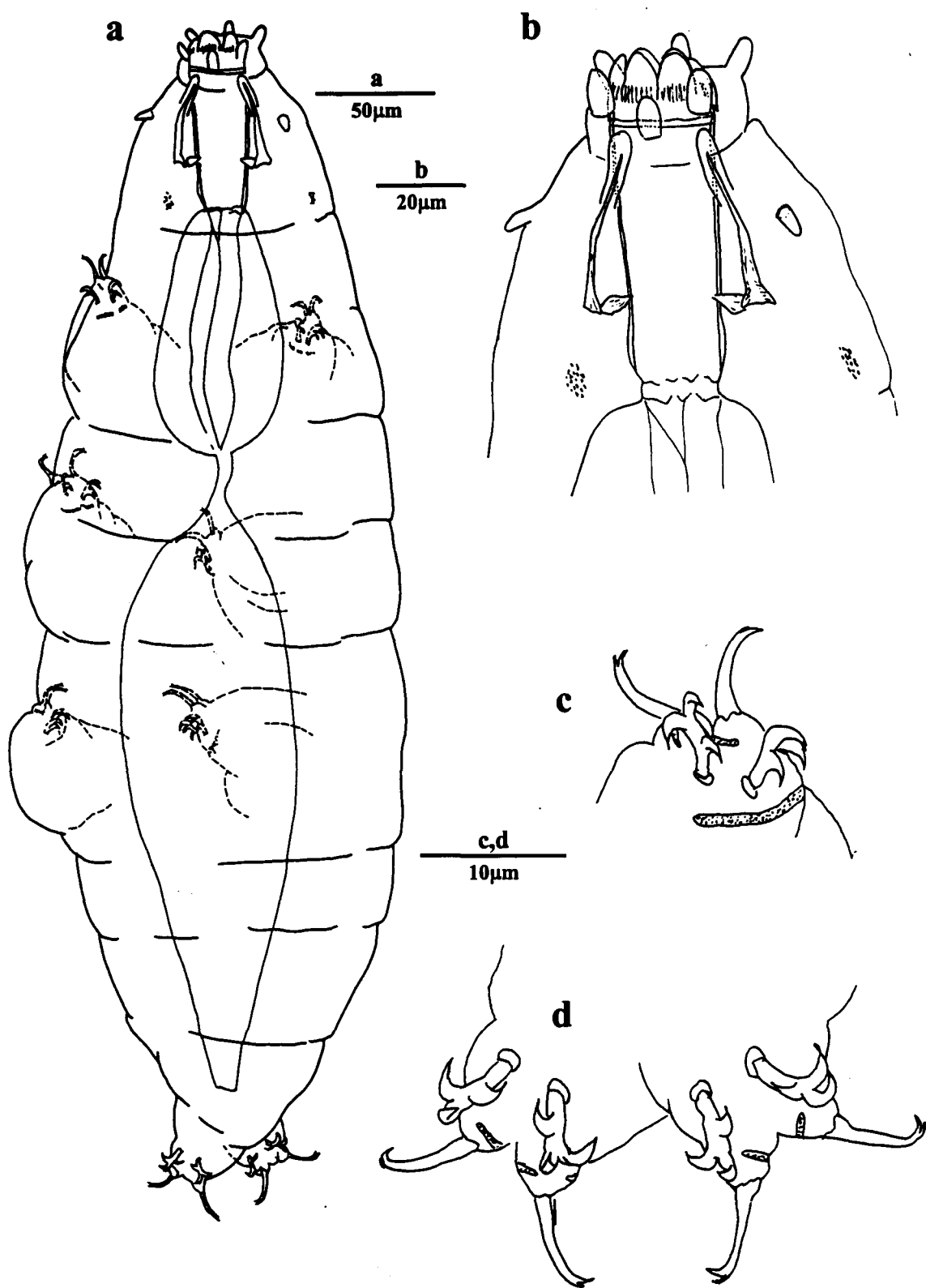


Figure 160: *Milnesium tardigradum* Doyère, 1884. a. habitus (dorsal view); b. buccal apparatus (ventral view); c. claws of second leg; d. claws of fourth pair of legs.

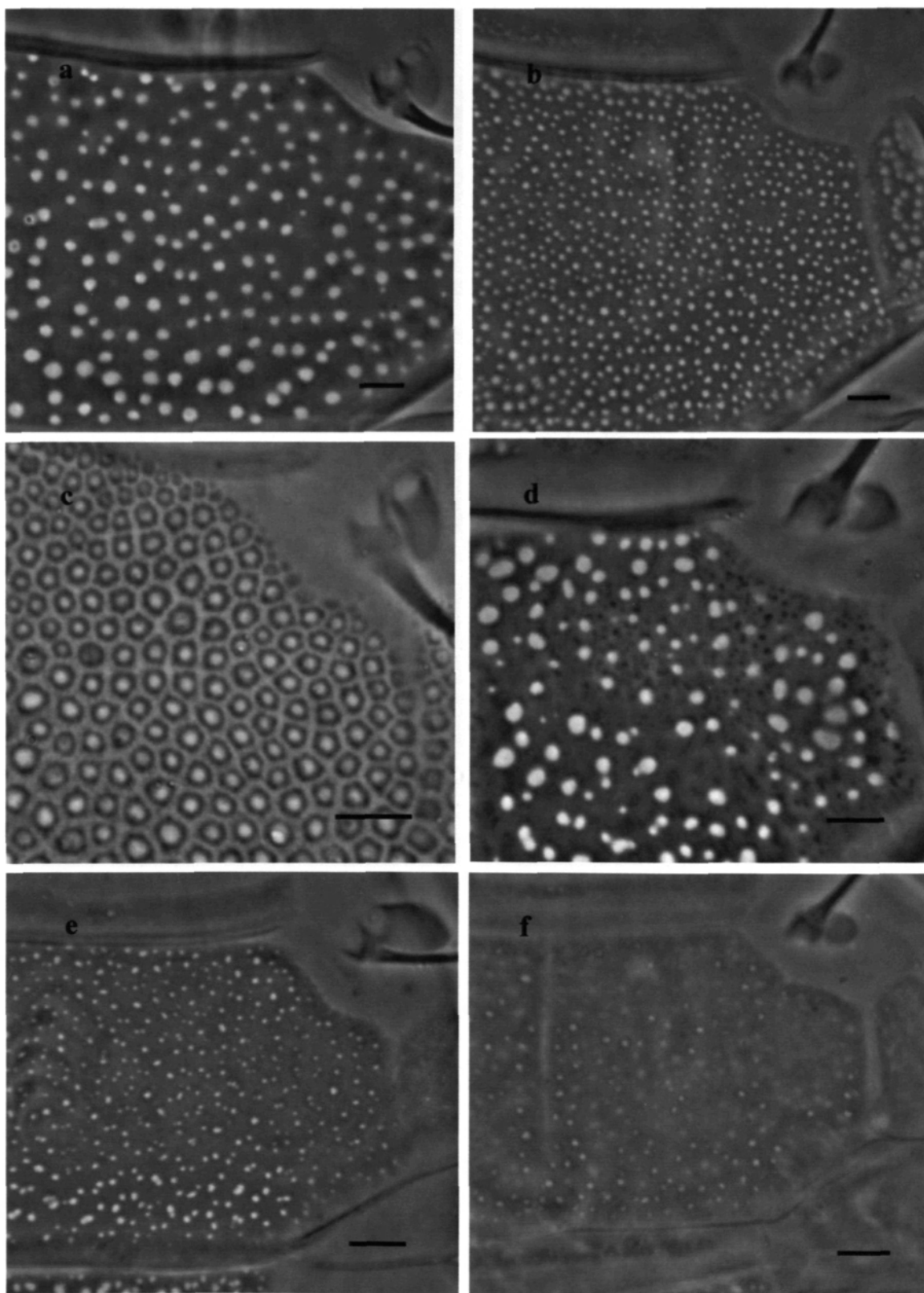


Plate 1. Scapular plates of (a). *Echiniscus arboris* sp. n. (b). *E. aridus* sp. n., (c). *E. blumi* Richters, 1903, (d). *E. bulbulus* sp. n., (e). *E. curiobulbus* sp. n., (f). *E. curiosus* Claxton, 1996. Phase contrast. (Scale bars = 5 μ m)

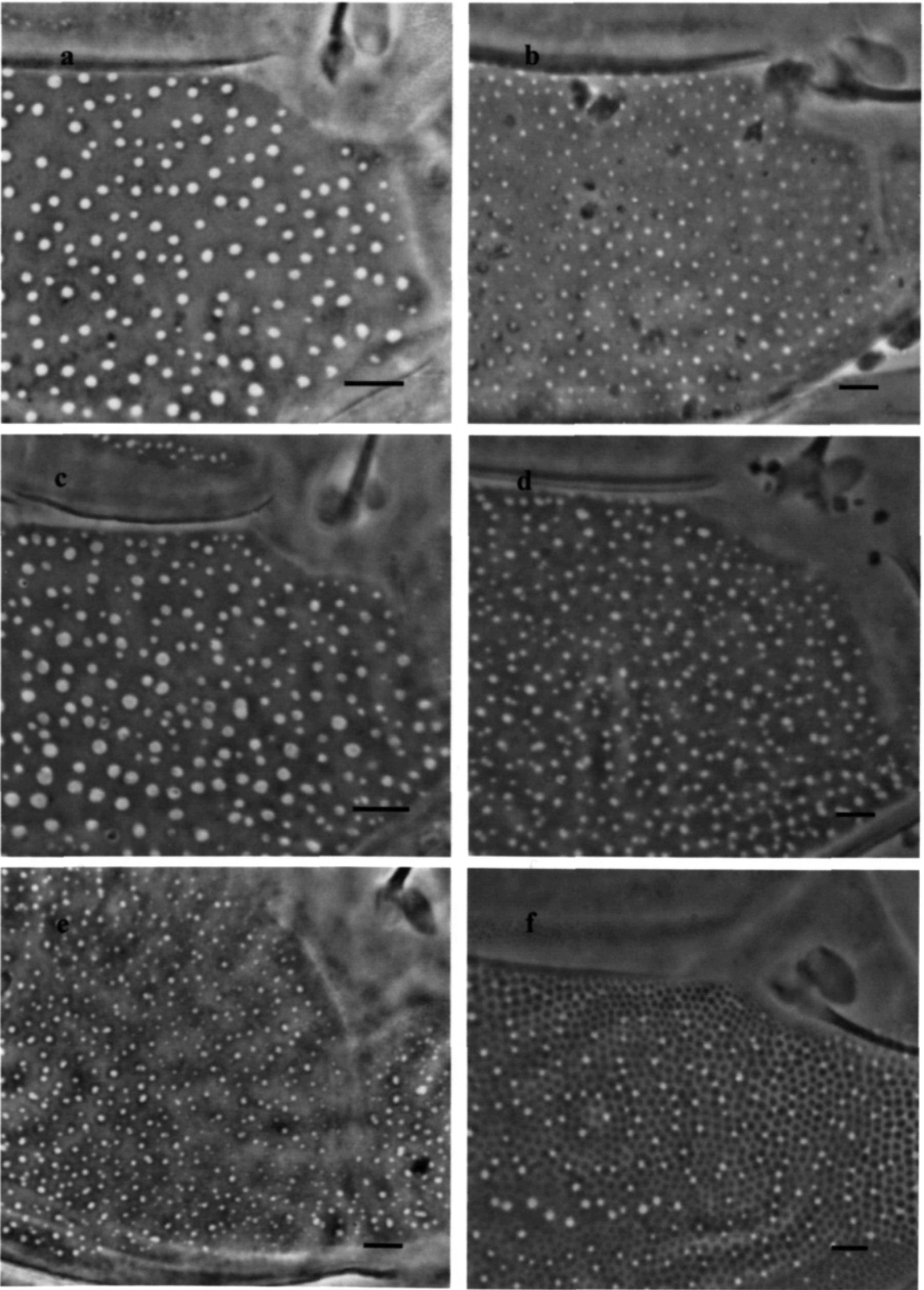


Plate 2. Scapular plates of (a). *Echiniscus* cf. *duboisii* Richters, 1902, (b). *E. jamesi* Claxton, 1996, (c). *E. maculosus* sp. n., (d). *E. marculsi* Pilato et al., 1989, (e). *E. neowendti* sp. n., (f). *E. perarmatus* Murray, 1907. Phase contrast. (Scale bar = 5 μ m)

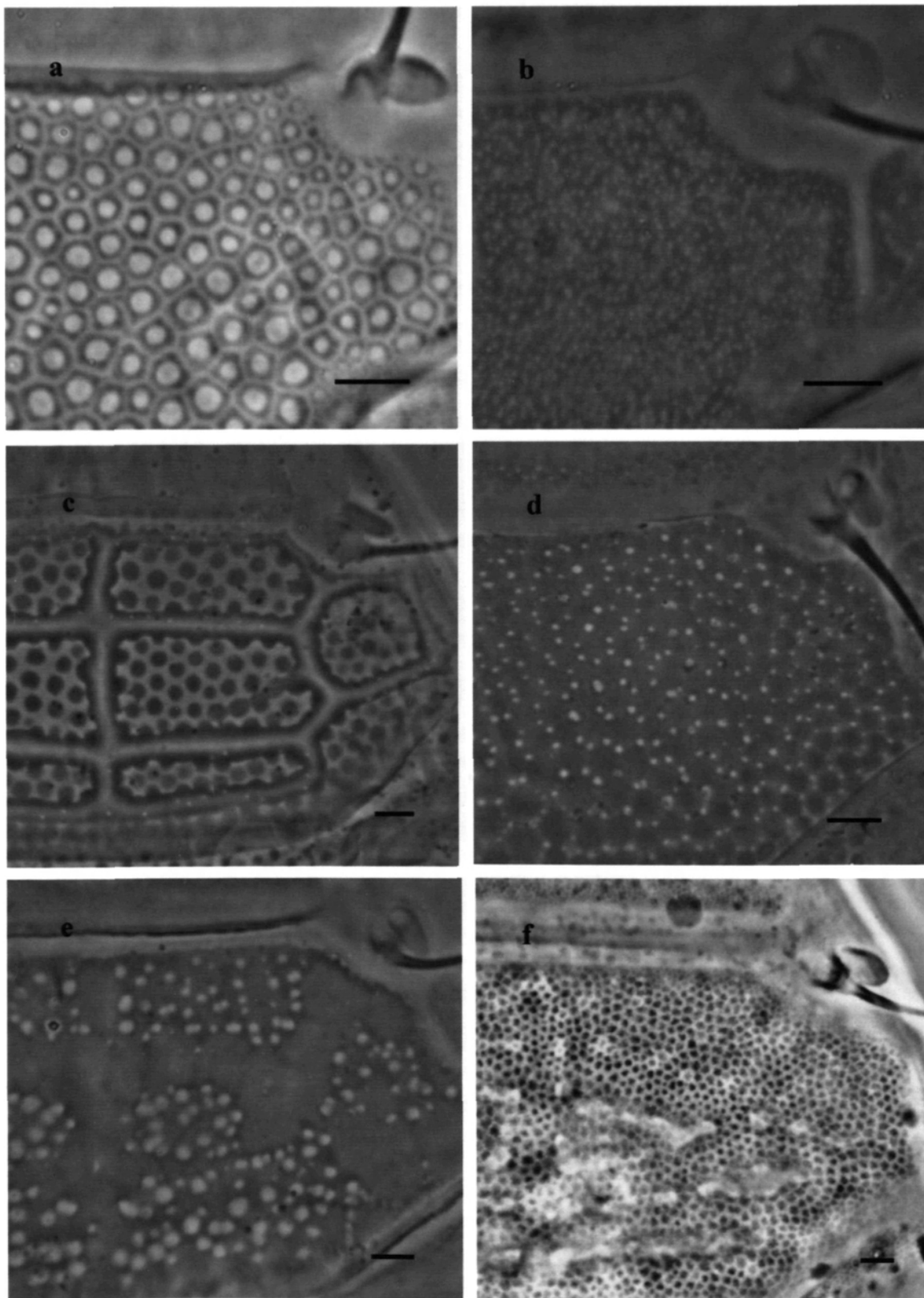


Plate 3. Scapular plates of (a). *Echiniscus pusae* Marcus, 1928, (b). *E. rodnae* Claxton, 1996, (c). *E. tessellatus* Murray, 1910, (d). *E. velaminis* Murray, 1910, (e). *E. vinculus* Horning et al., 1978, (f). *E. virginicus* Riggan, 1962. Phase contrast. (Scale bar = 5 μ m)

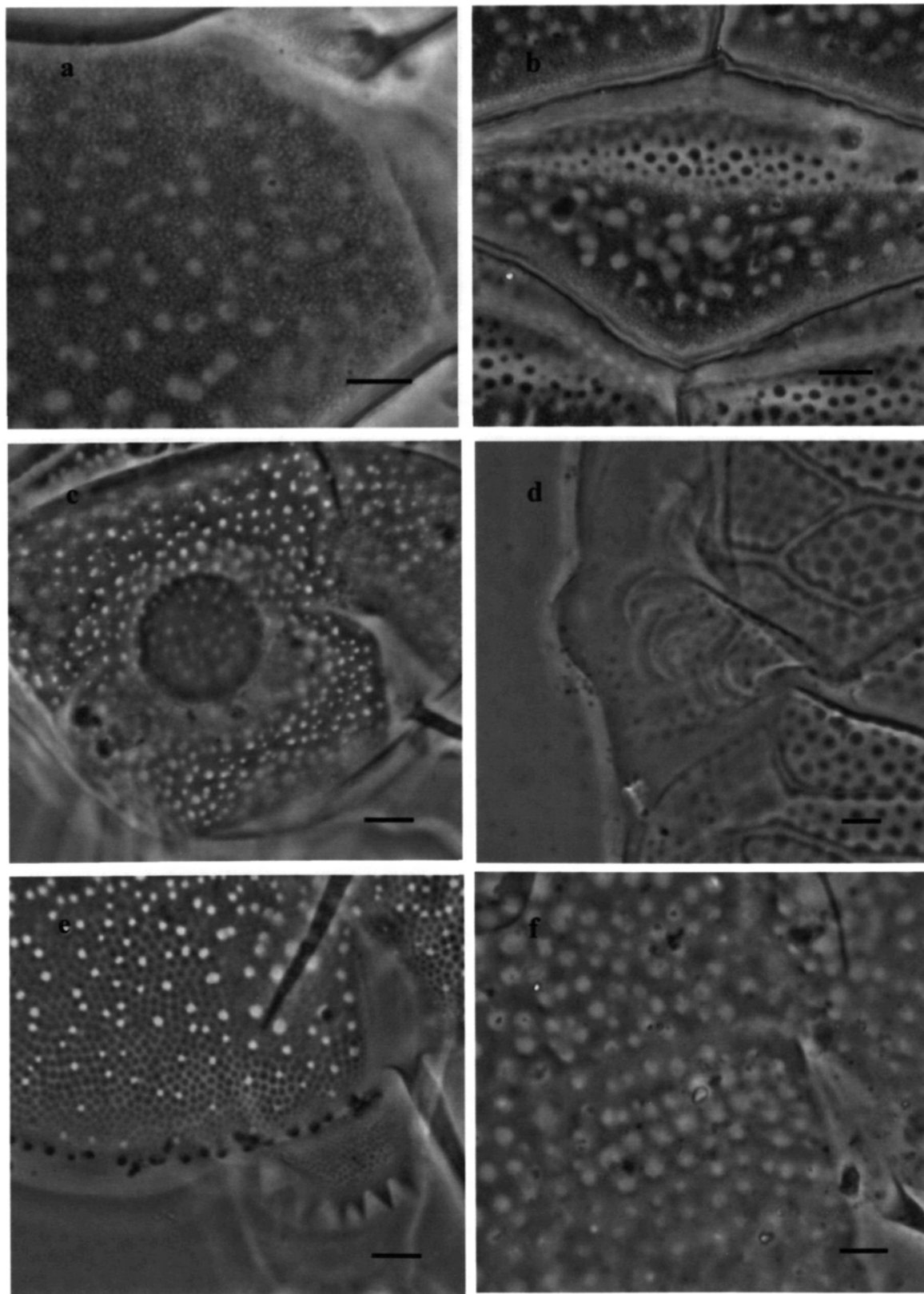


Plate 4. (a). Scapular plate of *Echiniscus viridissimus* Peterfi, 1956, (b). Median plate 2 of *E. viridissimus*, (c). Caudal plate of *E. curiobulbus* sp. n. with bulb, (d). Lateral bulb of *E. tessellatus* Murray, 1910, (e). Denticles around base of caudal plate of *E. perarmatus* Murray, 1907, (f). Caudal plate of *E. velaminis* Murray, 1910. Phase contrast. (Scale bars = 5 μ m)

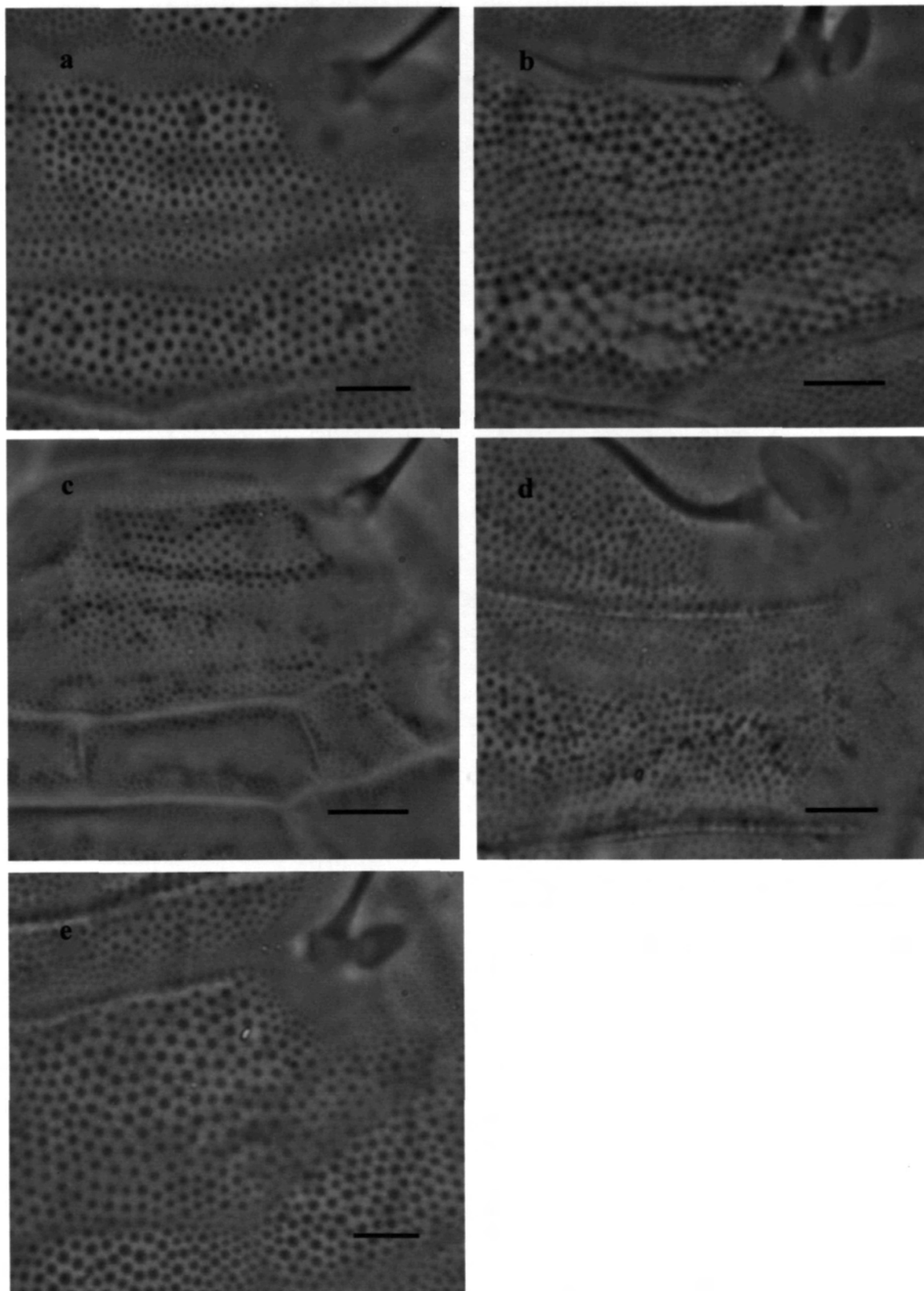


Plate 5. Scapular plates of (a). *Pseudechiniscus australis* sp. n., (b). *P. ficus* sp. n., (c). *P. jiroveci* Bartos, 1963, (d). *P. longiunguis* sp. n., (e). *P. novaezeelandiae* (Richters, 1908). Phase contrast. (Scale bars = 5 μ m)

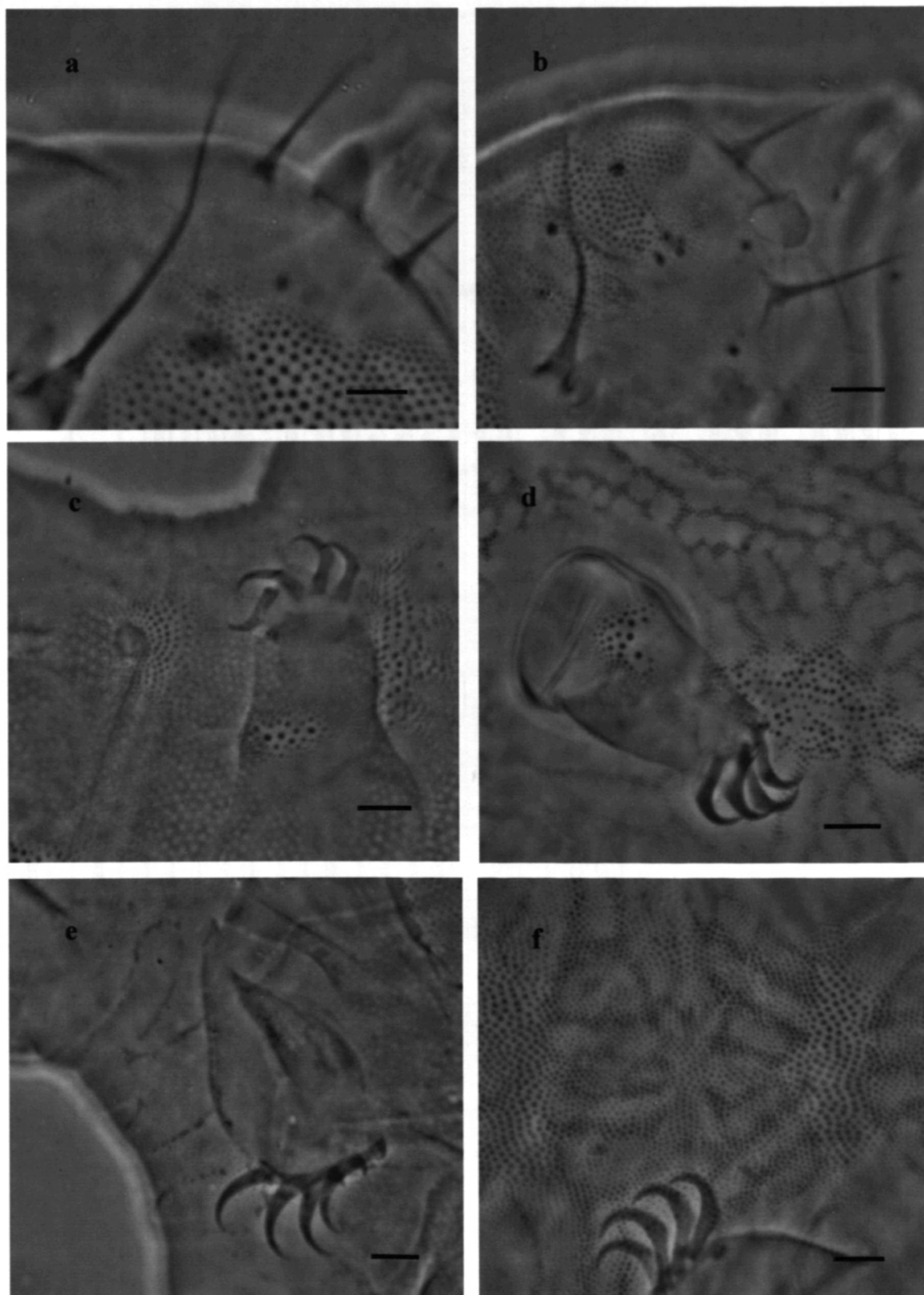


Plate 6. Cephalic sensory structures of (a). *Pseudechiniscus australis* sp. n., and (b). *P. jiroveci* Bartos, 1963. Ventral surface of (c). *P. australis* sp. n., (d). *P. jiroveci* Bartos, 1963, (e). *P. longiunguis* sp. n., and (f). *P. novaezeelandiae* (Richters, 1908). Phase contrast. (Scale bars = 5 µm)

Appendix 1: Collecting sites

	Site	Latitude Longitude	Altitude (m)	Samples	Date	Collector	Description
	QUEENSLAND						
Q1	Mount White	13° 58' 143° 11'	200	12	10 Dec 1993	J. Ollerton	Vine thicket on granite/quartz talus
Q2	Shipton's Flat	15° 47' 145° 14'	200	3	10 Dec 1993	"	Evergreen notophyll vine forest on red volcanic soil
Q3	Daintree	16° 15' 145° 20'	50	4	27 Aug 1985	S.K. Claxton	Rainforest
Q4	Green Island	16° 45' 145° 58'	0	7	28 Aug 1985	"	High closed canopy, no shrubs
Q5	Barron Falls	16° 50' 145° 45'	400	13	26 Aug 1985	"	Closed sclerophyll forest and subtropical rainforest
Q6	Curtain Fig Tree	16° 55' 145° 43'	400	8	29 Aug 1985	"	Isolated fig tree, subtropical rainforest remnant
Q7	Mulgrave	17° 07' 145° 48'	300	14	29 Aug 1985	"	Road side subtropical rainforest remnant
Q8	Lake Tinaroo	17° 20' 145° 38'		8	29 Aug 1985	"	Open park
Q9	Cardwell Beach	18° 16' 146° 02'	0	4	31 Aug 1985	"	Tree on beach
Q10	Mackay	21° 12' 149° 12'	0	1	22 Aug 1985	"	Tree on beach
Q11	Clairview	22° 10' 149° 33'	0	3	1 Sep 1985	"	Tree on beach
Q12	Capricorn Caves	23° 10' 150° 27'	200	11	2 Apr 1997	"	Dry sclerophyll, exposed limestone rocks
Q13	Camoo Caves	23° 10' 150° 27'	200	3	1 Sep 1985	"	Isolated tree on cleared land
Q14	Great Keppel Island	23° 10' 150° 58'	0	5	14 Jul 1993	P.D. Claxton	Dry sclerophyll
Q15	Cania Gorge	24° 37' 150° 52'	500				
Q15.1	Two-storey Cave			12	1 Apr 1997	S.K.C.	Dry sclerophyll on hillside, sandstone outcrops
Q15.2	Creek path			7	"	"	Bush beside creek
Q15.3	Subtropical rainforest			13	"	"	Closed forest, no understorey or ground cover
Q16	Isla Gorge	25° 10' 149° 56'	300	1	7 Mar 1996	R.M. Kristensen	
Q17	Yarraman	26° 20' 151° 58'	500	8	3 Sep 1985	"	Dry sclerophyll forest
Q18	Eumundi	26° 28' 152° 57'	100				
Q18.a				15	20 Dec 1986	D.S. Horning Jr	Urban riverside and park
Q18.b				35	15 Apr 1995	S.K.C.	Roadside; remnant subtropical rainforest
Q19	Mappleton Falls	26° 40' 152° 52'	300	4	20 Aug 1985	"	<i>Eucalyptus grandis</i> forest
Q20	Bribie Island	27° 00' 153° 08'	0				
Q20.1	Skirmish Point A			6	16 Apr 1995	S.K.C.	Leaf litter/sand under <i>Eucalyptus</i> 200m from open sea
Q20.2	Skirmish Point B			7	"	"	Leaf litter/sand under <i>Casuarina</i> 100m from open sea
Q20.3	Heath Walk			15	"	"	Ll/Sand in heath/ <i>Banksia</i> in island center
Q20.4	Buckley's Hole			9	"	"	Rainforest remnant

	Site	Latitude Longitude	Altitude (m)	Samples	Date	Collector	Description
Q21	Crows Nest	27° 15' 152° 05'	760	11	3 Sep 1985	S.K.C.	Dry sclerophyll woodland
Q22	Ravensbourne	27° 22' 152° 08'	700	10	3 Sep 1985	"	Dry sclerophyll woodland
Q23	North Stradbroke Island	27° 30' 153° 30'	0	1	19 Feb 1996	R.M. Kristensen	
Q24	Mount Tambourine	27° 50' 153° 08'	350	5	3 Oct 1985	S.K.C.	<i>Eucalyptus grandis</i> forest
Q25	Cunninghams Gap	28° 03' 152° 25'	450				
Q25.a				19	3 Sep 1985	S.K.C.	Box forest and rainforest
Q25.b				8	10 Jan 1996	"	Rainforest
Q26	Curumbin	28° 10' 153° 30'	50	3	4 Sep 1985	SKC	Rainforest remnant
	NEW SOUTH WALES						
N1	Nimbin	28° 36' 153° 13'	300	6	11 Jan 1994	J. Ollerton	Urban tree
N2	Yamba	29° 26' 153° 22'	50	4	14 Apr 1995	S.K. Claxton	Roadside tree, coastal
N3	New England National Park						
N3.1.a	Gate	30° 29' 152° 17'	1327	10	18 Dec 1995	S.K.C.	Dry sclerophyll woodland, Sandstone rocks
N3.1.b				20	7 Jan 1996	"	
N3.2.a	Wrights Lookout	30° 30' 152° 23'	1300	4	20 Apr 1995	S.K.C.	Heath with <i>Banksia</i> scrub, trachyte rocks
N3.2.b				29	7 Jan 1996	"	
N3.3.a	Cascade	30° 30' 152° 23'	1170	24	20 Apr 1995	"	<i>Nothofagus</i> forest
N3.4.a	Weeping Rock	30° 29' 152° 24'	1530	10	20 Apr 1995	"	<i>Nothofagus</i> forest
N3.4.b				5	7 Jan 1996	R.M. Kristensen	
N3.5.a	Banksia Lookout	30° 30' 152° 24'	1460	23	18 Dec 1994	S.K.C.	Subalpine heath
N3.5.b				4	20 Apr 1995	"	
N3.6.a	Point Lookout	30° 29' 152° 25'	1563	12	18 Dec 1994	"	Subalpine heath
N4	Barrington Tops	31° 59' 151° 30'	1300	7	8 Feb 1993	D. Clark	<i>Nothofagus</i> forest
N5	Sandy Hollow	32° 22' 150° 34'	200	7	20 Mar 1993	S.K.C.	Dry sclerophyll, sandstone rocks
N6	Newcastle State Forest	32° 40' 151° 33'	100	4	24 May 987	S.K.C.	
N7	Minchinberry	33° 15' 150° 28'	800	1	17 Aug 1994	M. Dingley	Aquatic vegetation in pond
N8	Ryde	33° 18' 151° 09'	100	26	29 Apr 1997	S.K.C.	Urban car park, lichens on asphalt, garden beds
N9	Wamberal	33° 25' 151° 27'	20	4	24 Sep 1994	S.K.C.	Temperate rainforest
N10	Strickland State Forest	33° 29' 151° 20'		3	2 Apr 1983	S.K.C.	Pine forest
N11	Mount Wilson	33° 30' 150° 23'	650				
N11.a				24	27 Oct 1991	S.K.C.	Warm temperate rainforest
N11.b				6	24 Jan 1993	D. Clark	Roadside

	Site	Latitude Longitude	Altitude (m)	Samples	Date	Collector	Description
N12	Umina Beach	33° 33' 151° 22'	0	1	22 Nov 1994	S.K.C.	Beach sand
N13	Glenorie	33° 36' 151° 01'	300	2	28 Sep 1985	S.K.C.	Urban street, tree
N14	Blue Mountains						
N14.1	Evans Lookout	33° 39' 150° 20'	1000	12	14 Jul 1991	G. Coleman	Escarpment top, dry sclerophyll
N14.2.a	Leura	33° 43' 150° 20'	1000	18	4 Oct 1988	S.K.C.	Rainforest remnant
N14.2.b				16	26 Dec 1993	"	"
N14.2.c				27	31 Jul 1995	"	Rainforest remnant and dry sclerophyll
N14.2.d				42	26 Nov 1995	"	Rainforest remnant and dry sclerophyll
N14.2.e				11	29 Mar 1996	"	Dry sclerophyll
N14.3.a	Bridal Veil	33° 43' 150° 20'	900	12	4 Oct 1988	"	Rainforest remnant
N14.3.b				11	8 Aug 1995	"	"
N14.4	Leura Forest	33° 43' 150° 20'	200	11	9 Jan 1989	P.D. Claxton	Closed forest in valley below escarpment
N14.5	Gordon Falls	33° 43' 150° 20'	900	13	4 Oct 1988	S.K.C.	Escarpment top, dry sclerophyll
N14.6	Sublime Point	33° 44' 150° 20'	940	13	27 Oct 1991	S.K.C.	Escarpment top, dry sclerophyll
N14.7	Wentworth Falls	33° 44' 150° 23'	900	5	26 Dec 1993	S.K.C.	Protected home garden
N15	Jenolan Caves	33° 49' 150° 02'	600				Protected valley, limestone rocks
N15.1a	McKewens Valley Trail	33° 49' 150° 02'		23	14 Dec 1986	S.K.C.	"
N15.2.a	Blue Lagoon Walk	33° 49' 150° 02'		16	14 Dec 1986	"	"
N15.2.b				7	1 Oct 1994	"	"
N15.2.c				3	31 Jul 1995	"	"
N15.3.a	Cave Entrance	33° 49' 150° 02'		2	14 Dec 1986	"	"
N15.3.b				12	18 Dec 1992	"	"
N15.4	Charlotta Track	33° 49' 150° 02'		3	23 Aug 1991	"	"
N16	Wallacia	33° 51' 150° 40'	120	1		S.K.C.	Tree in street
N17	Nielsen Park	33° 53' 151° 16'	20	1	27 Apr 1996	S.K.C.	Rock top of hill in park
N18	Carlton	33° 55' 151° 13'	50	1	12 Mar 1989	S.K.C.	Moss on asphalt in driveway
N19	Theresa Park	34° 02' 150° 34'	125	2	6 Dec 1987	S.K.C.	Dry sclerophyll, near creek
N20	Cobbitty	34° 02' 150° 42'	130				Trees in street
N20.a				3	8 Nov 1985	S.K.C.	
N20.b				4	11 May 1991	"	
N20.c				4	29 Aug 1992	"	
N20.d				1	20 Mar 1994	"	
N21	Camden	34° 03' 150° 42'	130				Tree in yard

	Site	Latitude Longitude	Altitude (m)	Samples	Date	Collector	Description
N21.a				1	11 Jan 1985	S.K.C.	
N21.b				1	20 May 1987	"	
N21.c				2	1 Jun 1987	"	
N21.d				1	13 Aug 1987	"	
N21.e				1	10 Aug 1988	"	
N21.f				1	14 Dec 1988	"	
N21.g				1	20 Apr 1989	"	
N21.h				2	20 Mar 1992	"	
N21.i				1	27 Jul 1993	"	
N21.j				3	4 Apr 1994	"	
N22	Burraborang	34° 04' 150° 26'	125				Dry sclerophyll forest, sandstone rock
N22.a				1	23 Jun 1988	R. Siebels	
N22.b				3	18 Feb 1984	"	
N22.c				6	27 Jul 1990	"	
N22.d				9	24 Nov 1991	"	
N23	Glenfield	34° 04' 150° 50'	100				Open woodland, <i>Eucalyptus/ Casuarina</i>
N23.a				8	11 Jan 1985	S.K.C.	
N23.b				8	20 Jan 1985	"	
N24	Sheey's Creek	34° 07' 150° 31'	100	4	19 Oct 1985	S.K.C.	Open woodland, sandstone rock
N25	Carrington Falls	34° 10' 151° 01'		1	20 Jul 1991	G. Coleman	Temperate rainforest
N26	Wedderburn	34° 10' 150° 50'	100				Closed forest near creek
N26.a				3	23 Mar 1993	S.K.C.	
N26.b				4	7 Aug 1993	"	
N27	Douglas Park	34° 11' 150° 43'	110				Dry sclerophyll woodland
N27.a				22	5 Aug 1984	S.K.C.	
N27.b				14	17 Mar 1985	"	
N27.c				6	20 Aug 1984	"	
N27.d				1	2 Feb 1986	"	
N27.e				11	1 Jan 1986	"	
N27.f				12	9 Mar 1986	"	
N27.g				12	17 May 1986	"	
N27.h				12	19 Jul 1986	"	
N27.i				12	13 Sep 1986	"	
N27.j				12	15 Nov 1986	"	

	Site	Latitude Longitude	Altitude (m)	Samples	Date	Collector	Description
<i>N27.k</i>				12	11 Jan 1987	"	
<i>N27.l</i>				3	6 Jan 1991	"	
<i>N28</i>	Appin	34° 12' 150° 47'	200	10	29 Jun 1985	P.D. Claxton	Open sclerophyll woodland, sandstone rocks
<i>N29</i>	Wombeyan	34° 19' 149° 58'					
<i>N29.1.a</i>	Caves		580	25	8 Mar 1992	S.K.C.	Protected valley, limestone
<i>N29.1.b</i>				5	26 Apr 1996	"	
<i>N29.2</i>	Taralga Road		690	7	8 Mar 1992	"	Side of road, open woodland, sandstone
<i>N30</i>	Mount Kiera	34° 19' 150° 55'	600	5	17 Feb 1985	S.K.C.	Closed forest
<i>N31</i>	Minnamurra	34° 20' 150° 50'	100	10	17 Jul 1987	S.K.C.	subtropical rainforest
<i>N32</i>	Taralga	34° 24' 149° 49'		4	26 Apr 1996	S.K.C.	Roadside, isolated trees
<i>N33</i>	Crookwell	34° 28' 149° 29'	700				
<i>N33.a</i>				2	29 Aug 1992	J. Lloyd	Roadside, isolated trees
<i>N33.b</i>				1	12 Jun 1993	"	
<i>N34</i>	Fitzroy Falls	34° 38' 150° 30'	500	21	26 Jan 1986	S.K.C.	Closed woodland
<i>N35</i>	Barrengarry	34° 40' 150° 30'	570				
<i>N35.a</i>				22	26 Jan 1986	S.K.C.	Warm temperate rainforest
<i>N35.b</i>				16	9 May 1993	"	
<i>N36</i>	Marulan	34° 43' 150° 00'		5	27 Jul 1996	T. English	Dry sclerophyll woodland
<i>N37</i>	Hampden Bridge	34° 44' 150° 31'		5	18 May 1985	S.K.C.	Roadside, isolated tree
<i>N38</i>	Narrandera	34° 45' 146° 33'	100	22	19 Mar 1994	S.K.C.	Dry woodland
<i>N39</i>	Cambewarra Mountain						
<i>N39.1.a</i>	South	34° 48' 150° 35'	625	17	28 Dec 1984	S.K.C.	Warm temperate rainforest on roadside
<i>N39.1.b</i>				16	18 May 1985	"	
<i>N39.2.a</i>	Lookout	34° 48' 150° 35'	625	6	26 Jan 1986	"	Warm temperate rainforest
<i>N39.2.b</i>				12	9 Mar 1986	"	
<i>N39.2.c</i>				12	17 May 1986	"	
<i>N39.2.d</i>				12	19 Jul 1986	"	
<i>N39.2.e</i>				12	13 Sep 1986	"	
<i>N39.2.f</i>				12	15 Nov 1986	"	
<i>N39.2.g</i>				12	11 Jan 1986	"	
<i>N39.2.h</i>				4	11 Jan 1987	"	
<i>N39.2.i</i>				19	9 Mar 1993	"	
<i>N40</i>	Lake George Range	35° 04' 149° 52'	700	9	27 Mar 1992	P.D.C.	Dry sclerophyll forest, sandstone rocks

	Site	Latitude Longitude	Altitude (m)	Samples	Date	Collector	Description
<i>N41</i>	Galore	35° 07' 146° 47'					
<i>N41.1</i>			640	8	19 Mar 1994	S.K.C.	Top monolith, open woodland
<i>N41.2</i>			340	8		"	Half way up monolith under scrub
<i>N42</i>	Lake Tabouri	35° 27' 150° 31'	0	8	29 Dec 1984	S.K.C.	<i>Casuarina</i> trees near beach
<i>N43</i>	Yarrangobilly Caves	35° 39' 148° 28'	1300				
<i>N43.a</i>				6	11 Jan 1985	G. Saunders	Limestone
<i>N43.b</i>				5	2 Mar 1993	S. Tidman	"
<i>N44</i>	Kiandra	35° 52' 148° 30'	1640	7	18 Mar 1994	S.K.C.	Subalpine heath, sandstone rocks
<i>N45</i>	Montague Island	36° 15' 150° 14'	0	1	22 Jan 1993	D. Clark	Lichen on rock exposed to sea spray
<i>N46</i>	Mount Kosciusko						
<i>N46.1</i>	Waste Point	36° 20' 148° 36'	1000	10	1 Oct 1992	P.D.C.	Dry open sclerophyll
<i>N46.2</i>	Wilson Valley	36° 27' 147° 55'	1200	13	1 Oct 1992	"	Subalpine woodland
<i>N46.3</i>	Diggers Creek	36° 20' 148° 30'	1500	12	1 Oct 1992	"	"
<i>N47</i>	Nadgee	37° 20' 149° 57'	0	2	3 Sep 1985	E.A. Sugden	Soil and rock near ocean
<i>N48</i>	Darling Hill	38° 00' 149° 53'		8	1 Oct 1994	S.K.C.	Dry sclerophyll woodland, sandstone rocks
<i>N49</i>	Wattagan State Forest			3	26 May 1994	"	Open forest
	AUSTRALIAN CAPITAL TERRITORY						
<i>A1</i>	Coppins Crossing			13	4 Sep 1993	S.K.C.	Trees and rocks beside river
<i>A2</i>	Mount Ainsley			1	28 Jun 1991	S.K.C.	Dry sclerophyll woodland
<i>A3</i>	Lake Burley Griffin			1	2 Apr 1992	M. Dingley	Aquatic vegetation in lake
	VICTORIA						
<i>V1</i>	Gama	35° 33' 142° 32'		5	25 Jul 1999	S.K.C.	Leaf litter under Mallee trees
<i>V2</i>	Mount William	37° 20' 142° 35'	1167	1	24 Jul 1999	S.K.C.	Subalpine woodland
<i>V3</i>	Melba Gully	38° 40' 143° 20'	500	13	4 May 1997	S.K.C.	<i>Nothofagus</i> forest
<i>V4</i>	Cape Ottway Lighthouse	38° 52' 143° 31'	0	3	4 May 1997	S.K.C.	Open windswept low scrub near sea
<i>V5</i>	Otway Range	38° 42' 143° 22'	500	1	4 May 1997	S. K. C.	Closed wet forest
	TASMANIA						
<i>T1</i>	King Island						
<i>T1.1</i>	Lavinia Nature Reserve	39° 36' 144° 05'	40	2	10 Nov 1995	A. Moscal	Coastal <i>Acacia</i> scrub
<i>T1.2</i>	Yarra Creek	40° 00' 144° 06'	40	1	7 Nov 1995	"	Mixed wet gully forest

	Site	Latitude Longitude	Altitude (m)	Samples	Date	Collector	Description
T1.3	Kenford State For Res	40° 02' 143° 58'	100	3	9 Nov 1995	"	Remnant regenerated cool temperate rainforest
T2.1	Mount Cameron	40° 52' 144° 42'	150	3	8 Jan 1996	"	Headland, sandstone sills
T2.2			25	1	9 Jan 1996	"	Littoral flat
T3	Mount Montgomery	41° 08' 146° 03'	160	16	20 Oct 1994	"	Closed tall scrub in stream gully
T5	Sith Cala Nature Reserve	41° 12' 146° 05'	150	13	19 Oct 1994	"	Wet sclerophyll forest
T6	Hellyer Gorge	41° 14' 145° 34'		4		J. Lake	No data
T7	Mount Roland	41° 29' 146° 15'	680	14	21 May 1996	A. Moscal	Wet forest gully slope
T8	Cradle Mountain	41° 37' 145° 58'	1040	1	18 Jan 1997	"	Stunted old growth stand of <i>Athrotaxis</i>
T9	Forth River	41° 37' 146° 08'	320	2	16 Jan 1997	"	Wet sclerophyll forest, riparian stand
T10	Pieman	41° 39' 145° 05'	20	2	8 Feb 1994	"	Regenerating rainforest with <i>Nothofagus</i>
T11	King River	42° 12' 145° 32'		2	8 Jun 1989	J. Lake	No data
T12	Franklin River	42° 14' 145° 54'		5	10 Jun 1989	"	"
T13	Macquarie Harbour	42° 18' 145° 23'		1		"	"
T14	Gordon River	42° 25' 146° 15'		1		"	"
T15	Mount Field Nat Park	42° 35' 146° 35'		1		"	"
T16	Devils Elbow	42° 37' 147° 17'	500	2	1 Feb 1998	A. Moscal	Shaded dolerite rubble and boulder slope
T17	Maria Island, Mount Pedder	42° 38' 148° 05'	620	1	20 Apr 1995	"	Dolerite ridge, stunted shrubs and heath
T18	Mount Nelson	42° 56' 147° 17'		5	5 Dec 1988	A.J. Dowling	Dry sclerophyll woodland on dolerite
T19	Cascade Walk, Tasman Arch	43° 03' 147° 57'		1	9 Dec 1988	"	Heath, low woodland on sandy soil
T20	Greeveston	43° 10' 146° 55'					Tall <i>Eucalyptus</i> forest with dense understorey
T21	Hartz Mountains	43° 12' 146° 47'					Regrown <i>Eucalyptus</i> /Myrtle forest
T22	Hastings Caves	43° 25' 146° 57'		21	6 Dec 1988	"	Dense woodland, dolerite boulders
	WESTERN AUSTRALIA						
W1	Perth Urban	31° 50' 115° 50'	20	19	13 Nov 1995	P.D. Claxton	Trees and rocks in urban streets
W2	John Forest Nat Park	31° 52' 116° 05'	20	13	23 Nov 1994	"	<i>Jarrah</i> forest
W3	Kings Park, Perth	31° 58' 115° 50'	20	8	17 Feb 1993	"	Parkland
W4	South Perth Zoo	32° 04' 115° 52'	20	9	16 Feb 1993	"	Moss on limestone wall and ground
W5	Ravenswood	32° 33' 115° 43'	50	5	18 Feb 1993	"	Isolated roadside tree

Appendix 2. Glossary

Accessory claw: The pair of points representing the free end of a cuticular band which runs along the dorsal edge of the primary branch of the claw in eutardigrades (Fig. IIIb and IIIc).

Accessory spur: A spur found near the base on the internal (rarely on the external) claws of echiniscoids (Fig. IIIa).

Apophysis: One of a set of cuticular thickenings that occurs anteriorly in the pharynx, just below the buccal or buccopharyngeal tube, in an alternating position between the placoids (Fig. II). The term is also used for a number of structures used for the insertion of the stylet muscles at the anterior end of the buccal or buccopharyngeal tube.

Basal part of claw: A part of the claw in some eutardigrades which is attached to the body by a peduncle and is separated from the rest of the claw by a septum.

Buccal cavity: see Oral cavity

Buccal papilla: see Secondary clava

Buccal tube: The rigid tube in the buccopharyngeal apparatus of tardigrades which leads from the oral cavity to the pharyngeal tube or to the pharynx (see Fig. II).

Buccopharyngeal apparatus: Consists of a mouth usually surrounded by peribuccal structures, an oral cavity, a buccopharyngeal tube leading to a muscular pharynx and two laterally placed stylets and their supports (Fig. II).

Buccopharyngeal tube: The tube consisting of a rigid anterior part (buccal tube) and a flexible posterior part (pharyngeal tube) in some tardigrades (Fig. II).

Caudal (or terminal) plate: The dorsal plate corresponding to the fourth trunk segment of an echiniscid, designated by the Roman numeral IV (Fig. I).

Cephalic sensory structures (cephalic appendages): Sense organs situated on the head in echiniscids consisting of internal and external buccal cirri, Cirrus A and primary and

secondary clavae (Fig. I) and in apochelid eutardigrades consisting of peribuccal and lateral papillae (Fig. IIb). The latter are not homologous with the former.

Cirrophore: Small dome-like structure at the base of some cephalic appendages of echiniscoids.

Cirrus A: (see cephalic sensory structures) A sense organ (mechanoreceptor) on each side of the anterior edge of the scapular plate of echiniscids, usually consisting of a basal cirrophore and a flagellum (Fig. I). In this study, the measurement given for cirrus A includes the cirrophore.

Cirrus: (see Cirrus A, External and Internal buccal cirrus)

Clava: (see Primary and Secondary clava)

Claw – primary branch: That part of the diploclaw in parachelan eutardigrades which is attached to the secondary branch (Fig. IIIb). In apochelans it is attached directly to the leg and not to the secondary branch (Fig. IIIc).

Claw – secondary branch: That part of the diploclaw in parachelan eutardigrades which is attached to the leg or to a basal part of the claw and from which the primary branch arises (Fig. IIIb). In apochelans the primary branch is not attached to the secondary branch and is attached directly to the leg (Fig. IIIc).

Cuticular bar: A cuticular thickening occurring on the ventral surface of the leg near the claws of some eutardigrades (Fig. IIIb and IIIc).

Dentate collar: The toothed lower edge of the leg plate on the fourth pair of legs of some echiniscids.

Diploclaw (or double claw): The two-branched claw of eutardigrades consisting of a primary branch, a secondary branch and sometimes a basal part.

Dorsal plates: A set of sclerotized cuticular plates found on the dorsum of echiniscids.

Elliptical organs: Paired hemispherical sensory structures occurring dorso-laterally on the head of some eutardigrades.

External buccal cirrus: A sense organ situated on the latero-ventral surface of the third head segment of echiniscoids consisting of a filiform flagellum with or without a cirrophore (see Fig. I). In this study, the measurement given for the external buccal cirrus includes the cirrophore if present.

Furca: The swollen end of a stylet present in some tardigrades (Fig. II).

Head (or cephalic) plate: The cuticular plate covering the head of echiniscids (Fig. I).

Internal buccal cirrus: A sense organ situated dorsally on the second head segment of echiniscoids, consisting of a filiform flagellum with or without a cirrophore (see Fig. I). In this study, the measurement given for the internal buccal cirrus includes the cirrophore if present.

Leg sensory structure (leg appendage): A papilla (chemoreceptor) is usually present on the fourth pair of legs of echiniscoids. A small spine or papilla may also occur on the first pair, rarely on the second and third pair of legs (Fig. IIIa).

Leg plate: A plate like area on the back of the fourth pair of legs in some echiniscids. It may be round, rectangular and may have a dentate edge. When present it often has the same sculpture as the dorsal plates (Fig. IIIa).

Lunule: Cuticular thickenings at the base of the claws in some eutardigrades (see Fig. IIIb).

Macroplacoids: The anterior sets of placoids in a row of placoids found in the pharynx of some eutardigrades. Often referred to in the singular, eg, first macroplacoid although there are three placoids in that cross-sectional position and each of the three often appears as two halves (Fig. II).

Median plate: One of three intersegmental plates located on the mid-dorsal line in echiniscids, usually designated by Arabic numerals 1-3 (Fig. I)

Microplacoids: The posterior set of placoids in the row of placoids present in the pharynx of some eutardigrades (Fig. II).

Mouth cavity: see Oral cavity

Neck plate: A narrow intersegmental plate found between the head plate and the scapular plate of some echiniscids.

Oral (mouth or buccal) cavity: The cavity immediately posterior to the mouth and anterior to the buccopharyngeal apparatus (see Fig. II).

Paired (segmental) plates II and III: Two sets of dorsal plates corresponding to the second and third trunk segments of all echiniscids, often divided by a dorso-median line (hence paired plates) and designated by the Roman numerals, II and III (Fig. I).

Peribuccal lamellae: Long flap-like structures surrounding the mouth in some parachelan eutardigrades, eg., *Macrobiotus* and *Dactylobiotus*.

Peribuccal lobes: Large lobe-like structures surrounding the mouth in some parachelans, eg., *Doryphoribius* and *Parhexapodibius*.

Peribuccal papulae: Low rounded structures surrounding the mouth in some parachelans, eg., *Minibiotus*.

Peribuccal papillae: Elongate cone-shaped structures surrounding the mouth and characteristic of apochelan eutardigrades (Fig. IIb).

Pharyngeal tube: The flexible posterior part of the buccopharyngeal tube leading from the buccal tube to the pharynx in some tardigrades (Fig. II).

Placoid: A cuticular thickening occurring in the pharynx along the edge of the triradiate lumen (Fig. II).

Primary clava: Usually papillate sense organ (chemoreceptor) close to, or on, the cirrophore of cirrus A (Fig. I).

Pseudosegmental plates: Dorsal plates developed from the segmental plates in some echiniscids, eg., that situated between median plate 3 and the caudal plate, designated by the Roman numeral IV' (Fig. I). Other pseudosegmental plates (I', II' and III') may also be present.

Scapular plate or segmental plate I: The first dorsal trunk plate, present in all echiniscids, designated by the Roman numeral I (Fig. I).

Secondary clava (or buccal papilla): A sense organ situated on the head between the internal and external buccal cirri, usually papillate or dome-shaped (Fig. I).

Segmental plates: General term used for any of the cuticular plates that occur on the trunk segments of echiniscids.

Septulum: A cuticular thickening occurring in the posterior position in the pharynx of some eutardigrades, eg., *Diphascon*, in the alternate position to the placoids (Fig. II).

Septum: A cuticular transverse thickening separating the basal part of the claw from the rest of the claw in some eutardigrades.

Stylets: Paired needle-like cuticular structures lying on either side of the buccal tube, often terminating in swollen ends or furcae (Fig. II).

Stylet sheaths: Cuticular extensions of the antero-lateral wall of the buccal tube which surround two holes in the tube wall through which the stylets penetrate (Fig. II).

Stylet supports: A pair of flexible cuticular lateral extensions of the buccal tube which support the ends of the stylets at their distal extremities (Fig. II).

Stylet support insertion length: The length of the buccal tube measured from the anterior edge of the stylet sheaths to the insertion point of the stylet supports.

Trunk appendage: Sensory structures, spines or filaments which occur on the edges of the trunk segmental plates. Lateral appendages from the first to the fourth trunk segment are identified by the letters B, C, D and E. Additional spines or filaments present near the dorsal midline are identified with a superscript “d”, eg., C^d. A spine or filament occurring between the lateral and the dorsal spine or filament is identified with a superscript prime, eg., C¹ (Fig. I).

Ventral plate: Sclerotized plates present on the ventral surface of some echiniscids.

Ventral support: A thin lamina attached to the ventral surface of the buccal tube in some parachelan eutardigrades (Fig. II).

Figure I . Arrangement of plates, cephalic sensory structures and body appendages of a generalised echiniscid (terminology after Kristensen, 1987)

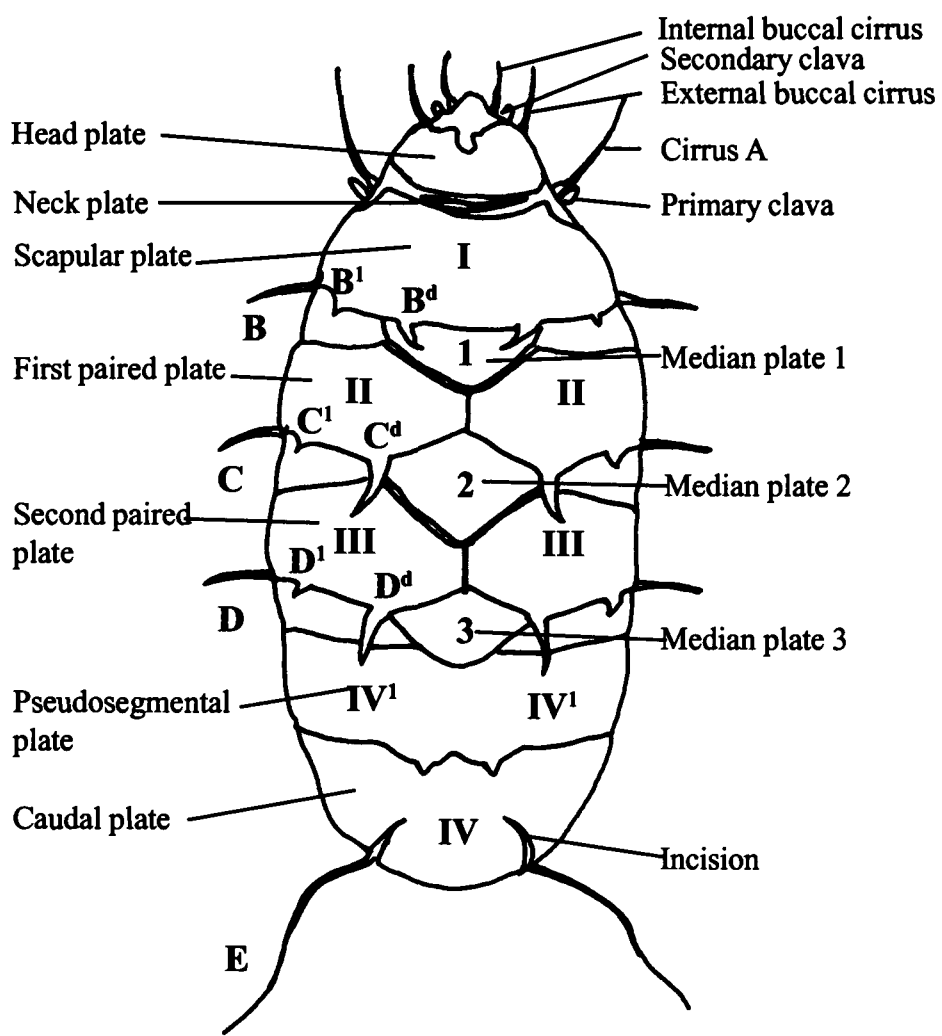
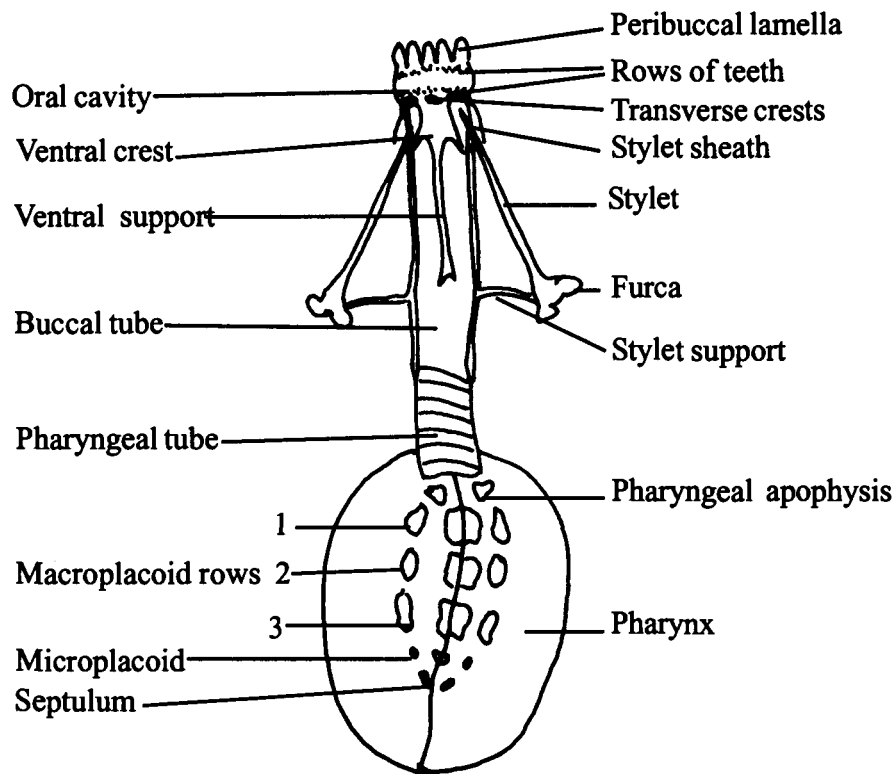


Figure II. Stylised buccopharyngeal apparatus of eutardigrades

a) Parachela (after Nelson & Marley, 2000)



b) Apochela

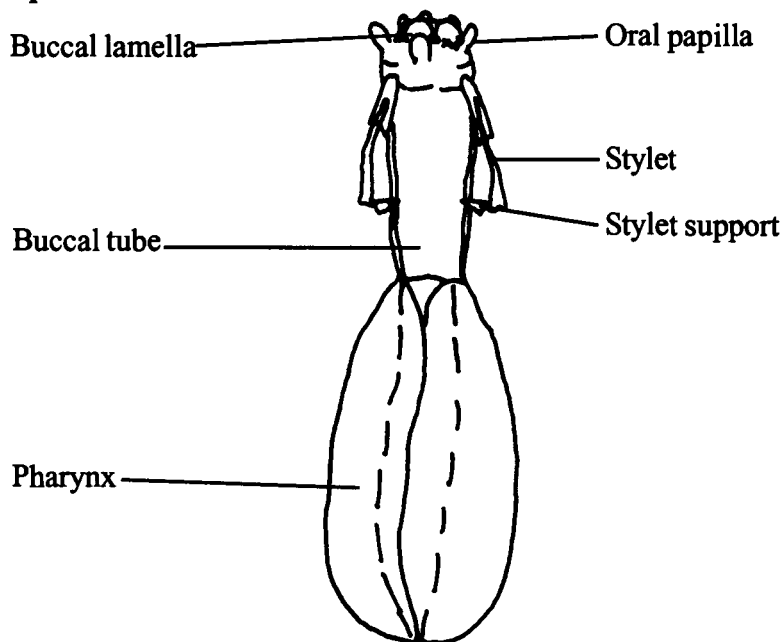
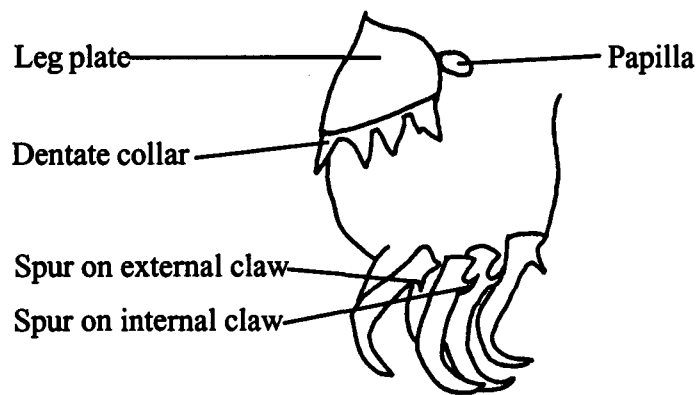
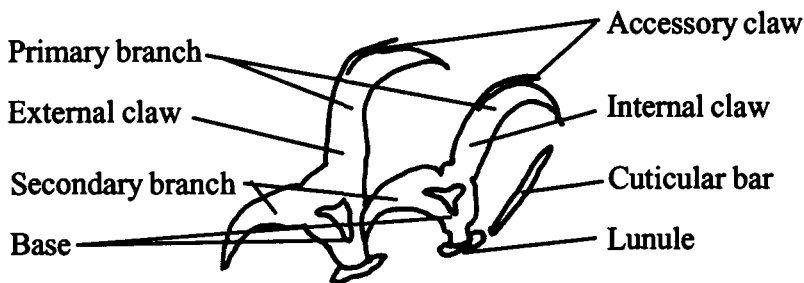


Figure III. Claws and structures on legs of

a) Echiniscids (fourth pair of legs)



b) Parachelan eutardigrades



c) Apochelan eutardigrades



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