

## Two New Species of *Trapezia* (Decapoda: Brachyura), Coral-Inhabiting Crabs from Taiwan

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**Abstract**—Two new species of coral-inhabiting trapeziid crabs, *Trapezia cheni* and *Trapezia garthi*, are described from specimens found in association with scleractinian hosts off Taiwan.

As part of a comprehensive study of the genus *Trapezia* (Galil and Lewinsohn 1984, in press a, b), material collected from the coral reefs of Taiwan have been made available to me through the kindness of Mr. Y.-S. Chen, Academia Sinica, Taipei and Dr. J. S. Garth, Allan Hancock Foundation. An examination of the crabs obtained from *Pocillopora damicornis* (Linnaeus) disclosed incongruity from species known hitherto. Descriptions and illustrations of the two new species are provided.

Types of the new species will be deposited in the invertebrate collection of Tel Aviv University and Academia Sinica, Taipei, Taiwan.

Measurements given for specimens refer to carapace length (cl) and carapace width (cw).

### *T. cheni* new species Figs. 1-4, 9a

**Material examined:** Holotype—1 ♂, cl 3.8 mm, cw 4.7 mm, Hsiao-Liu-Chiu, Taiwan, 1 m depth, 28 January 1982, on *Pocillopora damicornis*, coll. Y.-S. Chen; Allotype—1 ♀ ovigerous, cl 3.9 mm, cw 5.2 mm, same data; paratypes—1 ♂, 1 ♀ ovigerous, cl 3.8, 3.6 mm, cw 4.3, 4.8 mm respectively, Wan-Li-Tong, Taiwan, — 1 m, 24 August 1982, on *Pocillopora damicornis*, coll. Y.-S. Chen.

**Morphological description:** Carapace lenticular, wider than long, smooth and convex. Lateral borders of carapace rounded, flaring gently backwards from orbits and converging about a third back. No evidence of an epibranchial tooth or notch (Fig. 1).

Frontal margin broad, scarcely emarginate at center, minutely denticulate and undivided from the superior inner orbital angles. Orbits large, round, cut out of

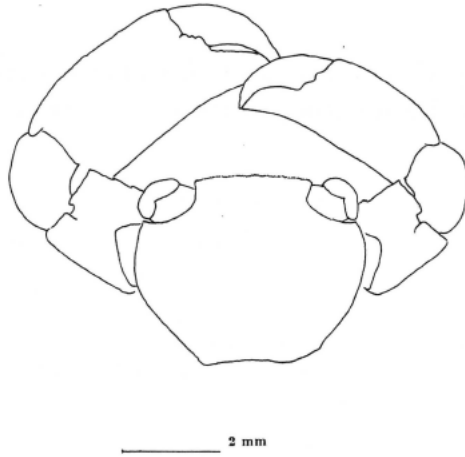


Fig. 1. *Trapezia cheni* n. sp. Holotype ♂. Carapace and chelipeds.

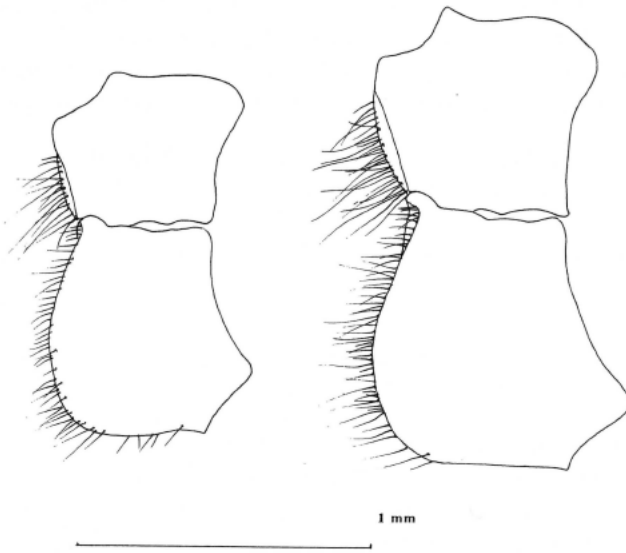


Fig. 2. *Trapezia cheni* n. sp. Endognath of third maxilliped.

Fig. 6. *Trapezia garthi* n. sp. Endognath of third maxilliped.

anterolateral angles of carapace. Inferior inner orbital tooth small, incurved and obtundent. Postorbital tooth obsolescent.

Third maxilliped subrectangular. Exognath almost as long as endognath, with an uneven v-shaped sulcus at its distal end and a minutely granulated, rounded tooth on internal margin. Ischium of endognath with posterior margin transverse, antero-

internal angle somewhat produced and inner margin rounded and setose (Fig. 2). Merus trapezoid, its outer distal angle produced, rounded, inner angle obliquely truncate and slightly notched. Inner margin bearing setae.

Chelipeds stout, considerably developed and unequal. Meri quadrate, their anterior borders crested and cut into several simple or serrulate teeth. Shape and number of teeth variable, often right and left meri of an individual differ. No tooth at distal margin of merus but for anterior-marginal tooth. Carpus globular, its inner angle produced, forming a single conical tooth (Fig. 3). Palms massive. Upper margin of palm rounded, lower margin cristate. Upper proximal region of palm forming a node-like tubercule at its junction with carpus. Entire upper and outer surface smooth, polished and entirely devoid of setae. Fingers short, dactyl curved, fitting closely upon immovable finger; curved points crossing. Fingers of major chela furnished with blunt rounded teeth proximally. Fingers of minor chela provided with sharp cutting edges.

Ambulatory legs smooth but for dactyls. Inner surface of dactyl bearing grooved setae in three transverse rows and three pairs of horny setae at distal margin (Fig. 4). Upper portion of dactyl bearing several curved spinules distally. Proximal anterior surface of dactyl fringed with a row of plumose setae. Upper portion of dactylar tip beveled, forming a corrugated surface. Slender long setae scattered on upper surface, most abundant distally.

**Color** (preserved in glycerin and sugar): Carapace orange yellow deepening gradually anteriorly and laterally to brownish red. Lower surface of carapace and abdomen lemon yellow. Chela deep red. Node-like tubercule at upper proximal region of chela white. Upper surface of chela and dactyl rufous. Immovable finger deep yellow. Ambulatory legs yellow.

**Remarks:** This species differs from *T. formosa* Smith, 1869 which occurs in the

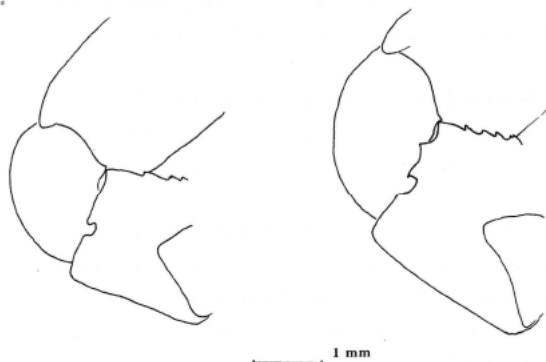


Fig. 3. *Trapezia cheni* n. sp.  
Carpus of left cheliped.

Fig. 7. *Trapezia garthi* n. sp.  
Carpus of left cheliped.

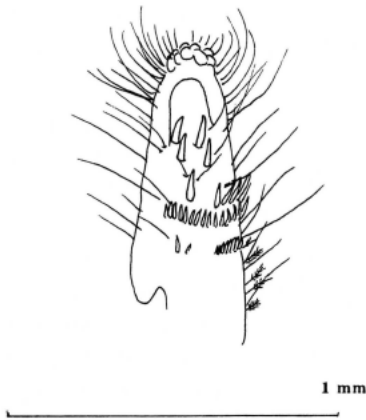


Fig. 4. *Trapezia cheni* n. sp. Inner surface of ambulatory dactyl.



Fig. 8. *Trapezia garthi* n. sp. Inner surface of ambulatory dactyl.

eastern Pacific in the form of the frontal margin; whereas that of *T. formosa* is "... somewhat six lobed, the median lobes narrow but more prominent than the others", in *T. cheni* the front is scarcely emarginate. *T. cheni* can be further recognized by its lack of spines or notches on the lateral margins of carapace and its distinct color pattern. *T. cheni* may be readily separated from all other species in the genus by the complete absence of a tooth at the distal margin of merus of chelipeds.

***T. garthi* new species**

Figs. 5-8, 9b

**Material examined:** Holotype—1 ♂, cl 5.1 mm, cw 6.2 mm, Lan Yu (Orchid Id.), Taiwan, — 1 m, 9 May 1982, on *Pocillopora damicornis*, coll. Y.-S. Chen. Allotype—1 ♀ ovigerous, cl 5.2 mm, cw 6.8 mm, same data. Paratypes—1 ♂, 1 ♀ ovigerous, cl 4.3, 4.0 mm, cw 5.4, 5.0 mm, respectively, same data.

**Morphological description:** Carapace lenticular, moderately convex, glabrous, shining. Lateral margins of carapace convex, barely notched at union of anterior and posterolateral borders. Posterior margin slightly sinuate (Fig. 5).

Frontal margin projecting beyond rounded, dentiform supraorbital angles and cut into four shallow lobes. Submedian lobes small and rounded, separated from each other by a shallow concavity. Flattened external lobes, their margin finely denticulate, each about twice as wide basally as each submedian lobe. External lobes not quite as far advanced as inner pair. Front only slightly projecting beyond superior inner orbital angles. Orbits large, rounded. Orbital margin smooth, postorbital angle unobstrusive. Inferior inner orbital margin entire and crescentic in

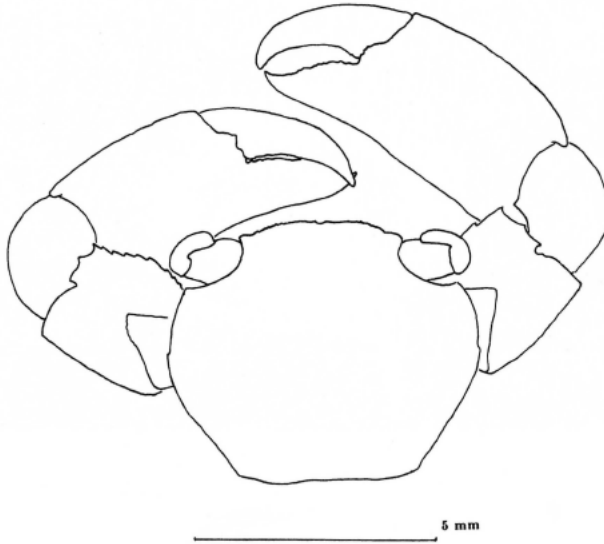


Fig. 5. *Trapezia garthi* n. sp. Holotype ♂. Carapace and chelipeds.

outline, terminating in a blunt conical tooth at inner angle.

Merus of third maxilliped trapezoid. Outer distal angle rounded, inner angle concave, its upper margin produced. Inner margin setose (Fig. 6).

Chelipeds unequal. Merus of cheliped as broad as long, its anterior margin convex and cut into several irregular truncate teeth. Distal margin of merus bearing one triangular tooth in addition to marginal anterior tooth. Carpus rounded, bearing a single pointed tooth at inner angle (Fig. 7). Palms massive, subcylindrical, their lower margin cristate, entire. Palm bearing a nodular protrusion proximally on dorsal surface. Immovable finger rudimentarily dentate with curved tip; the dactyl very curved, fitting closely upon the immovable finger, and rudimentarily denticulate. Curved tips of fingers cross. Merus and carpus of chelipeds covered with down-like setae.

Dactyls of ambulatory legs stocky, quite setigerous, with long slender setae clustered distally. Distal end of dactyl curved, its upper surface fluted to form several horny ridges. Proximally to this rasp-like structure several curved spines. Four transverse rows of grooved setae straddling anteroventral surface of dactyl and three pairs of horny setae arranged at its distal end (Fig. 8). Anterior surface of dactyl fringed with a single row of plumose setae proximally and with two transverse rows of setae distally. The latter are best visible on fourth pair of ambulatory legs and diminish in size anteriorly.

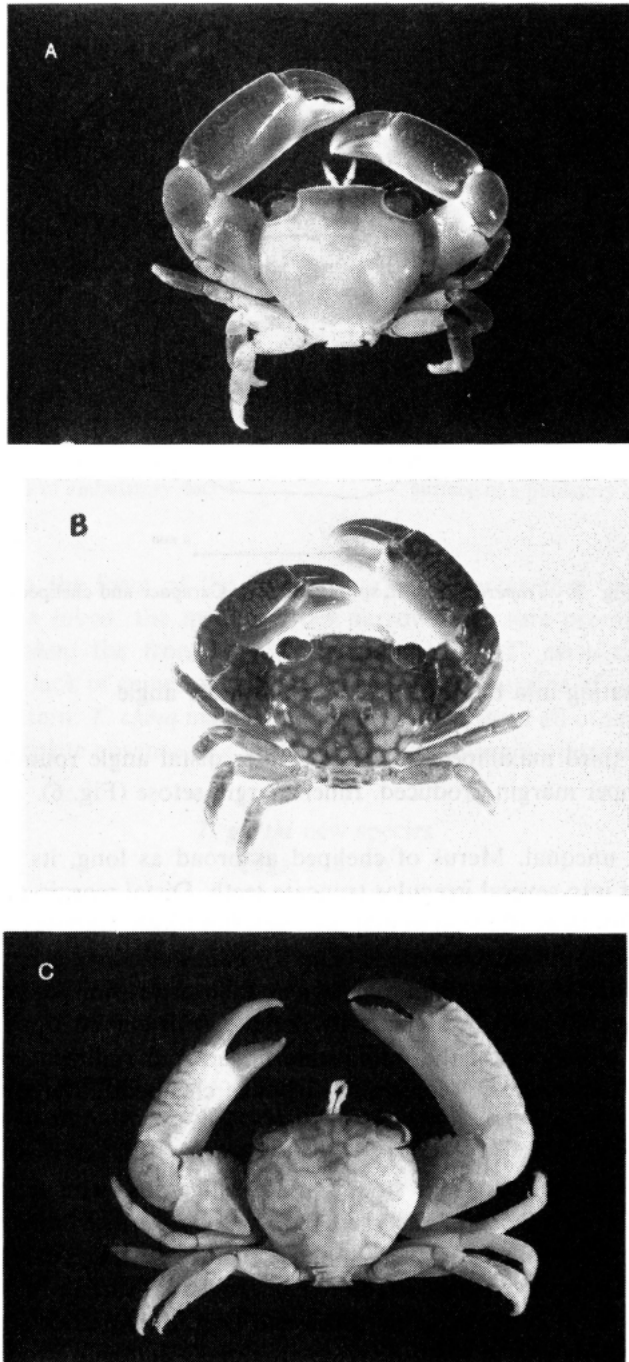


Fig. 9. A. *Trapezia cheni*, n. sp. Holotype ♂. B. *Trapezia garthi*, n. sp. ♂. C. *Trapezia speciosa* ♂.

**Color** (preserved in glycerin and sugar): Magenta-red lines circumscribe irregular pale orange areolae over carapace. The same pattern is carried over chelipeds, but the lines are dark purple at upper part of palms. Immovable finger and lower portion of palm deep yellow. Dactyl orange-brown. Joint of dactyl with palm purple. Upper proximal nodule of palm white. Ambulatory legs bright orange with a red spot at distal part of propodus.

**Remarks:** *Trapezia garthi* resembles somewhat *T. speciosa* Dana (1852), but is readily distinguished from the latter by its color pattern. *T. speciosa* is "areolated with a few deep-red irregularly curving lines which form two deep contiguous U-shaped curves over the anterior part of the carapace" (Dana, 1852:254). The carapace of *T. garthi* is covered with irregular rounded areolae enclosed in thick net of magenta. No U-shaped lines are apparent (Fig. 9). If color has faded in preserved specimens a more tenuous distinction can be made on the basis of the wider carapace, less prominent frontal margin and larger orbits of *T. garthi*.

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