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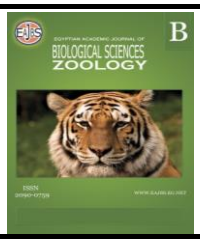

The Guard Coral Crabs of Familes Trapeziidae and Domeciidae (Superfamily Trapezoidea) from the Egyptian Red Sea Coasts, and Its Asscoiated Gulfs, Aqaba and Suez, Egypt

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ABSTRACT

A total of 6 species belong to families Domciidae and Trapeziidae (superfamily Trapezoidea: Brachyura: Decapoda) live in symbionts with branching stony corals in the shallow waters of the Egyptian coasts of the Red Sea, Gulf of Aqaba and Gulf of Suez were recorded during this study. These species were carefully examined and revised. The first family (Domciidae) was represented by only one species, *Domecia hispida*; while family Trapeziidae has 5 species comprised: *Trapezia bidentata, Tr. cymodoce, Tr. digitalis, Tr. guttata* and *Tr. tigrina*. All 5 species of genus *Trapezia* are well represented in the Red Sea waters; while Gulf of Aqaba was inhabited with *Tr. cymodoce*, *Tr. bidentata* and *Tr. tigrina*, and Gulf of Suez was occupied with *Tr. cymodoce* and *Tr. gutata*, in addition to *Domecia hisipida*. A brief description on general character, size, localities, color, habitats, and distribution was given. Constructed keys for identification of genera and species were also given.

INTRODUCTION

Members of superfamily Trapezioidea (Brachyura: Decapoda) vary greatly in their sizes from medium to small-sized crabs. They have a carapace varied from trapezoidal, hexagonal, octagonal or ovate in shape and beings transversely oval. Dorsal of the carapace is moderately convex, smooth, polished or granular in some species without definite regions. The anterolateral and posterolateral margins are separated and markedly distinct with epibranchial spine or have 2 or more teeth or small tubercles as in Domeciidae. The front is straight, denticulate, and is markedly broader than the posterior margin of carapace. Chelipeds are equal in most species, but being slightly unequal in few species either smooth or with conspicuous pointed or round tubercles or granules. Walking legs are moderately long, slightly flattened or relatively short, and stout. The abdomen of males has 7 segments, somites 3-5 are fused, with sutures hardly visible or visible; while females have it has seven freely moving segments. The first pleopod is relatively slender, nearly straight, but some species have stout, slightly sinuous, tip blunt, truncated; while second pleopod is stout, nearly straight, less than as half as length of first. Genital openings of males are coxal, but are sternal in females (Barnard, 1950; Castro, *et al*., 2004; Ng *et al*., 2008; Castro, 2009; Naderloo, 2017).

Trapeziid species are specialized for living obligate symbionts with stony corals in

tropical regions around the world (Knudsen, 1967). Therefore, they are common in the Indo-West Pacific and the tropical eastern Pacific Ocean regions (Barnard, 1950; Guinot, 1967; Serene, 1969, 1984; Galil and Lewinsohn, 1984; Galil, 1988; Galil and Clark, 1990; Castro, 1997a,b, 1999a,b, 2002, 2003, 2009; Castro *et al*., 2004; Ng *et al*., 2001, 2008; Naderloo, 2017). These crabs are coral symbionts, usually live associated with *Pocillopora, Stylophora,* and *Seriatopora* in which they depend on for habitat, food, and protection from predation, compared by providing services to their coral hosts, such as cleaning off sediment and defense against coral predators (Knudsen, 1967; Glynn, 1983; El- sayed *et al*., 2014). Moreover, these crabs gain nutrition in the form of coral mucus and entrapped particulate material (Knudsen 1967, Patton 1974), coral tissues form a major part of the crab's diet, larger coral head, and larger size to which the pair of crabs inhabiting it can grow. The occurrence of these crabs is also ameliorating the strong negative effects of the giant vermetid (*Dendropoma maximum*) on growth of *Pocillopora* (Shima *et al*., 2010).

In the Red Sea, the trapeziid crabs were recorded in several articles and reports either in the entire Red Sea (Guinot, 1967; Edwards and Emberton, 1980; Vine, 1986; Head, 1987; Galil, 1988, Castro, 1999b), or along the Egyptian Red Sea coasts (Ramadan, 1936; Monod, 1938; Hellal, *et al*., 1997; El-Sayed, 1996a, b; Fouda, 2000; El-Sayed *et al*., 2014: Salem, 2014). The number of trapeziids species was greatly varied due to using synonyms based on variations in color patterns and differences or similarities in morphological characters.

This work aims to revise all species of families Domeciidae and Trapeziidae collected from the Egyptian coats of the Red Sea and associated gulfs of Aqaba and Suez based on morphological characters.

MATERIALS AND METHODS

A total of 158 specimens (87 males and 71 females) representing species of families Trapeziidae and Domeciidae (superfamily Trapezoidea) were carefully examined and identified during the present study. All these specimens were living between branches of scleractinian coral reefs distributed at reef tables and reef face at the shallow waters (1-5 m depth) along the entire Egyptian coasts of the Red Sea, Gulf of Aqaba and Suez Gulf. The majority of these specimens (131 specimens, 73 males and 68 females) were previously collected and deposited among the Reference Collection of Al-Azhar University, Egypt (RCAZUE). The majority of these specimens (131, 74 males and 67 females) were collected during the periods from 1993 to 1999 and deposited among RCAZUE. An additional 27 specimens comprised 13 males and 14 females were collected during the period extended between 2011 and 2019. and deposited also among RCAZUE after identification and all have its extension number.

All examined specimens were collected from different localities extending along Egyptian coast including the South Sinai Protected Areas (Ras Mohamed at the northern limit of the Red Sea, Nabq and Abu Galluom Protectorates at the Gulf of Aqaba), Red Sea coast extending from Hurghada (north) to Abu Ramad south Shalateen (south) comprised coasts of National Institute, of Oceanography and Fisheries (N.I.O.F.) at Hurghada City and its onshore and offshore islands (Small Giftoon Island and Gotat Abu Ramada island) facing Hurghada, coasts of Safaga, Quseir, Marsa Alam, Wadi El-Gimal, Abu Ghsoon, Ras Banas, Shalateen, Sharm El Madfaa, Mersa Sha'ab, Mersa Abu Fissi, and Wadi El daeb (south Shalateen), in addition to several sites at eastern and western coasts of Suez Gulf (Ain Sokhna, South Sokhna, Porto El Sokhna and Ras Sudr).

The specimens of previously collected and those recently obtained were examined and identified to the species level according to keys of Serene (1969, 1984), Galil (1988), Galil and Clark (1990), Castro (1997a, b, 1999a, 2002) and Castro *et al*. (2004); further other

available literature given by Galil and Clark (1990), and Castro (1999b, 2003, 2009). All the identified species were deposited among RCAZUE after identification and given its accession number and kept in their specific containers has an accession number of the family.

The measurements of carapace length (CL), carapace width (CW), chela length (Ch. L), finger length (FL), front width (FW), orbital width (OW), posterior margin breadth (P.M.B.), and other necessary measurements for all specimens were taken using Vernier Caliper and given in mm. All terminology used in this article follows those mentioned by Serene (1984) and Castro *et al*. (2004).

Photos of each species were taken using a Fuji Film Camera, HD Movie 16 Mega Pixels. Microscopic investigations were also carried using a binocular microscope (Model OPTICA, SZM-1, fitted by a Micro-cam (PHD-5 MP).

The restricted synonyms, size, localities, brief description, color, habitats, status, and distribution were given for each species. A key for identification of the identified species was also provided.

RESULTS

Superfamily: Trapezioidea Miers, 1886
Family: Domeciidae Ortmann, 1893
Subfamily: Domoeciinae Ortmann, 1893
Genus: *Domecia* Eydoux & Souleyet, 1842
Domecia hispida Eydoux & Souleyet, 1842

Synonyms:

Domecia hispida Eydoux & Souleyet, 1842: 235, pl. 2, figs 5-10;- Alcock, 1898: 230;- Klunzinger, 1913: 303, pl. 11, fig. 11;- Balss, 1924: 12;- Serene, 1984: 293, fig. 201, pl. 43A;- Vine, 1986:118(list);-Dai & Yang, 1991: 359, fig. 175(2), pl. 48(3);- Castro *et al*., 2004: 19-18, Pl.1A; - Ng *et al*., 2008: 183(list).

Domaecia hispida Dana, 1852: 251.

Domoecia hispida De Man, 1888d: 326.

Material examined: only one male.

Localities:

Gulf of Suez:

-Ain Sokhna**:** RCAZUE-Crus-Br.210101-1, 1♂, 0.51×0.59 cm, 9/2017.

General Characters:

The carapace is broader than long, beings 1.15 breadth/length, transversely oval or hexagonal in shape; regions of carapace posterior to median anterior lobes without conspicuous spines. Dorsal surface of carapace with less defined regions; nearing portion of anterolateral margins and front with short setae (Plate I, a).

Anterolateral margins of carapace have 3 acute teeth; anterolateral margins are slightly convex, while posterolateral margins are slightly concave (Plate II, g).

The front is wide, bilobed with dentation border and slightly convex; typically longer than posterior margin, represents 1.5; front is separated from supraorbital angles by deep notch. Frontal and anterolateral margins of carapace occupied with numerous acute teeth (Plate II, a).

Chelipeds are massive and unequal in size, and are large in relation to carapace size; large cheliped represents 1.35 on carapace length. Propodus of chelipeds are covered with conspicuous pointed or round tubercles or granules; merus is short barely showing dorsally, without a row of teeth along anterior margins. Outer margins of propodus and carpus of chelipeds are spinose (Plate III, a & g).

The anterior portion of the thoracic sternite plate is acute with long narrow and pointed tip.

Male abdomen with somites 3-5 fused (although sutures may be visible).
The first male pleopod is short, stout, straight, and has pointed tip (Plate III, h).
Color: Dorsal surface of carapace with light brown color on frontal margin, anterolateral margin, and chelipeds while walking legs have brown bands; ventral surface of coasts has whitish color.
Habitat: It lives obligate or facultative symbioses with shallow-water scleractinian corals living on an external surface, very rarely modifying coral skeleton to produce galls or pits.
Status: Very rare.
Distribution:
-Local: Red Sea (Klunzinger, 1913; Guinot, 1964) and Suez Gulf (present results).
-World: This species had wide distribution comprised Atlantic Ocean - from South Carolina, West Indies to Curacao, west coast of Mexico and Brazil; and Indo West-Pacific regions from East and South Africa to Indonesia, Taiwan, China, Japan, Hawaiian Islands, Tahiti (Alcock, 1898; Serene, 1984; Castro *et al*., 2004; Ng *et al*., 2008).
Remarks: The characters of the present specimen are in agreement with those mentioned in keys illustrated by Serene (1984) and given notes by Castro *et al.* (2004) on this species. However, it was noticed that teeth of anterolateral margins are elongated with prominent another shorter three teeth between them compared with those given by these authors. Frontal and anterolateral margins have scattered setae on distal portion. The frontal margin has four dentate lobes; the median two are smaller than other lateral lobes. Finger of large and small chelae have convex tip, across with thumb in small chelae than large chelae. The upper outer surface of large and small chelipeds has prolonged teeth, being obvious on fingers of the two chelae.

Family: Trapeziidae Miers, 1886
Subfamily Trapeziinae Miers, 1886
Genus: *Trapezia* Latreille, 1828
Trapezia bidentata (Forskal, 1775)

Synonyms:
Cancer bidentatus Forskal, 1775: 90.
Trapezia ferruginea Latreille, 1828: 695;- Galil, 1988: 164-166, Fig. 3.
Trapezia miniata Hombron & Jacquinot, 1846: pl. 4, figs. 10 -13 (colour)..
Grapsillus subinteger MacLeay, 1838: 67.
Trapezia cymodoce var. *edentula* Laurie, 1906:
Trapezia subdentata Gerstaecker, 1857: 127.
Trapezia plana Ward, 1941. 14, fig. 28.
Trapezia subdentata Gerstaecker, 1857: 127.
? *Trapezia cymodoce ferruginea* - Gordon, 1934: 59.
? *Trapezia miersi* - Ward, 1941: 15.
Trapezia bidentata - Davie, 2002: 498;- Castro *et al*., 2004, p. 48;- Ng *et al*., 2008, p. 186.
Material Examined: 33 specimens **(**17 males and 16 females).
Localities:
Red Sea proper:
- Safaga (Mangroves 17 km south Safaga)**:** RCAZUE-Crus-Br.860101-1, 6♂, 5♀, 0.65-1.50 (CL), 0.80-1.80 (CW), 20/4/2018. Ras Mohamed Protected Area: RCAZUE-Crus-Br.860101-2, 6♂, 6♀, 0.42-1.14 (CL), 0.46-1.31 (CW), 27/ 9/2017. Sharm Al Fakera (South Alam): RCAZUE-Crus-Br.860101-3, 1♂, 1.00×1.20 cm, 19/9/1996. Marsa Arekie: RCAZUE-Crus-Br.860101-4, 1♂, 0.88×1.04 cm, 8/7/1996.
- South Sinai: Ras Mohamed Protected Area: RCAZUE-Crus-Br.860101-5, St. 7, 1♂, 3♀, 0.92-1.10 (CL), 1.10-1.30 (CW), 23/7/1994. RCAZUE-Crus-Br.860101-6, 1♂,

1.00×1.30 cm, 8/2015. Ras Hankoraap (South Wadi El- Gimal): RCAZUE-Crus-Br.860101-7, 1♂, 0.75×0.85 cm, 18/9/1996. Hosam Helmy (North Marasa Alam): RCAZUE-Crus-Br.860101-8, 1♀, 0.90×1.05 cm, 9/7/1996.

Gulf of Aqaba:

-Abu Galuom Protected Area: RCAZUE-Crus-Br.860101-9, 1♀, 0.75×1.00 Cm, 5/2/1995.

General Characters:

The carapace is trapezoid shape, sub quadrilateral, not globose in its appearance, with almost parallel anterolateral margins or has slightly curved margins; it is slightly broader, beings 1.2 breath/ length (Plate I, b).

Anterolateral margins of the carapace have epibranchial tooth or simple node; epibranchial teeth are distinct obtuse, become slight in largest individuals, or both external orbital angles and epibranchial teeth are sub-acute. Antennules fold transversely (Plate II, h).

Frontal margin is divided by obvious sinuous into four not acute lobes, well-demarcated, without visible teeth and separated by a conspicuous antennal furrow from superior internal orbital angle that is rounded (Plate II, b).

Chelipeds are equal or slightly unequal in size; fingers have acute extremities; propodus has rounded upper margin, appear smooth without tubercles or tomentum along outer surface although microscopic or visible but short setae may be present; merus is long or very long, always showing a third or more dorsally, characterized with row of conspicuous teeth or tubercles along anterior margin (Plate III, b).

Ambulatory legs have a dactylo-propodal articulation formed by a rounded prolongation of propodal lateral margin, it slid against and beneath a projecting button situated proximally on the lateral margin of dactylus. The distal end of propodi of ambulatory legs with orange-red spot (Plate III, n).

The male abdomen is divided into five segments, segments 3-5 fused but sometimes with sutures visible. Genital openings are sternal in females and coxal in males. The first male pleopod is naked, elongated and not straight, tip is thinner than basis (Plate III, i).

Color: Live individuals with uniform colors, light brown to reddish-brown colour of carapace, chelipeds and walking legs without colored spots, dots, bands or lines but single orange-red spot present on distal end of propodi of ambulatory legs. Both fingers and thumbs are dark browns.

Habitat: Associated with stony branched corals particularly of family Acroporidae.

Status: Common.

Distribution:

-Local: Red Sea and Gulf of Aqaba (Forskal, 1775).

-World: It occurs across the Indo-West Pacific and Eastern Pacific regions (Castro *et al.*, 2004; Castro, 2009).

Remarks: The characters of present specimens are in agreement with those mentioned by Castro *et al*, (2004) and Castro (2009). However, in the present specimens, most chelipeds are equal in size with acute fingers extremities and across together; upper margins of cutting margin of chela have furrow. Exorbital angles are obtuse or subacute. Median frontal lobes are narrower in size than two lateral lobes. First male pleopod with pointed tip. Propodi and dactyli with long setae on anterior and posterior margins.

Trapezia cymodoce (Herbst, 1801)

Synonyms:

Cancer Cymodoce Herbst, 1801: 22, pl. 51, fig. 2 (colour).

Trapezia cymodoce Savigny, 1817: pl. 5, fig. 2;- Audouin, 1826: 85 ;- Nobili, 1905: 10;- Nobili, 1906a: 292;-Nobili, 1906b: 143;- Bouvier, 1915: 272(part);- Laurie, 1915: 460(part);- Balss, 1924: 13;- Gurney, 1938: 76, pl. 2, figs 23-28;- Monod, 1938: 141.

Trapezia dentifrons Latreille, 1828: 695.

Trapezia coerulea Ruppell, 1830: 27(part), pl. 5, fig. 7..

Cancer (Trapezia) cymodoce De Haan, 1833-1849 (1833): 22.

Grapsillus dentatus MacLeay, 1838: 67, pl. 3.

Trapezia dentata Dana, 1852c:258;- Klunzinger, 1913:310, pl.8, fig.10.

Trapezia ferruginea var. *coerulea* Paulson, 1875: 53, pl. 7, fig. 4.

Grapsillus cymodoce Nobili, 1899: 260.

Trapezia cymodoce dentata Rathbun, 1907: 58(part).

Trapezia ferruginea Boone, 1934: 171, pl. 88 (not Latreille, 1828).

Trapezia cymodoce -Stephensen, 1945: 161, fig. 42C;-D;- Barnard, 1950: 275(part), fig. 52a-b;- Guinot, 1967: 234 (list);- Serene, 1984: 272(part), fig. 179, pl. 37B;- Galil, 1988: 161, fig. 2;- Galil & Clark, 1990: 378(part);- El-Sayed, 1996: 690 (list); Castro, 1997a: 73, fig. 2A-B, pls 2A, 3A;- Castro, 1997b: 118;- Castro, 1999a: 104;- Castro, 1999b: 29 (list), 30(in key), 46;- Ng *et al*., 2008, p. 186; Naderloo, 2017:285, fig. 22.2c, 24.2, 24.4.

Material Examined: 89 specimens (47 males and 42 females).

Localities:

Red Sea Proper:

- Hurghada- Shalteen: Marsa Gabal Alrasas: RCAZUE-Crus-Br.860102-3, 2♂, 2♀, 0.60-0.86 (CL), 0.63-0.92 (CW), 20/4/1996. Sharm Lollya (South Wadi El Gimal Protected: RCAZUE-Crus-Br.860102-4, 2♂, 2♀, 0.61-0.83 (CL), 0.72-1.00 (CW), 16/4/1996. Hurghada: NIOF: RCAZUE-Crus-Br.860102-5, 2♂, 1♀, 0.84-1.33 (CL), 1.02-1.54 (CW), 21/9/1996; RCAZUE-Crus-Br.860102-6, 1♂, 1♀, 1.30-1.50 (CL), 1.50-1.70 (CW), 7/1992; Al- Yasmen Village: RCAZUE-Crus-Br.860102-7, 1♂, 0.30×0.54 cm, 27/1/1993; RCAZUE-Crus-Br.860102-8, 1♂, 0.80×0.96 cm, 1982; RCAZUE-Crus-Br.860102-9, 1♂, 0.98×1.14 cm, 10/1993; RCAZUE-Crus-Br.860102-10, 1♂, 1♀, 0.94-1.14 (CL), 1.18-1.31 (CW), 1983; RCAZUE- Crus-Br.860102-11, 2♂, 2♀, 1.19-1.62 (CL), 1.41-1.94 (CW), 2/2018. Sharm Al Fakera: RCAZUE-Crus-Br.860102-12, 1♂, 0.46×0.52 cm, 19/9/1996. Safaga: RCAZUE-Crus-Br.860102-13, 7♂, 9♀, 0.65-1.40 (CL), 0.8-1.70 (CW), 20/4/2018. Shalaten: RCAZUE-Crus-Br.860102-15, 2♂, 1♀, 0.92-1.15 (CL), 1.10-1.30 (CW), 28/11/2018.
- South Sinai: Ras Mohammed Proected Area: RCAZUE-Crus-Br.860102-1, St. 8, 1♀, 0.58×0.72 cm and St. 7, 1♂, 3♀, 0.95-1.11 (CL), 1.16-1.37 (CW), 25/7/1994; RCAZUE-Crus-Br.860102-2, 1♂, 0.55×0.65 cm, 8/2015; RCAZUE-Crus-Br.860102-14, 4♂, 5♀, 0.48-1.71 (CL), 0.58-1.86 (CW), 9/2017.

Gulf of Aqaba:

-Nabq Protected Area: Al munqtaa: RCAZUE-Crus-Br.860102-16, 4♂, 3♀, 0.45-1.04 (CL), 0.54-1.22 (CW), 27/11/1994. Abu Gallom**:** RCAZUE-Crus-Br.860102-17, 2♂, 1♀, 0.50-1.09 (CL), 0.58-1.38 (CW), 25/5/1995.

Gulf of Suez:

-Porto Sokhna: RCAZUE-Crus-Br.860102-18, 5♂, 4♀, 0.62-1.30 (CL), 0.76-1.60 (CW), 15/8/2017. Ain Sokhna**:** RCAZUE-Crus-Br.860102-19, 3♂, 6♀, 0.42-1.25 (CL), 0.52-1.50 (CW), 14/4/2018; RCAZUE-Crus-Br.860102-20, 1♀, 0.85×1.00 cm, 27/11/2016; RCAZUE-Crus-Br.860102-21, 4♂, 4♀, 0.68-1.07 (CL), 0.65-1.35 (CW), 9/2017.

General Characters:

The carapace is sub quadrilateral or trapezoidal, transversely oval in outline, being 1.19 breadth/length; generally dorso-ventrally flattened. The dorsal surface is naked and smooth without traces of regions or finely granular with regions feebly indicated, granular or smooth (Plate I, c); dorsal surface with row of orange-red spots across (Plate III, o).

Anterolateral margins of the carapace are straight or parallel, with more acute epibranchial teeth in small specimens, but become convex and diverge with less prominent or feebly defined epibranchial spine or tooth in largest specimens (Plate II, i). The posterior margin is very often noticeably shorter than front, beings 0.8.

The frontal margin is cutting into four less projecting lobes with acute external orbital angles; a deep antennal sinus separates lateral frontal lobe and internal superior orbital angle (Plate II, c).

Chelipeds are very similar, subequal or slightly unequal; anterior margin of merus is dentate; cheliped palm has external surface covered with tomentum, inferior margin of cheliped palm is smooth; superior margin is sub-acute in transverse section. Fingers have thin cutting margins and acute extremities (Plate III, c). Ambulatory legs have a dactylo-propodal articulation formed.

The first male pleopod is naked, and with opened tip (Plate III, j).

Color: Carapace in live individuals has purplish to brownish blue color without regularly distributed spots, dorsal surface of carapace has two rows of orange-red spots across, its start from epibranchial teeth to 3M with two faint patches under 3M; these spots divided into 2, 4, 3 and 2 from epibranchial teeth to 3M; dactylus of chelipeds distally black or brown only to about two-thirds its length.

Habitat: Associated with branched stony corals of family Acroporidae of genera *Acropora, Styllophora and Pocillopora*.

Status: Frequent.

Distribution:

- **Local:** Red Sea, Gulf of Aqaba, and Gulf of Suez (Klunzinger, 1913; Vine, 1986; Galil, 1988; Galil & Clark, 1990; El Sayed, 1996; El- Sayed *et al*., 2014).
- **World:** This species has wide distribution in tropical area associated with stony corals in Indo-west Pacific regions from East and South Africa, to Indonesia, Taiwan, China, Japan, Tahiti, Hawaii, Australia, including Gulf of Aden, Arabian Gulf (Guinot, 1967; Serene, 1984; Galil & Clark, 1990; Castro, 1999a Castro, 1997a, b; Ng *et al*., 2008; Naderloo, 2017).

Remarks: The characters of present specimens are in agreement with those mentioned in key constructed by Serene (1984) and all remarks, descriptions, and notes given by Galil (1988), Galil and Clark(1990), Castro (1997a, b, 1999a) and Castro *et al.* (2004). However, in the present specimens, finger and thumb have acute extremities and across between, them; dark brown pigmentation extends about two-third of finger and thumb distal portion. Tomentum is observed occur on most external surfaces of chela without extending beyond upper and lower margins of palm. The first male pleopod has groove or furrow extends along its medial length, and beings curved distally; lateral tip of first has five spines or teeth.

Trapezia digitalis Latreille, 1828

Synonyms:

Trapezia digitalis Latreille, 1828: 696;- Alcock, 1898: 222;- Nobili, 1906b: 293;- Klunzinger, 1913: 312, pl. 11, fig. 14;- Bouvier, 1915: 273.

Trapezia leucodactyla Ruppell, 1830: 28.

Grapsillus subinteger MacLeay, 1838: 67.

Trapezia nigro-fusca Stimpson, 1860b: 219.

Trapezia ferruginea var. *digitalis* Paulson, 1875: 49, pl. 7, figs 5-6.

Trapezia digitalis var. *typica* Borradaile, 1902b: 265.
Trapezia digitalis forme *typica* (part = *digitalis*) Bouvier, 1915: 273(part).
Grapsillus digitalis Rathbun, 1906: 866.
Trapezia subinteger Ward, 1942: 100.
Trapezia digitalis - Garth, 1946: 493, pl. 81, fig. 6;- Ramadan, 1936: 35;- Barnard, 1950: 278;- Guinot, 1967: 234 (list);- Holthuis, 1979: 5;- Serene, 1984: 270(key), 271(key), 277, fig. 185, pl. 38 D; - Vine, 1986: 118 (list);- Chang *et al.*, 1987: 216;- Galil, 1988: 163, fig. 2;- Castro, 1996: 536, fig. 2A-E;- El-Sayed, 1996: 690(list); - Castro, 1997a: 78, pl. 3B- Castro, 1997b: 120;-Castro, 1999a: 107;- Castro, 1999b: 29(list), 31(in key), 47;- Castro *et al.*, 2004: 50;- Ng *et al*., 2008, p. 186.

Materials Examined: 14 specimens **(**10 males and 4 females).

Localities:

Red Sea Proper:

-Hurghada: Marin biology station, RCAZUE-Crus-Br.860103-1, 1♀, 1.08×1.48 Cm, 1992. Ras Henkorap: RCAZUE-Crus-Br.860103-2, 1♂, 0.82×0.95 Cm, 18/9/1996. Safaga: RCAZUE-Crus-Br.860103-4, 3♂, 2♀, 0.50-1.20 (CL), 0.63-1.50 (CW), 20/4/2018. Ras Mohammed Protected Area: RCAZUE-Crus-Br.860103-5, 5♂, 1♀, 0.47-0.87 (CL), 0.52-1.01 (CW), 9/2017.

-South Sinai: Ras Mohammed Protected Area: St. 8, RCAZUE-Crus-Br.860103-3, 1♂, 0.50×0.60 Cm, 2/5/1995.

General Characters:

The carapace is trapezoid shape, slightly broader, beings 1.25 breadth/length. The dorsal surface of carapace is naked, without defined regions (Plate I, d). Anterolateral margins of carapace don't have an epibranchial spine or tooth but have a simple node that is sometimes absent (Plate II, j). The frontal margin of carapace is slightly emarginated and convex with feeble submedian lobes, minute teeth and a hardly indicated antennal sinus (Plate II, d).

Chelipeds are subequal, dorsal margin of cheliped propodus without conspicuous tomentum along entire length; internal angle of cheliped carpus is without a spine (Plate III, d).

Ambulatory legs have short setae on dorsal views of dactyli, while other segments are naked.The abdomen of males with 7 segments, 3-5 are fused together and sutures well visible.

The first male pleopod is slender, thin and naked with short setae on distal third; its tip is pointed but not acute (Plate III, k).

Color: Dorsal surface of the carapace of live individuals or recently preserved specimens as well as chelipeds and ambulatory legs are dark brown or black color but tips of chelipeds and walking legs have light brown or creamy color without colored spots, dots, bands or lines but with a uniform color.

Habitat: This species is associated with branching stony corals, lives sympatrically among branches of genus *Pocillopora*.

Status: Rare.

Distribution:

-Local: Red Sea (Klunzinger, 1913; Guinot, 1967; Vine, 1986; Galil, 1988; El-Sayed, 1996).

-World: This species is widely distributed and lives in tropical regions of both Indo-West Pacific and Atlantic waters. Its distribution extends from East Africa to Indonesia, Japan, Tahiti, Hawaii, Australia, and Tuamotu Archipelagos (Serene, 1984; Castro, 1999a; Castro, 1999b) and in Tropical Atlantic comprised Mexico, Costa Rica, Colombia, Panama, Ecuador, and Galapagos Islands in eastern Pacific regions (Holthuis, 1979).

Remarks: The characters of present specimens are in agreement with those mentioned in the key by Serene (1984) and that described by Castro *et al.* (2004). However, upper margin of

chela is rounded and dark brown while lower margin is acute and light brown; finger and thumb have cutting margins teeth without upper furrow and across tips. The frontal margin of carapace slightly deeper lobes and antennal sinus than *Trapezia bidentata* and *Trapezia cymodoce*. First male pleopod with groove at along median of pleopod length; but tip of pleopod without five spines or teeth.

Trapezia guttata Ruppell, 1830

Synonyms:

Trapezia guttata Ruppell, 1830: 27
Trapezia guttata Ruppell, 1830: 27;- Nobili, 1906b: 293;- Gurney, 1938:74, pl.2, figs.19-22.
Trapezia ferruginea Dana, 1852c: 260(part).
Trapezia ferruginea var. *guttata* Paulson, 1875: 54;- Ramadan, 1936: 35.
Trapezia ferruginea guttata Ortmann, 1897a: 205.
Trapezia cymodoce dentata Rathbun, 1907: 58 (part = *guttata*).
Trapezia cymodoce ferruginea Rathbun, 1907: 58(part).
Trapezia bidentata Klunzinger, 1913: 307((part = *guttata*).
Trapezia cymodoce guttata Gordon, 1934: 59.
Trapezia davaoensis Ward, 1941: 14, fig. 27.
Trapezia miersi Ward, 1941: 15.
Trapezia ferruginea forma *guttata* Patton, 1966: 285.
Trapezia guttata - Tweedie, 1950: 126;- Serene, 1984: 271, fig. 178, pl. 38A;-Galil, 1988: 166, fig. 4;- Galil & Clark, 1990: 381;- Castro, 1997a: 82, pls 2B, 4;- Castro, 1997b: 125;- Castro, 1999a: 110;- Castro, 1999b: 29 (list), 31(in key), 51;- Castro, 2003: 445;- Castro *et al.*, 2004: 51-52;- Castro, 2009: 274;- Ng *et al*., 2008, p. 186.

Materials examined: 16 specimens (10 males and 6 females).

Localities:

Red Sea Proper:

-South Sinai: Ras Mohammed Protected Area: RCAZUE-Crus-Br.860104-1, St. 7, 1♂, 0.74×0.88 cm, 25/7/1994; RCAZUE-Crus-Br.860104-2, 1♂, 0.48×0.62 cm, 8/2015.

- Hurghada- Marsa ALamSector: Marsa Gabal Alrsas: RCAZUE-Crus-Br.860104-3, 1♂, 0.26×0.29 cm, 20/4/1996. Abo Ghsooson: Mangrove, RCAZUE-Crus-Br.860104-4, 2♂, 3♀, 0.64-0.89 (CL), 0.71-1.06 (CW), 16/4/1996. Hosam Helmy: Km. 67, RCAZUE-Crus-Br.860104-5, 2♀, 0.24-0.60 (CL), 0.30-0.66 (CW), 9/7/1996. Safaga: RCAZUE-Crus-Br.860104-6, 1♂, 1♀ (Ovegras), 0.45-0.60 (CL), 0.60-0.80 (CW), 20/4/2018. Marsa Arekie: Km. 18 north, RCAZUE-Crus-Br.860104-7, 3♂, 0.20-0.23 (CL), 0.28-0.30 (CW), 8/7/1996.

Gulf of Suez:

-Ain Sokhna: RCAZUE-Crus-Br.860104-8, 1♂, 0.40×0.48 cm, 14/4/2018.

General Characters:

The carapace is trapezoid shape, slightly broader, beings 1.19 breadth/length. Regions of carapace are less defined and naked (Plate I, e). Anterolateral margins of carapace have a defined epibranchial acute spine or teeth. Anterolateral margins of carapace are nearly straight and subparallel between orbital angles and epibranchial teeth (Plate II, k). Frontal margin cuts into four blunt lobes, more or less projecting and with a large transverse band of dark nut-brown or brick-red covering frontal region between eyes; a slightly deep antennal sinus separates between lateral frontal lobe and internal superior orbital angle (Plate II, e).

Chelipeds are subequal; lower margin of cheliped propodus is smooth or with microscopic tubercles. Cheliped palm has external face naked and superior margin rounded in transverse section (Plate III, e).

Walking legs are naked, their dactyli have short setae on the dorsal surface, and all legs are

ornamented with red dots.

Male's abdomen comprises 5 segments; 3-5 are fused together into a single unit. The first male pleopod is slender, naked with short setae on distal third; its tip with slot and obtuse (Plate III, l).

Color: Carapace is either of uniform color or cream-white. In live individuals, carapace is white to orange-white without any spots or dots, but with brown band across frontal margin between eyes. Chelipeds have a network of red fine transverse irregular lines. Ambulatory legs are ornamented with red dots with backgrounds reddish-brown of chelipeds and all walking legs.

Habitat: Obligate symbiont with stony coral reefs scleractian corals.

Status: Common.

Distribution:

-Local: Red Sea and Gulf of Suez (Ruppell, 1830; Galil, 1988; Galil & Clark, 1990; Castro, 1999a; Ng *et al*., 2008).

-World: Indo-west Pacific regions from east and south Africa including Arabian Gulf, Gulf of Aden, Gulf of Oman and Arabian Sea to Japan and Austarlia (Serene, 1984; Galil & Clark, 1990; Castro, 1997a, b; Castro, 1999a,b, Castro, 2003; Castro *et al.*, 2004).

Remarks: The characters of present specimens are in agreement with those mentioned by the key of Serene (1984) and Castro *et al.* (2004). However, it was noticed that the exorbital angle and epibranchial teeth are more acute than other species for this genus. Members of this species represent the smallest sizes of trapeziids. The largest size of carapace reached 1.06 cm and considers larger comparable with individuals of this species in the Indo-Pacific regions recorded by Serene (1984) and Castro (1999 a, b).

Trapezia tigrina Eydoux & Souleyet, 1842

Synonyms:

Trapezia tigrina Eydoux & Souleyet, 1842: 232, pl. 2, fig. 4.

Trapezia maculate Dana, 1852: 256 (part); - Alcock, 1898: 221(part);- Nobili, 1901: 16;- Nobili, 1905: 10;- Nobili, 1906b: 293;- Balss, 1924: 13;- Pesta, 1928: 72;- Ramadan, 1936: 35;- Monod, 1938: 142..

Trapezia rufopunctata Jacquinot &Lucas, 1853:41(part);- Klunzinger, 1913: 309, pl.11,fig. 13.

Trapezia ferruginea var. *rufopunctata* Paulson, 1875: 48, pl. 7,fig. 3.

Trapezia rufopunctata var. *maculate* Ortmann, 1893: 484.

Trapezia ferruginea maculata Ortmann 1897: 206 (part).

Grapsillus maculatus Rathbun, 1906: 865.

Trapezia cymodoce maculata Rathbun, 1907: 59 (part).

Trapezia ferruginea forme *maculate* Bouvier, 1915: 272(part).

Trapezia cymodoce var. *maculate* Laurie, 1915: 462.

Trapezia danae Ward, 1939: 13, figs 17-18.

Trapezia guttata Barnard, 1950: 277.

Trapezia ferruginea subsp. *Maculate* Michel, 1964: 30.

Trapezia danai Knudsen, 1967: 51;- Garth, 1971: 189.

Trapezia wardi Serene, 1971: 914, pl. 4 C.

Trapezia aff. *wardi* Garth, 1971: 189.

Trapezia aff. *maculata* Garth, 1974: 205.

Trapezia aff. *tigrina* Garth, 1974: 205.

Cancerru fopunctatus Ruppell, 1830: 27, 28.

Trapezia tigrina- Ward, 1939: 13, Fig., 15, 16;- Serene, 1984: 275, fig. 182, pl. 39 C-D;- Galil & Lewinsohn, 1984: 166, fig. 1;- Galil & Lewinsohn, 1985: fig. 7;- Galil, 1988: 167, fig. 5;- Castro, 1997b: 130;- Castro, 1999a: 115;- Castro, 1999b: 29(list), 31(key), 55;- Castro *et al*, 2004: 54, Pl.3 E ;- Ng *et al*., 2008, p. 186; - Naderloo, 2017: 287, Figs. 22.2b, 24.2, and 24.5.

Materials Examined: 7 (3 males and 3 females, 1 unknown)**.**

Localities:

Red Sea Proper:

-Ras Mohamed Protected Area: RCAZUE-Crus-Br.860105-1, 2 ♂, 2 ♀, 0.87-1.15 (CL), 0.94-1.24 (CW), 9/2017. Hurghada: RCAZUE-Crus-Br.860105-2, 1 ♂, 1 ♀, 1.10-1.21 (CL), 1.25-1.50 (CW), 12/2012.

Gulf of Aqaba:

-Abu Galum Protected Area**:** RCAZUE-Crus-Br.860105-3 (broken speciemen).

General Characters:

The carapace is a trapezoid shape, slightly broader than long, beings 1.24, without defined of carapace regions. Dorsal surface of carapace, chelipeds and ambulatory legs are ornamented with red dots or spots, not very numerous; all spots remain in preserved specimens. Exorbital and epibranchial teeth are acute (Plate I, f). Anterolateral margins are slightly convex and parallel; posterolateral margins are concave (Plate II, l). Frontal margin is cut into blunt four lobes more or less projecting beyond internal orbital angle; front separates from supraorbital angles by deep notch (Plate II, f).

Chelipeds are equal, or similar, dorsal margin of cheliped propodus is without tomentum along its entire length; lower margin is smooth or with microscopic tubercles (Plate III, f). Walking legs are naked; carpi, propodi, and dactyli have short setae on dorsal surface. Merus of fifth pereiopod is 2 times longer than broad, beings 2.13 in length.

The abdomen of males has 5 segments, 3-5 are fused together, and their sutures are visible.

The first male pleopod is slender, naked with short setae on distal third; its tip is slot and acute. Second is shorter and stute (Plate III, m).

Color: Live and preserved individuals have light brown or yellowish-brown; carapace, chelipeds, and ambulatory legs are furnished with red spots or ornamented with small not very numerous orange-red or red spots (45- 50 spots); red color concentrated at the spot center, being faint color on outlines of spots. Fingers and thumbs are light browns.

Habitat: Associated with stony corals of family Acroporidae.

Status: Rare.

Distribution:

-Local: Red Sea and Gulf of Aqaba (Ruppell, 1830; Klunzinger, 1913; Ramadan, 1936; Monod, 1938; Galil, 1988; Castro, 1999a).

-World: Indo-West Pacific regions comprised Arabian Gulf, extending eastwards to Japan, Hawaii, Tahiti, and Western Australia (Serene, 1984; Castro, 1997b; 1999a, b; Naderloo, 2017).

Remarks: The characters of present specimens are in agreement with those mentioned in the key by Serene (1984) and Castro *et al.* (2004). However, in the present specimens, chelae have rounded upper margin and acute lower margin; finger and thumb have slightly fine cutting margins teeth with upper furrow and extremities tips across them, light brown color on along entire length of finger and thumb. Frontal margin lobes are slightly prolonged beyond supra orbital angle; a deep antennal sinus separates lateral frontal lobes from internal superior orbital angle.

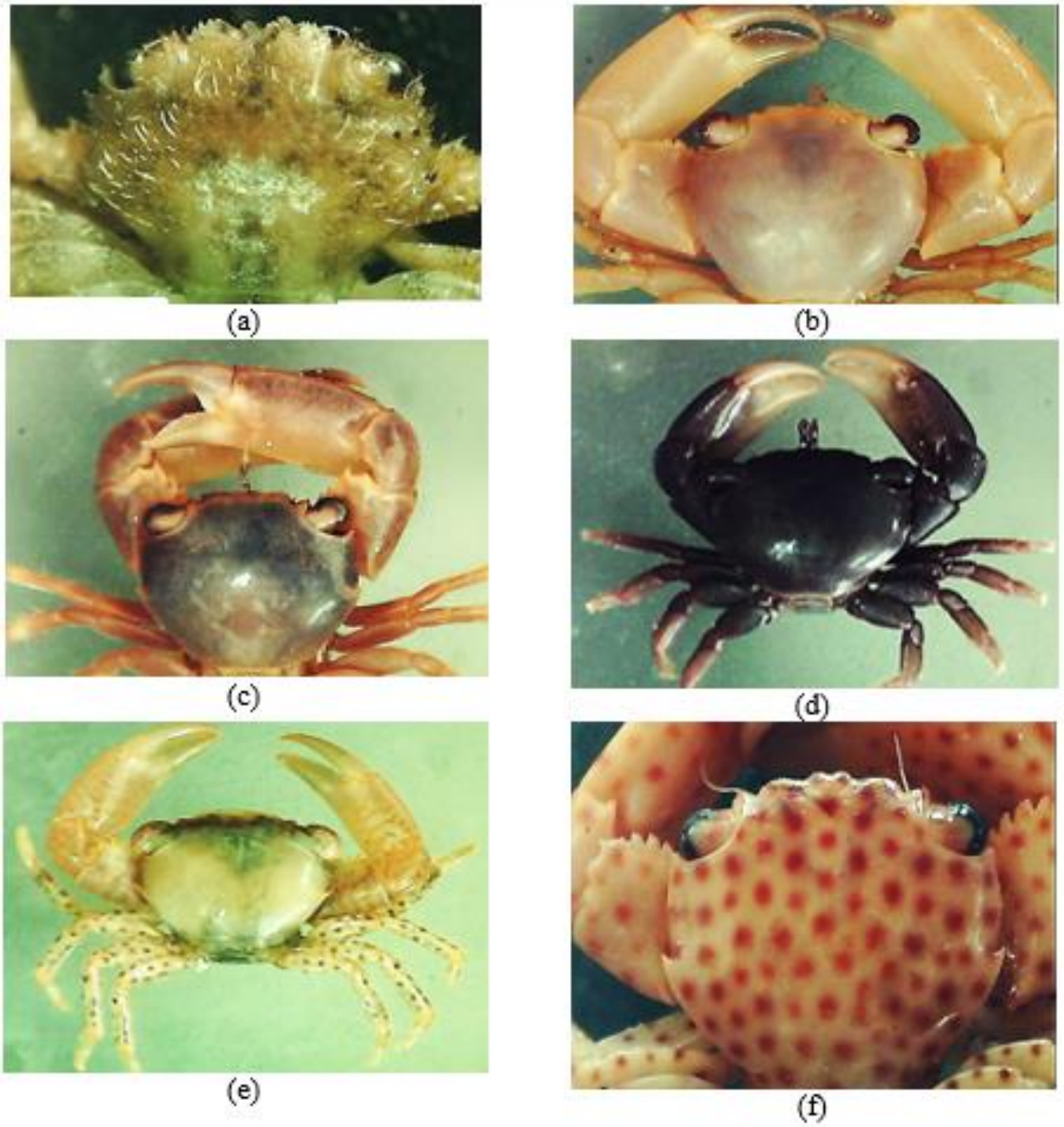

Plate (I): a-f) dorsal surface of carapace: a) *Domecia hispida* (♂ 0.51x0.59 cm), b) *Trapezia bidentata* (♂ 1.5x1.8 cm), c) *Trapezia cymodoce* (♂ 1.62x1.94 cm), d) *Trapezia digitalis* (♂ 1.2x1.5 cm), e) *Trapezia guttata* (♂ 0.89x1.06 cm) and f) *Trapezia tigrina* (♂ 1.21x1.85 cm). (Note that: Scale bar not is out measurments).

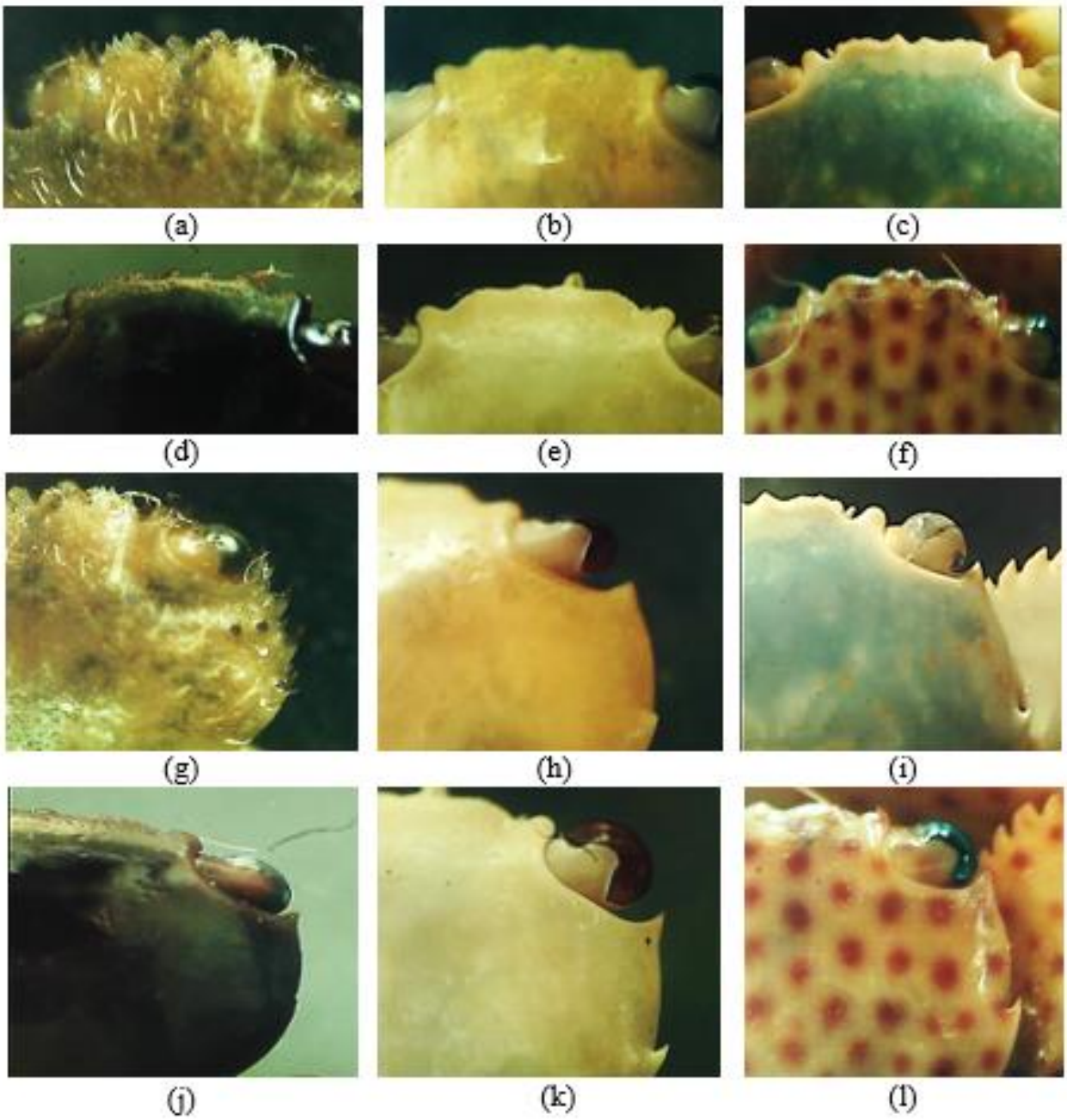

Plate (II): a-f) frontal margin and g-l) anterolateral margin of carapace: a&g) *Domecia hispida*, b&h) *Trapezia bidentata*, c&i) *Trapezia cymodoce*, d&j) *Trapezia digitalis*, e&k) *Trapezia guttata* and f&l) *Trapezia tigrina*.

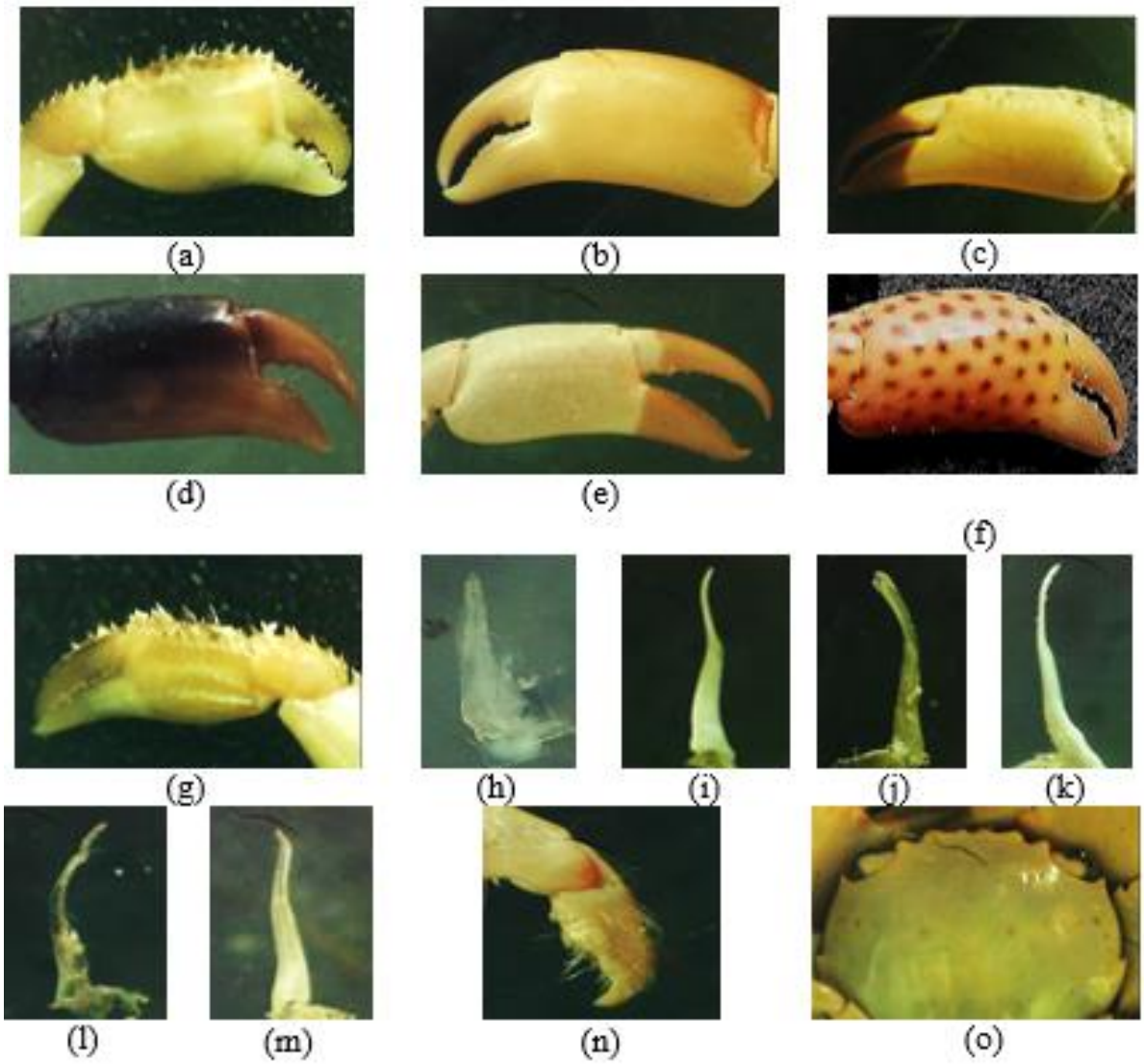

Plate (III): a-f) dorsal surface of chela and h-m) first male pleopod: a&h) *Domecia hispida*, b&i) *Trapezia bidentata*, c&j) *T. cymodoce*, d&k) *T. digitalis*, e&l) *T. guttata* and f&m) *T. tigrina*; g) small chela of *Domecia hispida*, n) orange-red spot on distal end of propodi of walking legs of *T. bidentata*, (o) row of orange-red spots across of *Trapezia cymodoce*.

Key to the Red Sea families of superfamily Trapezioiidea

1- Chelipeds very small, equal or almost equal in size. Carapace narrow, longitudinally rectangular in shape; front very short, shorter than posterior margin of carapace……..……. Family **Cryptochiridae(*)**

- Chelipeds large or very large in relation to carapace size, almost equal or conspicuously unequal in size. Carapace broad, trapezoidal, transversely oval, hexagonal or octagonal in shape; front wide typically longer than posterior margin ….……..…….…. **2**

2- Chelipeds conspicuously dissimilar in size. Male abdomen with 6 freely articulating somites (excluding telson) ..... Family **Tetraliidae**

- Chelipeds equal or slightly unequal in size. Male abdomen with somites 3-5 fused (although sutures may be visible)…….……..……..……. **3**

3-Propodus of chelipeds with conspicuous pointed or round tubercles or granules; merus short, barely showing dorsally, without row of teeth along anterior margins ……..... Family **Domeciidae**

- Propodus of chelipeds smooth, without tubercles along outer surface; merus long or very long, always showing a third or more dorsally and showing row of conspicuous teeth or tubercles along each anterior margin (except *Calocarcinus*) ..... Family **Trapeziidae**

Key to the Red Sea species of genus *Domecia*

1-Anterior portion of thoracic sternite plate broadly triangular with almost straight sides forming an almost equilateral triangle …….. ……..... ***Domecia glabra* (*)**

-Anterior portion of thoracic sternite plate Anterior portion of thoracic sternite plate narrowly triangular, with convex sides, acute, with long, narrow and pointed tip; region of carapace posterior to median anterior lobes without conspicuous spines ..... ***Domecia hispida***

Key to the Red Sea species of genus *Trapezia*

1- Dorsal margin of cheliped propodus with conspicuous tomentum consists of numerous long setae. ……..…… ***Trapezia cymodoce***

- Dorsal margin of cheliped propodus without conspicuous tomentum along entire length ……..….2

2- Dorsal surface of carapace without coloured spots, dots, bands or lines ……..... 3

-Dorsal surface of carapace or walking legs only ornamented with distinctive colored spots, or dots ……..... 4

3- Carapace, chelipeds and walking legs with dark brown color ..... ***Trapezia digitalis***

- Carapace, chelipeds and walking legs with orange, orange-pink or red-brown color ..... ***Trapezia bidentata***

4- Dorsal surface of carapace white to orange-white without any spots or dots but with brown band across frontal margin between eyes; ambulatory legs only ornamented with brown color dots…….……***Trapezia guttata***

- Dorsal surface of carapace, chelipeds and walking legs with red color dots ..... ***Trapezia tigrina***

(*) Denotes to unrecorded species in the presnt study.

DISCUSSION

The family Trapeziidae was originally established by Miers (1886) to include only species *Trapezia* Latreille, 1828. However, based on a revision of this family by Ortmann (1897) *Tetralia* Dana, 1851, and *Quadrella* Dana, 1851, were added, but *Domecia* Eydoux & Souleyet, 1842, was placed in a separate subfamily Domeciinae Ortmann, 1893. Borradaile (1902) regarded Trapeziidae as a subfamily within the Xanthidae MacLeay, 1838 and placed *Domecia* in the Menippinae Ortmann, 1893. This position was taken by several authors such as Guinot (1967). However, Guinot (1978) resurrected the family Trapeziidae and removed *Domecia* from the Menippinae, and adding it together with *Maldivia* Borradaile, 1902 constituted a group of their own. Subsequently, Serène (1984) recognized two subfamilies in the Trapeziidae: Trapeziinae (for *Trapezia, Quadrella, Tetralia, Calocarcinus* Calman, 1909, and *Sphenomerides* Rathbun, 1897) and Domeciinae including *Maldivia* and *Jonesius* Sankarankutty, 1962 (as *Maldivia triunguiculata* Borradaile, 1902).

During the last decades of the 20th century and early decades of the 21^{ist} century, several new species were added and established comprised genus Tetraloides (Galil, 1986a), *Hexagonalia* with *Quadrella brucei* Serène, 1973 (Galil (1986b), and Galil and *Palmyria* with *Maldivia palmyrensis* Rathbun, 1923 (Galil and Takeda, 1986). Therefore, Castro et al.

(2004) questioned the inclusion of *Domecia*, *Jonesius*, *Maldivia*, and *Palmyria* in the Trapeziidae and stated that the Trapeziidae consisted of three separate groups, one comprising *Trapezia*, *Quadrella*, *Hexagonalia*, *Calocarcinus*, *Philippicarcinus*, and *Sphenomerides*, a second with *Tetralia* and *Tetraloides*, and a third with *Domecia*, *Jonesius*, *Maldivia*, and *Palmyria*. After that, Davie (2002) argued that the subfamily Domeciinae was quite distinct and raised it to family status, Domeciidae Ortmann, 1893, to include *Domecia*, *Jonesius*, *Maldivia*, and *Palmyria*.The eight genera that remained in the Trapeziidae after the separation of the Domeciidae, however, still represent a heterogeneous group of mostly coral-associated crabs. They share some characters that are closely correlated to their live-coral habitat. Therefore, Castro, et al. (2004) determined that *Tetralia* and *etraloides* nevertheless share some unique characters that set them apart from *Trapezia* and the other five genera, and established Tetralia and Tetraloides in a separate new family Tetralidae.

During this study, species of families Trapeziidae and Domeciidae were revised along the Egyptian coasts of the Red Sea. The third family of superfamily Trapezioidea (family Tetraliidae) in the Red Sea is treated in a separate work and still under investigation. Out of the revised 6 species recorded from the Egyptian Red Sea coats during this study, *Tr. digitalis* has wide distribution and lives in tropical regions of both Indo-West Pacific including Red Sea and Atlantic waters. Its distribution extends from East Africa to Indonesia, Japan, Tahiti, Hawaii, Australia, Tuamotu Archipelagos in the west Pacific (Serene, 1984; Castro, 1999a, b) and to eastern Pacific at coasts of Colombia (Castro, 1982) as well as in tropical Atlantic comprised Mexico, Costa Rica, Colombia, Panama, Ecuador and Galapagos Islands in eastern Pacific regions (Holthuis, 1979). On the other hand, *Trapezia cymodoce*, and *Tr. guttata* are well distributed in the Red Sea, and Indian Ocean, west and central Pacific Ocean comprised mostly all major islands as Hawaii and Tahiti and from Japan north to Australia south (Galil and Clark, 1990; Castro, 1997a,b, 1999a,b, 2002,2003, 2009; Ng, *et al*., 2001; Castro *et al*., 2004; Ng *et al*. 2008, Castro, 2009; Naderloo, 2017). *Tr. bidentata* and *Tr. tigrina* have well distributed through the Indian Ocean and West Pacific including Philippines (Castro, 2009) and Indonesia (Galil, 1988, Castro, 1999a). In contrast, *Domecia hispida* has wider distribution extends along coasts of South Carolina, West Indies, Curacao, west coast of Mexico and Brazil at the Atlantic Ocean to Indo-West Pacific regions from East and South Africa to Indonesia, Taiwan, China, Japan, Hawaiian Islands, Tahiti (Alcock, 1898; Serene, 1984; Castro *et al*., 2004; Ng *et al*., 2008).

The total number of *Trapezia* species recorded at the Egyptian coasts of the Red Sea represents the majority of the 6 Red Sea *Trapezia* species listed by Guinot (1967) and Vine (1986) and comprised all 5 species reported by Galil (1988). However, the Red Sea fauna of these species is markedly less diverse compared with the 23 species reported around the world documented by Castro (2009) or even from other regions in the west Pacific Ocean, particularly those recorded by Castro (1997a) at New Caledonia (11 species), Castro (1997b) at French Polynesia (14), Castro (1999a) at several regions in the Indian Ocean (13 species), Castro (1999b) at Indonesia (13 species), Castro(2009) at Philippines and near Island(13 species), Castro (2003) at Guam and Mariana Islands (14 species), Ng *et al*., (2001) at Taiwan (12 species). But the Red Sea trapeziids being similar or slightly higher than those reported in restricted localities at the Indian Ocean varied from 3 species in Andaman Sea (Castro, 2002), to 4 species (Galil and Clark, 1990), or to 4 species recorded in the eastern Pacific (Castro, 1982) or the two species recorded in the Arabian Gulf by Naderloo(2017). The decreased number of Trapeziidae as general in the Red Sea and similar restricted or semi-closed area as Arabia Gulf may be explained by the far distances from the highly diverse Indo-Malay region and yet isolated enough to include a species endemic to the Central Pacific to reach these regions as discussed by Castro *et al*.(2004). This phenomenon is clearly observed also in the local distribution of trapeziids in the Red Sea, which was

inhabited by all species, while both northern extremities at Gulfs of Suez and Aqaba were accommodated with only three species.

Similar to all members of superfamily Trapezoidea, the identification was based on color patterns (Serene, 1969, 1984), therefore, *Trapezia rufopunctata* and *Tr. ferruginea* forma *maculate* were used as synonyms for *Tr. tigrina* in several literatures in the Red Sea (Klunziner, 1913; Bouvier, 1915), and in other regions (Serene, 1969, 1984), or using *Tr. ferrugenia* as synonymous with *Tr. Bidenatata*(gali, 1988), *Tr. Cymodoce, , Tr. digitalis* (Paulson, 1875), and *Tr. guttata* (Ramadan, 1936) in the Red Sea or in the Indian Ocean and Red Sea comprising (Rathbun, 1907; Boone, 1934; Patton, 1966; Serene, 1984). Moreeover, Trautwein (2007) demonstrated that the use of color patterns only in Tetraliidae (the third family of superfamily Trapezoidea) was not satisfied where several of the museum's specimens examined were originally identified as *T. vanninii* Galil and Clark, 1988 (=*T. muta* (Linnaeus, 1758) and due to the subtle characters of these preserved type and holotype specimens additional new species were added or remains its validity is questionable in that family. Therefore, the use of live color pattern, must be used or consider only for differentiation between interspecific and conspecific recognition in these sympatric species. In addition, the nature of living as symbionts of sympatric species within coral branches probably contributed to the evolution of similar physical adaptations (e.g., flattened carapace) among species as reported by Castro *et al.* (2004) and Trautwein (2007). Consequently, in the present study, both morphological characters and color patterns were used for differentiation between species.

Therefore, molecular biology became a good additional tool used in confirming taxonomy and evolution of different trapeziid species based on examining nucleotide genes sequences particularly 16S rRNA which has several functions according to the findings obtained by Kolbert and Persing (1999) and Pereira *et al*. (2010).

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ARABIC SUMMARY

سرطانات الشعاب المرجانية من عائلتي الترابيزيدي والدوميشيدي (فوق عائلة الترابيزويديا) من الشواطيء المصرية للبحر الأحمر وخليجي السويس والعقبة، مصر

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أسفرت هذه الدراسة عن تسجيل 6 أنواع ينتمي منها 5 أنواع لعائلة الترابيزيدى ونوع واحد فقط يتبع عائلة الدوميشيدي (دوميشيا هيسبيدا)، وتشمل أنواع الترابيزدي كل من ترابيزيا بيدنتاتا، ترابيزيا سيمودوس، ترابيزيا ديجيتاليس، ترابيزيا جوتاتا و ترابيزيا تيجرينا. وتشير النتائج إلى تواجد جميع أنواع الترابيزيا بالبحر الأحمر، بينما يقل عدد الأنواع المسجلة في كل من خليج السويس والعقبة إلى ثلاثة أنواع تضم ترابيزيا سيومودوس في الخليجين، مع تواجد أفراد نوعي ترابيزيا بيدنتاتا وترابيزيا تيجرينا في جليج العقبة، ونوعي ترابيزيا جوتاتا ودوميشيا هيسبيدا في خليج السويس. كما تضمنت الدراسة وصفا للأنواع المسجلة مع توضيح عدد وأحجام العينات وذكر ألوانها ومواطن تواجدها والتوزيع المحلى والعالمي ومقارنتها بالدراسات السابقة، مع وضع مفاتيح للتعرف على الأنواع المسجلة.