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Cirolana toyamaensis, a New Cirolanid Isopod from Toyama Bay, Central Japan*

Noboru Nunomura
Toyama Science Museum

富山湾入善沖から発見されたスナホリムシ(甲殻類等脚目)の一新種

布村　昇
富山市科学文化センター

1981年7月－8月に，黒部川扇状地沖埋没林調査班によって行われた富山県下新川郡入善町吉原沖埋没林引き上げの際，同材に付着または穿孔していたスナホリムシの一種を新種 *Cirolana toyamaensis*（和名：トヤマスナホリムシ）として記載した。本種は北アメリカ大陸西岸等から知られている *Cirolana harfordi harfordi* (Lockington) および日本各地の沿岸から知られている *Cirolana harfordi japonica* Thielemann と最も似ているが，この両亜種とは，(1)体長／体幅比が大きいこと，(2)尾節板後端が丸くなっていること等で区別され，さらに亜種 *harfordi* とは(1)オスの第三腹節後縁にも突起があること，(2)雄の第二腹節の交尾針が短いことなどによって区別される。また亜種 *japonica* とは，(1)顎脚に2個の鉤刺をもつこと，(2)第2触角の鞭の数が多いこと，(3)メスの第三～四腹節後縁に突起がないことなどによって区別される。

なお，本種の完模式標本は富山市科学文化センター(TOYA－Cr－1475)で保管される。

In July to August in 1981, an survey on the submerged forest was carried out at the sea off Nyûzen-machi, Toyama Prefecture by Professor Shoji Fujii and "The Research Group of the submerged forest off Kurobe River, Central Japan." In this survey, some animals got off from a stump of about 1m×1m×0.7m. And some of them were placed at my disposal for identification. I found some specimens belonging to the genus *Cirolana* among them. At closer examinations of mine, it proved to represent a new species. The specimens, preserved in alcohol, were dissected and examined in glycerol. All the figures were drawn by using camera lucida or shadowgraph.

Before going further, I wish to express my sincere gratitude to Mr. Hisatada Akahane and other staffs of the Toyama Science Museum for their kindness in collecting these specimens and to Professor Shoji Fujii of the Toyama University and "The Research Group of the submerged forest off Kurobe River, Central Japan" for planning and promoting the research.

*Contributions from the Toyama Science Museum No.20

***Cirolana toyamaensis*, sp. nov.,**

(Japanese name : Toyama-sunahorimushi)

Figures 1–4

Material examined : 5♂♂ (1♂ holotype, 13.0 mm in body length and 4♂♂ paratypes, 9.2～13.6 mm in body length) and 4♀♀ (1♀ allotype, 11.0 mm in body length and 3♀♀ paratypes, 9.8～14.1 mm in body length) from a stump of *Acer* sp. submerged in the sea bottom, 22 m in depth, off Yoshihara, Nyûzen-machi, Shimoniikawa-gun, Toyama Prefecture, Central Japan. coll. Hisatada Akahane *et al*, Aug. 11, 1981. Type specimens are deposited as follows : holotype male (TOYA-Cr-1475), allotype female (TOYA-Cr-1476) and 5 paratypes (TOYA-Cr-1477～1481) at the Toyama Science Mueum, 1 paratype (OM-NH-Ar-2651) at the Osaka Museum of Natural History, and 1 paratype (NSMT-Cr-7972) at the National Science Museum, Tokyo.

Description : Body long, about 3 times as long as wide. Body color creamy white with irregular dark-brown patterns on dorsal surface. Epimera of the fourth to seventh peraeonal somites progressively more produced and acute, and visible dorsally. Third pleonal somite with 19～20 tubercles on hind magin in male but none in female. Fourth pleonal somite with a dozen tubercles on hind margin in male but none in female. Fifth somite with a pair of larger tubercles and about 5 smaller tubercles on hind margin, but only a pair of relatively large tubercles on the middle part in female. Telson triangular and rounded at the tip, bearing 2 pairs of rather large processes on dorsal surface.

Eyes mediocre, each with 30 ocelli.

First antenna short, reaching the middle part of first peraeonal somite. Peduncle composed of 3 segments ; first segment round ; second and third segments rectangular. Flagellum composed of 12 segments ; each with aesthetascs.

Second antenna long, reaching the fourth peraeonal somite. Peduncle composed of 5 segments. Flagellum composed of 29～34 segments.

Labrum stout ; clypeus long ; frontal lamina pentagonal and rather stout.

Right mandible stout ; pars incisiva with 3 unequal acute teeth ; the inner one longest ; lacina mobilis with 13 curved teeth ; molar process narrow with about 30 teeth. Palp three-segmented ; second segment long with about 24 setae ; third segment with about 15 shorter and 2 longer setae.

Left mandible similar in shape to the right one ; pars incisiva composed of 2 groups ; one is larger with vaguely devided tip, the smaller one is not devided ; lacina mobilis not chitinized with about 9 teeth ; molar process narrow with about 30 teeth. Palp composed of 3 segments ; second segments with about 24 setae on inner margin ; third segment small with 15 shorter and 2 longer setae.

First maxilla stout with outer lobe bearing 8 stout teeth and with 3 narrow setae ; inner lobe with 3 haired bristles at the tip.

Second maxilla broad ; inner lobe bearing 2 large plumose and about 18 simple setae ;

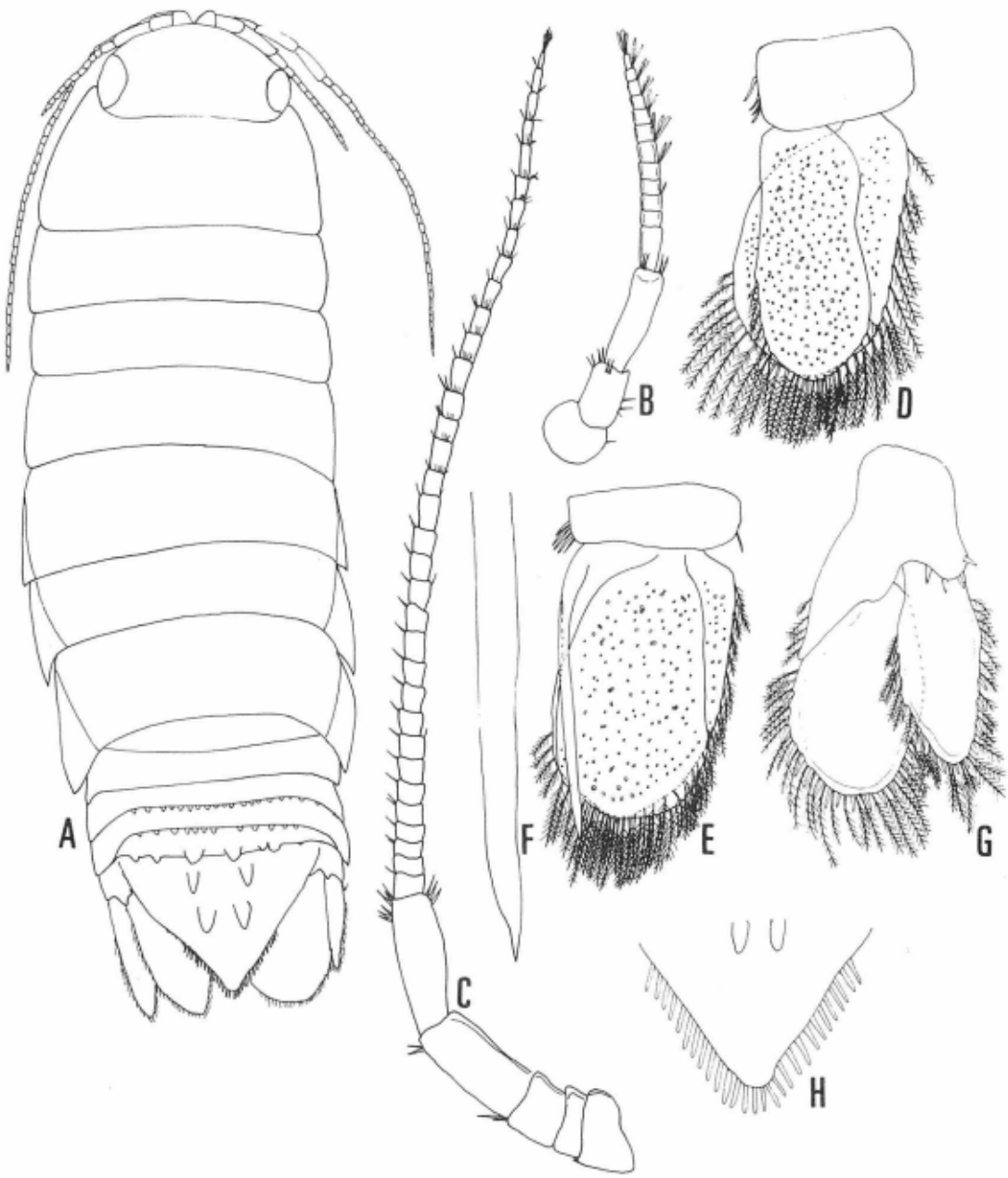

Fig. 1. *Cirolana toyamaensis*, sp. nov.,

A. Dorsal view ; B. First antenna ; C. Second antenna ; D. First pleopod ; E. Male second pleopod ; F. Apical part of stylus of the same ; G. Uropod ; H. Telson.

(A–F and H : holotype, G : paratype male).

palp and outer lobe with 6 and 8 fringed setae respectively.

Maxilliped long ; endite small with 2 couplong hooks on inner margin, and 3 plumose setae at the tip. Palp five-segmented : first segment almost quadrate with a long seta ; second segment triangular with about 5 setae on inner margin and a seta at distal corner ;

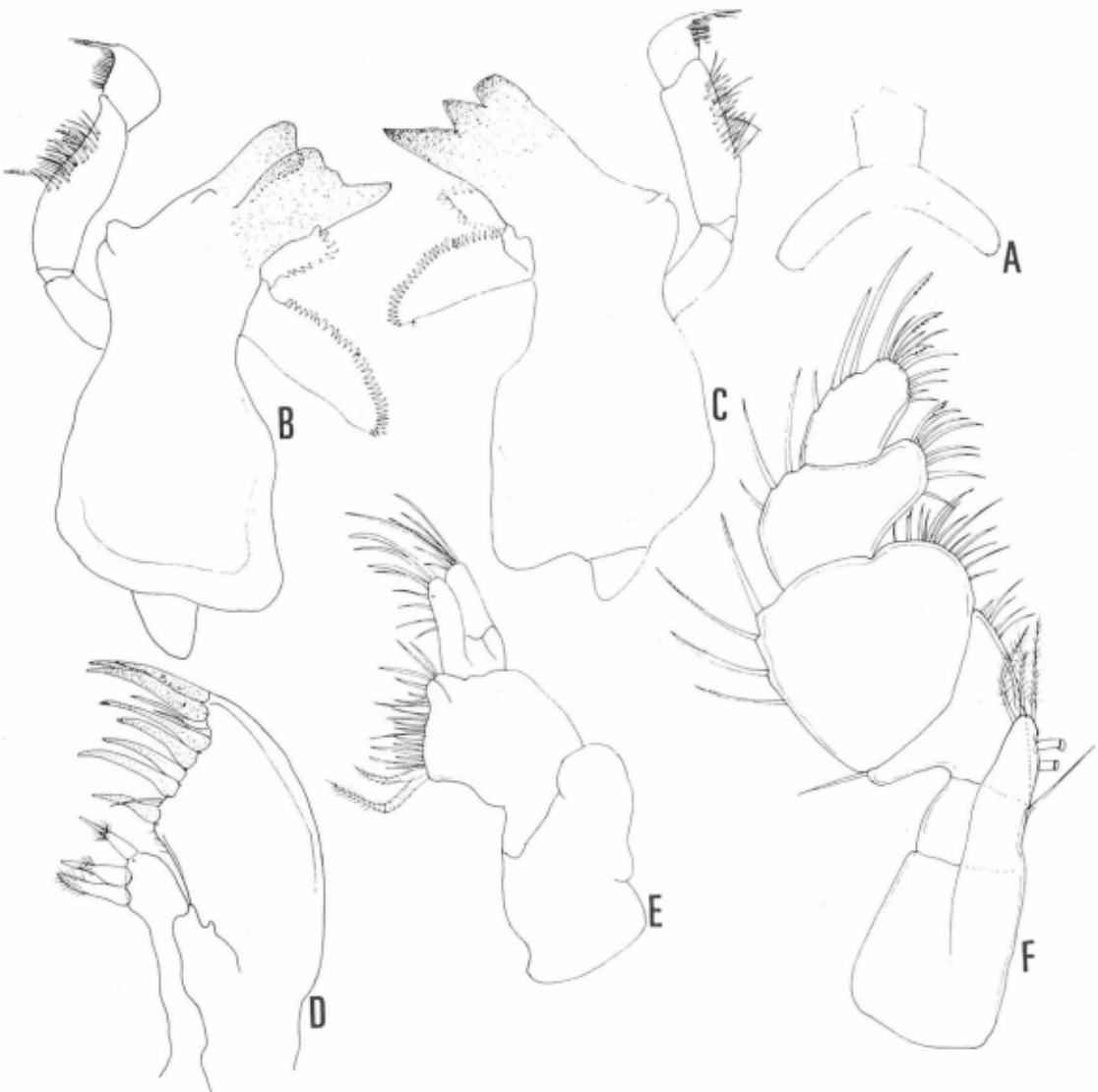

Fig. 2. *Cirolana toyamaensis*, sp. nov.,
A. Frontal lamina ; B. Left mandible ; C. Right mandible ; D. First maxilla ; E. Second maxilla ; F. Maxilliped.
(A and F : paratype male, B-E : holotype).

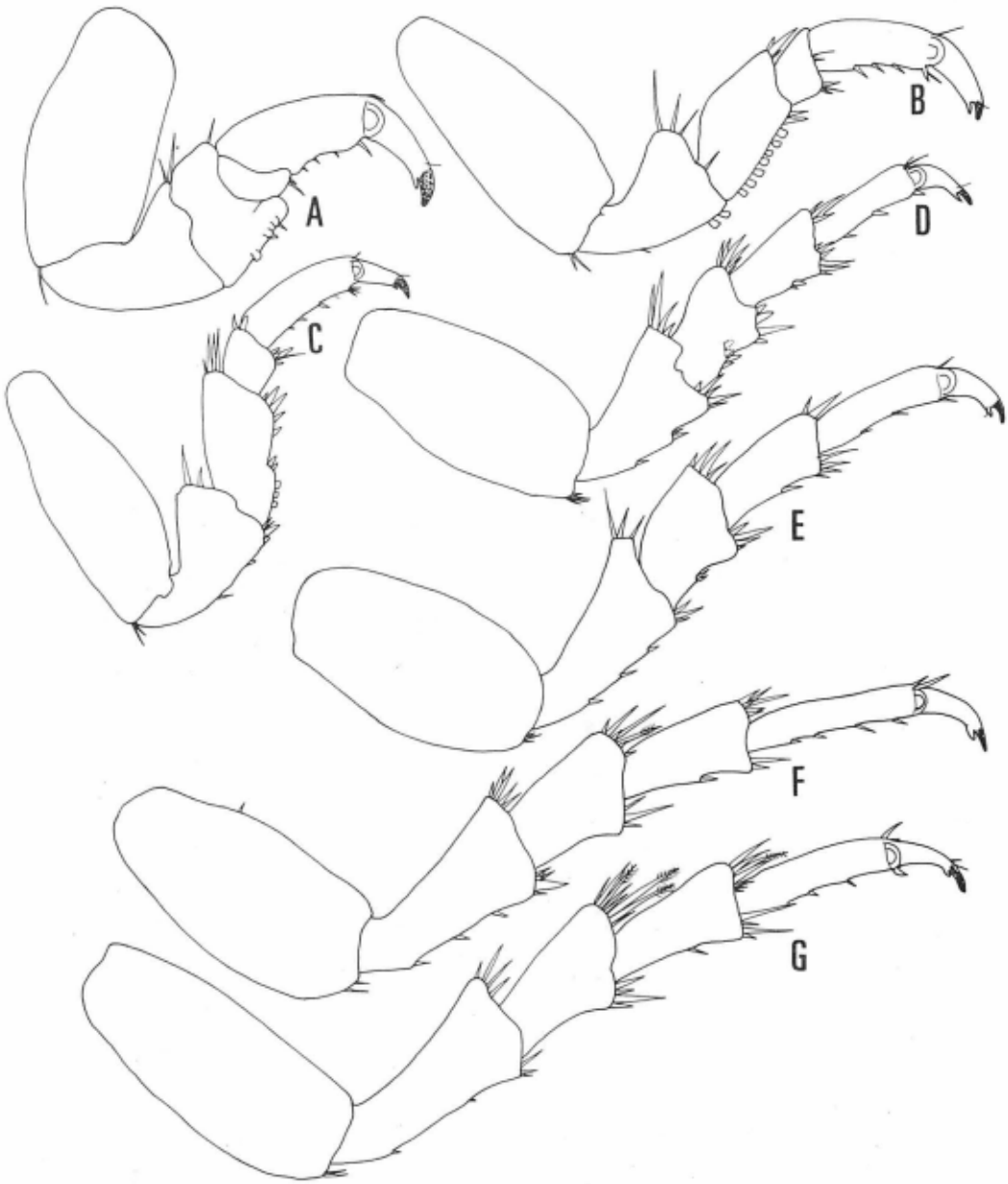

Fig. 3. *Cirolana toyamaensis*, sp. nov.,
A-G. First to seventh peraeopods.
(All : holotype).

third segment braod with more than a dozen setae on inner margin and 4 long setae on outer margin; fourth trapeozoid in shape and with 8 setae on inner margin and 3 long and a short setae on outer margin; fifth segment small and round with about 15 setae on distal margin.

Peraeopod I robust; basis oblong with a seta at inner distal corner; ischium elongated triangular with 2 setae on outer distal corner; merus triangular with 3 pegs on inner margin and a seta on outer margin; carpus also triangular and short with 2 setae on inner border; propodus rather broad with 4 spines; dactylus with 2 claws.

Peraeopod II short but a little longer than the first; basis oblong with 2 setae on inner margin; ischium triangular with 2 pegs on inner margin and 3 setae on outer margin; merus rectangular with 9 pegs on inner margin and 2 setae at outer distal corner; carpus short and subquadrate with 2 stout setae at distal corner; propodus rectangular with 4~5 spines on inner margin; dactylus with 2 claws.

Peraeopod III as long as the second; basis oblong with 2 setae on inner distal

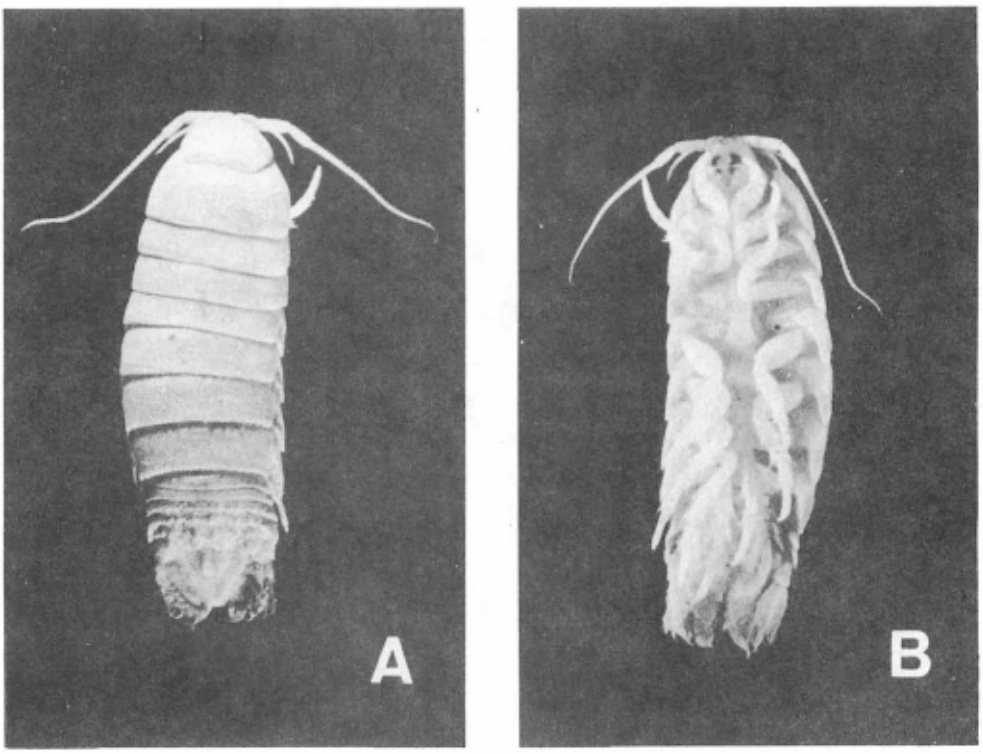

Fig. 4. *Cirolana toyamaensis*, sp. nov.,
A. Dorsal view; B. Ventral view.
(All: holotype).

margin ; ischium triangular with 6 short setae on inner margin and 2 rather long setae on inner distal corner ; merus rectangular with 3 pegs and about 7 setae on inner margin and about 4 setae on inner margin ; carpus short and subquadrate with a long and 4 stout setae on inner distal corner and 2 stout setae at outer distal corner ; propodus long with about 7 setae on inner margin ; dactylus with 2 claws.

Peraeopod IV longer than the preceding peraeopods ; basis oblong and stouter than those of preceding ones with a tuft of setae at inner distal corner ; ischium triangular with 3 groups of a few setae on inner margin and 4 long setae at distal outer corner ; merus rectangular with 2 groups of stout setae on inner margin and a group of 6 setae on outer distal margin ; carpus rectangular with 2 setae at the middle part of the inner margin and about 9 setae on distal margin ; propodus rectangular with 3 setae on inner margin and a few setae at distal outer corner ; dactylus with 2 claws.

Peraeopod V much longer than the fourth ; basis oblong with a few setae at inner distal corner ; ischium elongated triangular with a row of 3 setae on inner margin, 3 setae on inner distal corner and 3 setae at outer distal margin ; merus rectangular with 2 setae on medial part of inner margin and more than 8 setae on distal margin ; carpus rectangualar with a seta at medial part of inner margin and more than 6 setae on distal margin ; propodus long with 3 setae on inner margin and a seta at outer distal corner ; dactylus with 2 claws.

Peraeopod VI a little longer than the fifth ; basis oblong ; ischium rectangular with 3 setae on inner margin and 2 groups of several setae on distal margin ; merus rectangular with about 10 setae ; carpus rectangular with about 8 setae on distal margin ; propodus long with 4 setae on inner margin ; dactylus with 2 claws.

Preaeopod VII as long as the sixth ; basis oblong ; ischium oblong and relatively broad with several simple setae on distal margin ; merus rectangular with more than a dozen setae on distal margin including some plumose setae ; carpus rectangular ; propodus long with 3 stout setae on inner margin and a seta at outer distal corner ; dactylus with 2 claws.

Penes absent. Male second pleopod with relatively long stylus, a little longer than both lami, whose tip is very acute. Other pleopods are not characteristic. Uropod stout ; basis triangular with 4 acute setae ; endopod broad with sinuate margin and many plumose setae ; exopod narrow and shorter than the endopod with sinuate margin and many plumose setae. Telson triangular with many stick-like setae on distal margin and 2 pairs of processes on dorsal surface.

Remarks: The present new species apparently most closely allied to *Cirolana harfordi harfordi* (LOCKINGTON) from West coast of North America, but the former is separated from the latter in the following features : (1) elongated body shape, (2) shorter stylus of male second pleopod, (3) presence of tubercles on hind margin of third pleonal somite in male, and (4) rounded tip of telon.

The preset new species is also closely allied to *Cirolana harfordi japonica* from Japanese waters, but the former is separated from the latter in the following features: (1) longer body shape, (2) absence of tubercles on pleonal somites in female; (3) 2 coupling hooks on the endite of maxilliped, (4) rounded margin of telson, (5) more numerous flagellar segments of second antenna, and (6) maximum size exceeds 14 mm, whereas maximum size of *Cirolana harfordi japonica* of both sex is 10 mm.

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