A new species of freshwater shrimp of the genus *Micratya* (Decapoda: Atyidae: Caridea) from Puerto Rico

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Abstract

The atyid genus *Micratya* Bouvier, 1913 was previously considered to be monotypic. The area in which the genus is distributed is limited to the islands of the Antilles and Central America, with the type locality of *Micratya poeyi* being in Cuba. A recent molecular phylogenetic analysis of atyid shrimps from the Caribbean indicated the probable existence of a second species of *Micratya* from samples collected in Puerto Rico. Here it is described as the new species *Micratya cooki* sp. nov., differing from its congener in the armature of the dactyls on the fifth pereiopod, the uropodal diaeresis, the distal margin of the telson and by the spinulation of the appendix masculina in male specimens. Because the type specimens of *M. poeyi* are most probably lost, a neotype for *M. poeyi* was designated.

Key words: freshwater shrimp, new species, taxonomy, *Micratya*

Introduction

The atyid genus *Micratya* was previously monospecific, with the single species *M. poeyi*. Originally, the species was only known from Cuba (Bouvier 1909a, 1913), but later *Micratya* was also found on other islands of the Antilles. F.A. Chace & H.H. Hobbs (1969) reported *Micratya poeyi* from Dominica, Jamaica, Puerto Rico, Martinique, and mentioned a single ovigerous specimen from Costa Rica, which had been collected by D.P. Kelso in Tortuguero. Holthuis (1977) reported *M. poeyi* from Curaçao, Grenada, Barbados, and Abele & Kim (1989) and Torati et al. (2011) both reported it from Panama.

*Micratya poeyi* was originally described by Guérin-Méneville as *Atya poeyi* with only a few sentences. The exact date of the first description of *Micratya poeyi* was not very clear for a long time and varying dates of publication were given by several authors: Bouvier 1925: 1857; Schmitt & Shoemaker 1935: 1856 (1857); Chace & Hobbs (1969) reported *Micratya poeyi* from Dominica, Jamaica, Puerto Rico, Martinique, and mentioned a single ovigerous specimen from Costa Rica, which had been collected by D.P. Kelso in Tortuguero. Holthuis (1977) reported *M. poeyi* from Curaçao, Grenada, Barbados, and Abele & Kim (1989) and Torati et al. (2011) both reported it from Panama.

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The first description of the species was published in the great work on Cuba “Historie Physique, Politique et Naturelle de L’Ile de Cuba” Volume VII and VIII by Ramon de la Sagra. The publication of Volume VII was delayed by disputes with the scientist Lefebvre. Therefore, Volume VIII "Atlas de Zoologica" was already published with the drawings of the descriptions in Volume VII in 1855. Volume VII was later published in two editions. One copy of the French edition of "Crustacés" of 1857 includes additional comments by F. E. Guérin-Méneville dated 10.X.1857 (Guérin-Méneville, F.E. (1857b)). Another Spanish edition of "Crustaceos" of 1856 (MDCCCLVI) contains an introduction by R. de la Sagra with date 20.IX.1857 (Guérin-Méneville, F.E. (1857a)). This edition was also published 1858, with the delay of the publication explained in the introduction. The first valid mention is therefore 1855 in the Volume VIII, Atlas de Zoologica, Plate 7, 7a and 7b (Articulata Tab. 2) with the drawings of *Atya poeyi*. The issue of publication date was recently discussed and explained in detail by De Grave & Fransen (2011): “Thus, for the species mentioned in both the French and Spanish editions, for instance *Atya Poeyi* Guérin-Méneville, 1855 [in Guérin-Méneville, 1855-1856] we employ 1855 as their description date, corresponding to the date on the frontispiece of Tomo VIII (Atlas de Zoología), with the corresponding text in Tomo VII (Crustáceos, Arácnidos é Insectos) with 1856 on the frontispiece.”
In 1909 E.-L. Bouvier (1909b) erected a new genus *Calmania* for this species on the basis of the branchial formula. But because this name was already occupied by a brachyuran crab, he subsequently renamed the genus as *Micratya* in 1913 due to its resemblance to the major species of the genus *Atya*.

In the course of a molecular phylogeny of atyid shrimps of the Caribbean, it was realized that mitochondrial DNA sequences of specimens of *Micratya* from Puerto Rico clearly fell into two distinct clusters (see Page et al. 2008), implying the presence of a second species. The addition of nuclear DNA sequence data in Von Rintelen et al. (2012) further confirmed the distinction. Subsequent investigations revealed morphological differences between the putative new species and *M. poeyi* and thus represents a good case of the taxonomic feedback loop (*sensu* Page et al. 2005) in operation, with independent datasets agreeing on a common conclusion.

**FIGURE 1.** Collection sites of *Micratya cooki* nov. sp. in Puerto Rico.

### Material and methods

**Species collection.** The material of *Micratya cooki* nov. sp. was collected by Dr. Benjamin D. Cook, Professor Jane M. Hughes, Professor Catherine M. Pringle and Pablo Hernandez-Garcia in February 2006 in Puerto Rico (Fig. 1, Table 1) and donated to us by Dr. Cook. Type specimens are deposited in the Muséum national d’Histoire naturelle Paris (MNHN) and in the Oxford University Museum of Natural History (OUMNH).

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<th>River</th>
<th>Latitude (N)</th>
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<td>Río Grande de Manatí</td>
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<td>Río Guayanés</td>
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The historical material was collected by Paul Serre in 1909 in Cuba. A neotype of *Micratya poeyi* was selected from this collection, which is deposited in the crustacean collection of the Muséum national d’Histoire naturelle Paris.
The abbreviation cl is used for carapace length, measured from the postorbital margin to the posterior margin of the carapace and expressed in mm. The length of the antennular peduncle was measured from the orbital margin to the distodorsal margin of the third segment. Because this genus has been monotypic for a long time, records in the literature of *M. poeyi* could potentially represent either this species or *M. cooki*.

**Taxonomy**

**Atyidae De Haan, 1849**

**Micratya Bouvier, 1913**

Species of the genus *Micratya* show a reduced branchial formula (Fig. 2), lacking pleurobranchies on fifth pereiopod. There are also no epipods on the fourth pereiopod. For these characters *Micratya* is similar to the genus *Halocaridina* from Hawaii, but *Micratya* has one well developed and one reduced arthrobranch at third maxilliped and podobranches on second maxillipeds. This character combination resembles the genus *Limnocaridella*, but the latter lacks podobranches at second maxillipeds.

**FIGURE 2.** Branchial formula in the genus *Micratya*

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<td>Podobranch</td>
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**Micratya poeyi** (Guèrin-Méneville, 1855)

(Figs. 3A–M, 4O–X, 7B)

*Atya Poeyi* Guérin-Méneville, 1855

*Calmania poeyi* Bouvier, 1909b


**Diagnosis.** Rostrum (Fig. 3A, 3B) short, reaching near to end of basal segment of antennular peduncle, 0.22–0.29 times as long as carapace, armed dorsally with 7–9 teeth including 0–2 (most 0) on carapace posterior to orbital margin, 1 or 2 ventral teeth. Pterygostomial angle broadly rounded. Inferior orbital angle fused with antennal spine. Antennular peduncle 0.41–0.52 times as long as carapace, with a very small (0.15–0.21 times as long as second segment of antennular peduncle) or rudimentary tooth. Stylocerite 0.79–0.88 times as long as the basal segment of antennular peduncle. Incisor process of mandible (Fig. 3M) ending in irregular teeth, molar process truncated. Lower lacinia of maxillula (Fig. 3L) broadly subrectangular, upper lacinia elongate, with numerous distinct teeth on inner margin, palp slender with few simple setae at tip. Upper endites of maxilla (Fig. 3K) subdivided, palp slender, scaphognathite tapering posteriorly, fringed with long, curved setae at posterior margin. Palp of first maxilliped (Fig. 3I, J) ending in an elongated triangular projection. Podobranch on second maxilliped (Fig. 3H) well developed. Third maxilliped (Fig. 3G) with 1 well developed and 1 rudimentary

arthrobranch, ultimate segment as long as penultimate segment. Pleurobranchs present on first to fourth pereiopod. First pereiopod without arthrobranch. Well developed epipods present on third maxilliped and first 3 pereiopods. Carpus of first pereiopod (Fig. 4O) 0.76–1.00 times as long as wide, distally excavated; chela 2.78–3.75 times as
long as wide; dactylus 5.56–8.18 times as long as wide; tips of fingers rounded, no visible palm. Merus of first pereiopod 0.79–0.87 times as long as chela and 1.36–1.67 times long as carpus. Carpus of second pereiopod (Fig. 4P) 1.06–1.08 times as long as wide; chela 2.48–2.83 times as long as wide, 1.72–1.95 times length of carpus; dactylus 5.54–5.83 times long as wide, tips of fingers rounded. Merus of second pereiopod 1.08–1.21 times as long as chela and 2.08–2.11 as times long as carpus. Dactylus of third pereiopod (Fig. 4Q–T) 1.85–3.17 times as long as wide (terminal spine included), terminating in 1 large claw and 4–5 spines on flexor margin, second spine very small; propodus 5.29–7.86 times as long as wide; 2.89–3.36 times as long as dactylus. Fifth pereiopod (Fig. 4U,V) slender, dactylus 2.63–3.30 times as long as wide (terminal spine included), with 1 large claw and 24–43 spines on flexor margin (most 36–38); propodus 7.80–11.14 times as long as wide, 3.55–4.59 long as dactylus. Endopod of male first pleopod (Fig. 4W) elongated, 2.0 times as long as proximal width. Appendix interna strong, 0.69 long as first endopod. Endopod of male second pleopod (Fig. 4X) 4.76 as long as wide. Appendix masculina (Fig. 4X, 7B) 0.84 as long as endopod. Appendix interna of second pleopod reaching to 0.62 length of appendix masculina. Spinulation of appendix masculina near distal end, tip of appendix interna not reaching to the spinulated part of appendix masculina. Sixth abdominal segment 0.38–0.43 times length of carapace. Telson (Fig. 3E, F) 2.29–2.48 times as long as proximally wide, posterior margin rounded, with median projection, with 5–7 pairs of dorsal and 1 pair of dorsolateral spinules; distal end with 7–8 pairs spines, 6–7 intermediate pair with fine bristles, longer and thinner than lateral spines. Preanal carina (Fig. 3C) rounded, with distinctly tooth. Uropodal diaeresis with 20–23 movable spinules. Egg size of overigerous females 0.28–0.35 x 0.48–0.58 mm.


**Remarks.** The original type specimen described by Guérin-Méneville originated from a collection of Cuban material without further specification. The description as *Atya poeyi* by Guérin-Méneville comprises only a few sentences without accurate information on body proportions or details on spinulation of appendages. Most of the collections described by F.E. Guérin-Méneville are deposited in the Academy of Natural Sciences of Philadelphia but *M. poeyi* is not cataloged here (Spamer & Bogan, 1994). In the Oxford University Museum of Natural History, where a part of the collections are also deposited, no specimen of this species could be found (S. De Grave, personal communication). Two attempts to locate this type material at the Muséum national d’Histoire naturelle Paris were also unsuccessful (Laure Corbari & Paula Martin Lefevre, personal communication). Thus the type series seem to be lost. To stabilize taxonomy, a neotype was designated here for a specimen selected from the Cuban collections of P. Serre, deposited in the Muséum national d’Histoire naturelle Paris. Specimens from this collection had also been used by E.-L. Bouvier for his studies, which resulted in the description of the genus *Micratya*.

The examined specimens of *Micratya poeyi* indicate a sexual dimorphism. In addition to the smaller body size of males (cl. 3.65–4.1 in males vs. 6.2–6.7 in females), the two sexes differ in proportions of propodus on third pereiopod (7.86 times as long as wide in males vs. 5.29–6.00 in females); dactylus on third pereiopod (3.17 times as long as wide in males vs. 1.85–2.27 times in female) and the propodus on fifth pereiopod (11.14 times as long as wide vs. 7.80–9.36). This is the first time that a sexual dimorphism in *Micratya poeyi* has been reported.

**Micratya cooki** sp. nov.  
(Figs. 5A–O, 6P–W, 7A)

**Material examined.** Holotype ov. female, cl 4.9 mm, tl 16.6 mm (MNHN-IU-2011-6057), Río Guayanés, Puerto Rico; Paratypes 1 female, cl 3.5 mm (MNHN-IU-2011-6058), Río Guayanés, Puerto Rico; 1 female, cl 4.9 mm (MNHN-IU-2011-6059), Río Grande de Manatí, Puerto Rico; 1 ov. female, cl 5.0 mm (OUMNH.ZC-2012.05.001), Río Guayanés, Puerto Rico; Others 2 males, cl 3.1–3.7 mm, 6 females, cl 3.1–4.9 mm (MNHN-IU-2011-6060) Río Coamo, Puerto Rico; 1 male, cl 4.0 mm, 4 females, cl 3.9–5.3 mm (MNHN-IU-2011-6061) Río Guanajibo, Puerto Rico; 6 females, cl 3.9–4.9 mm, 6 ov. females 4.2–4.8 mm (OUMNH.ZC-2012.05.002), Río Guayanés, Puerto Rico; 2 males, cl 3.1–3.3 mm, 1 ov. female, cl 6.6 mm, 6 females, cl 4.1–5.2 mm (OUMNH.ZC-2012.05.003), Río Coamo, Puerto Rico; 1 male, cl 4.0 mm (OUMNH.ZC-2012.05.004), Río Coamo, Puerto Rico; leg. B.D. Cook, J. Hughes and P. Hernandez-Garcia, February 2006.
Diagnosis. Rostrum (Fig. 5A–B) short, reaching near to end of basal segment of antennular peduncle, 0.21–0.31 times as long as carapace, armed dorsally with 3 to 9 (most 5–7) teeth without teeth on carapace posterior to orbital margin, 0 to 2 ventral teeth (most 1–2). Chela of first pereiopod (Fig. 6P) 2.55–2.84 as long as wide, dactylus 5.10–6.00 times as long as wide; carpus 0.89–0.97 times as long as wide. Chela of second pereiopod (Fig. 6Q) 2.20–2.63 times as long as wide, dactylus 5.36–6.00 times as long wide; carpus 0.94–1.10 times as long as wide. Propodus of fifth pereiopod (Fig. 6T–U) 6.45–9.33 times long as wide; dactylus 0.25–0.40 long as propodus, dactylus with 1 large claw and 17–30 spines on flexor margin (most 17–22). Endopod of male first pleopod (Fig. 6V) 2 times as long as proximal width, appendix interna strong. Preanal carina (Fig. 5D) rounded, with a distinct tooth. Uropodal diaeresis (Fig. 5E) with 16–18 movable spines.

Description. Rostrum (Fig. 5A–B) short, reaching near to end of basal segment of antennular peduncle, 0.21–0.31 times as long as carapace, armed dorsally with 3 to 9 (mostly 5–7) teeth without teeth on carapace posterior to orbital margin, 0 to 2 ventral teeth (mostly 1–2); rostral formula: 0 + 3–9 / 0–2.

Inferior orbital angle fused with antennal spine. Pterygostomial angle broadly rounded. Antennular peduncle 0.39–0.46 times as long as carapace, second segment 0.30–0.35 times length of basal segment, third segment 0.67–0.92 times as length of second segment. Stylocerite 0.75–0.90 times as long as basal segment of antennular peduncle. Scaphocerite (Fig. 5C) 2.41 times as long as wide.

Sixth abdominal somite 0.38–0.46 times length of carapace, 1.12–1.34 times as long as fifth somite, 0.80–0.91 shorter than telson. Telson (Figs. 5F–G) 1.92–2.35 times as long as proximally wide, distal margin broadly rounded, with median projection, with 5 or 6 pairs of dorsal and 1 pair of dorsolateral spines, distal end with 10–12 spines, intermediate spines with fine bristles and longer than lateral pair. Preanal carina (Fig. 5D) rounded, with a distinct tooth. Uropodal diaeresis (Fig. 5E) with 16–18 movable spines.

Incisor process of mandible (Fig. 5O) ending in irregular teeth, molar process truncated. Lower lacinia of maxillula (Fig. 5N) broadly subrectangular, upper lacinia elongate, with numerous distinct teeth on inner margin, palp slender with few simple setae at tip. Upper endites of maxilla (Fig. 5L) subdivided, palp slender, scaphognathite tapering posteriorly, fringed with long, curved setae at posterior margin. Palp of first maxilliped (Fig. 5J–K) ending in an elongated triangular projection. Podobranch on second maxilliped (Fig. 5I) well developed. Third maxilliped (Fig. 5H) with 1 well developed and 1 rudimentary arthrobranch, ending in a rounded tip in most specimens (a short distal spine is visible in one specimen), ultimate segment as long as penultimate segment. Pleurobranchs present on first to fourth pereiopod. First pereiopod without arthrobranch. Well developed epipods present on third maxilliped and first 3 pereiopods.

Chela of first pereiopod (Fig. 5P) 2.55–2.84 as long as wide, 1.54–1.76 times length of carpus; dactylus 5.10–6.00 times as long as wide, no visible palm; carpus 0.89–0.97 times as long as wide, distally excavated, 0.64–0.74 times length of merus. Merus 0.84–0.91 times as long as chela. Chela of second pereiopod 2.20–2.63 times as long as wide, 1.62–2.10 times length of carpus; dactylus 5.36–6.00 times as long as wide, no visible palm; carpus 0.94–1.10 times as long as wide, distally excavated, 0.48–0.60 times length of merus; merus 0.98–1.04 times as long as chela. Third pereiopod (Figs. 6R–S) slender, propodus 4.15–5.63 times as long as wide, 2.16–2.64 times as long as dactylus; dactylus 2.23–3.17 times as long as wide (terminal spine included), terminating in one large claw with 4 or 5 accessory spines on flexor margin, second spine very small; carpus 0.89–0.97 times as long as wide, 0.84–0.93 times as long as propodus, 0.43–0.46 times as long as merus; carpus 0.84–0.91 times as long as wide, 0.43–0.46 times as long as merus; carpus 0.84–0.97 times as long as wide. Merus 0.94–1.10 times as long as wide, 0.67–0.92 times as length of second segment. Stylocerite 0.75–0.90 times as long as basal segment of antennular peduncle. Scaphocerite (Fig. 5C) 2.41 times as long as wide.

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Incisor process of mandible (Fig. 5O) ending in irregular teeth, molar process truncated. Lower lacinia of maxillula (Fig. 5N) broadly subrectangular, upper lacinia elongate, with numerous distinct teeth on inner margin, palp slender with few simple setae at tip. Upper endites of maxilla (Fig. 5L) subdivided, palp slender, scaphognathite tapering posteriorly, fringed with long, curved setae at posterior margin. Palp of first maxilliped (Fig. 5J–K) ending in an elongated triangular projection. Podobranch on second maxilliped (Fig. 5I) well developed. Third maxilliped (Fig. 5H) with 1 well developed and 1 rudimentary arthrobranch, ending in a rounded tip in most specimens (a short distal spine is visible in one specimen), ultimate segment as long as penultimate segment. Pleurobranchs present on first to fourth pereiopod. First pereiopod without arthrobranch. Well developed epipods present on third maxilliped and first 3 pereiopods.

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Endopod of male first pleopod (Fig. 6V) elongated, 2 times as long as proximal width, 0.43 times as long as exopod, with a strong appendix interna, variable in shape. Appendix masculina on male second pleopod (Fig. 6W, 7A) slender, 0.86 times as long as endopod, spines extending to midlength of appendix masculina. Appendix interna reaching half of appendix masculina and well into the spinulated part of the appendix masculina.

Egg size of overigerous females 0.26–0.29 x 0.48–0.50 mm.

Etymology. Micratya cooki is dedicated to Ben Cook, the collector of the new species.

Distribution. Micratya cooki is known from some streams in Puerto Rico. The small egg size, suggesting prolonged larval development similar to M. poeyi, and lack of phylogeographic structure across the large island of Puerto Rico (Cook et al. 2009), both indicate that it probably has a wider distributional range in the Caribbean.
FIGURE 5. *Micratya cooki* sp. nov., female (cl 4.9 mm) (OUMNH.ZC-2012.05.002): A. cephalothorax, B. rostrum, C. scaphocerite, D. preanal carina, E. uropodal diaeresis, F. telson, G. posterior portion of telson, H. third maxilliped, I. second maxilliped, J. first maxilliped, K. palp of first maxilliped, L. maxilla, M. palp of maxilla, N. maxillula, O. mandible. Scale bars indicate 2.0 mm (A), 1.0 mm (B, F, H) 0.5 mm (C, D, E, G, I, J, L, M, N, O), without scale (K).
**FIGURE 6.** *Micratya cooki* sp. nov., female (cl 4.9 mm) (OUMNH.ZC-2012.05.002): P. first pereiopod, Q. second pereiopod, R. third pereiopod, S. dactylus of third pereiopod, T. fifth pereiopod, U. dactylus of fifth pereiopod, V. male (cl 3.73) (MNHN-IU-2011-6060) first pleopod, W. male second pleopod. Scale bars indicate 1.0 mm (P, Q, R, T), 0.5 mm (S, U, V, W).

**Remarks.** *Micratya cooki* is very similar to *Micratya poeyi* (F.E. Guérin-Méneville, 1855). It can be distinguished from *M. poeyi* in the armature of the dactyli on the fifth pereiopod (with 17–30 spinules on flexor margin vs. 24–43 in *M. poeyi*), the armature of the uropodal diaeresis (16–18 movable spinules vs. 20–23 in *M. poeyi*) and a different armature of the distal margin of the telson (10–12 distal spines vs. 14–16 distal spines in *M. poeyi*). The armature of the rostrum is more variable in *M. cooki* which lacks teeth on carapace posterior to orbital margin (*M. poeyi* with 0–2) and armed dorsally with 3–9 teeth (*M. poeyi* with 7–9), ventral teeth with 0–4 vs. 1–4 in *M. poeyi*. Male specimens can distinguished by the spinulation of the appendix masculina (Fig. 7). In *M. poeyi* the spines are located near distal end of appendix masculina, the tip of appendix interna does not reach to the...
spinulated part of the appendix masculina. In *M. cooki* the spines extend more proximally, the tip of appendix interna reaches into the spinulated part of the appendix masculina. In living specimens, *M. poeyi* has 3 distinct white vertical color bands on a dark body (see Karge & Klotz 2008, p120), while the living color patterns of *M. cooki* are not yet clear but may resemble one of the two other color patterns recognized by Chace & Hobbs (1969). Although both species are very similar in morphological characteristics, they can be clearly distinguished by molecular data.

**FIGURE 7.** SEM of appendix masculina. (A) *Micratya cooki* sp. nov. (MNHN-IU-2011-6060), (B) *M. poeyi* (MNHN-IU-2011-6063). Scale bars indicate 100 µm in both images.

**Molecular data**

There are five gene regions which have been sequenced for both *Micratya poeyi* and *M. cooki*, all of which show a species-level divergence. Page et al. (2008) showed a deep split between the two putative *Micratya* species using two mitochondrial genes, the 3' portion of cytochrome *c* oxidase I (COI) and 16S ribosomal DNA (16S). Cook et al. (2009) used the 5' portion of COI (the “DNA barcode” *sensu* Costa et al. 2007) in their within-species study of the two *Micratya* taxa. Von Rintelen et al. (2012) used mitochondrial 16S and two nuclear genes, 28S ribosomal DNA (28S) and Histone (H3), and found the two species distinct. We have listed all of the *Micratya* sequences currently available on GenBank (as of 07 January, 2013) by species (Table 2) and compared the levels of divergence (using Kimura 2-parameter distance model) of each of these gene regions between the two taxa. As expected, the least divergent gene was the nuclear H3 fragment (0.93% between the species), followed by nuclear 28S (2.39%). The 16S fragment was 8.33% different (EF489991 vs. EF489994). The two COI fragments were a similar level of divergence to each other, with 3' COI 16.69% divergent (EF489979 vs. EF489981) and 5' COI 15.95% divergent (FJ348827 vs. FJ348928), using the “barcode” portion equivalent to positions 132 to 699 of the *Halocaridina rubra* Holthuis, 1963 mitochondrial genome (Ivey et al. 2007). This is close to the average 17.16% 5' COI divergence found between species within decapods by Costa et al. (2007).
TABLE 2. *Micratya* sequences currently available on GenBank (as of 07 January, 2013).

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<th>Species</th>
<th>gene</th>
<th>Accession Number</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Micratya cooki</em></td>
<td>16S</td>
<td>EF489991-EF489992</td>
<td>Page et al. (2008)</td>
</tr>
<tr>
<td></td>
<td>COI 3'</td>
<td>EF489979-EF489980</td>
<td>Page et al. (2008)</td>
</tr>
<tr>
<td></td>
<td>COI 5'</td>
<td>FJ348828-FJ348931</td>
<td>Cook et al. (2009)</td>
</tr>
<tr>
<td></td>
<td>28S</td>
<td>FN995596</td>
<td>Von Rintelen et al. (2012)</td>
</tr>
<tr>
<td></td>
<td>H3</td>
<td>FN995511</td>
<td>Von Rintelen et al. (2012)</td>
</tr>
<tr>
<td><em>Micratya poeyi</em></td>
<td>16S</td>
<td>EF489994, JN228968</td>
<td>Page et al. (2008), Torati &amp; Mantelatto (2012)</td>
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<tr>
<td></td>
<td>COI 3'</td>
<td>EF489981-EF489982</td>
<td>Page et al. (2008)</td>
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<tr>
<td></td>
<td>COI 5'</td>
<td>FJ348776-FJ348827</td>
<td>Cook et al. (2009)</td>
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<td>FN995510</td>
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</table>

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