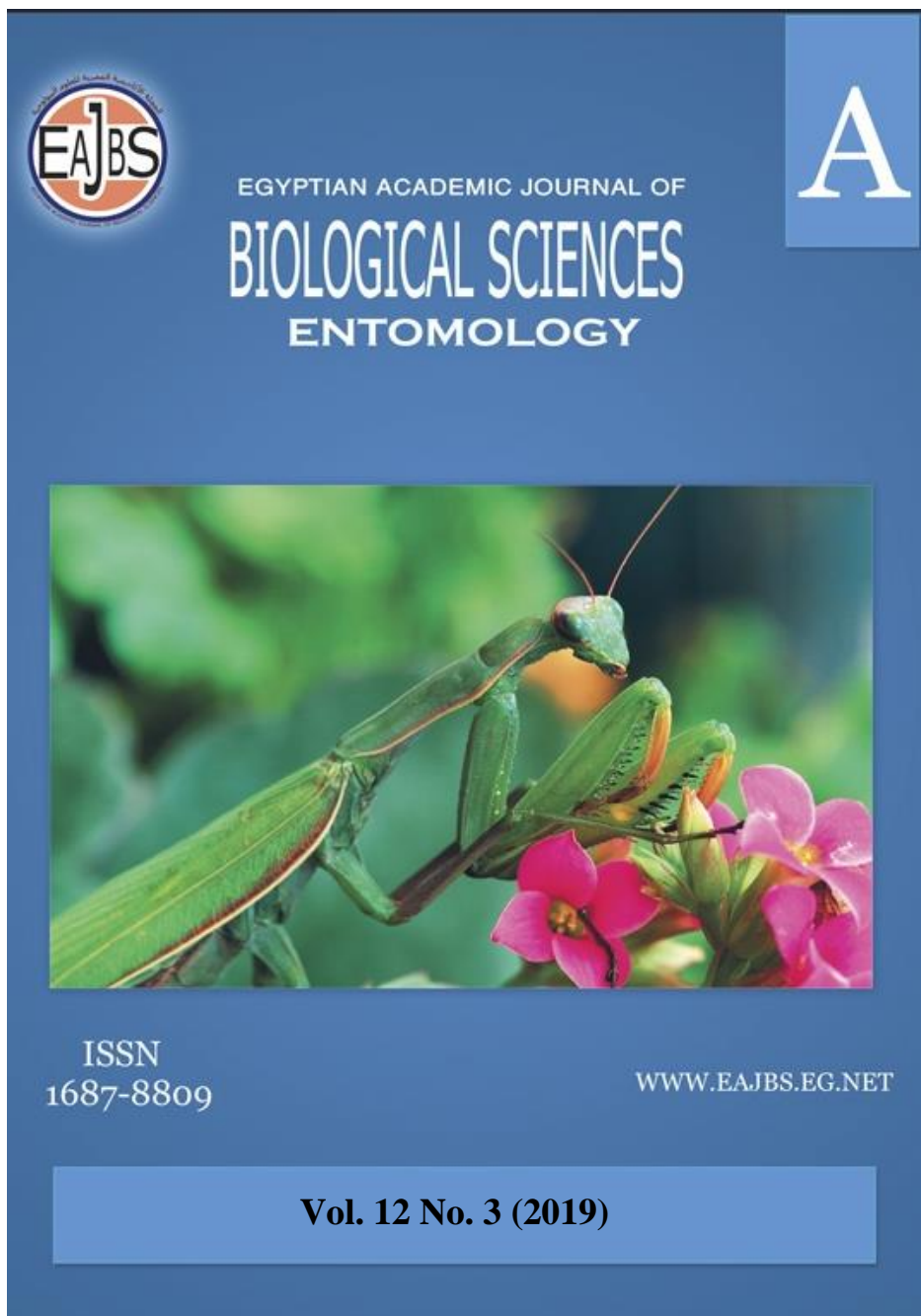


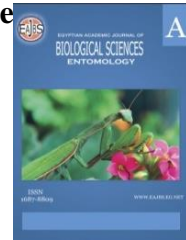
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**Taxonomical Studies on the Subfamilies Ortaliinae and Stichlotidinae
(Coleoptera: Coccinellidae) in Egypt**

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ABSTRACT

A taxonomic review of the subfamilies Ortaliinae and Sticholotidinae (Coleoptera, Coccinellidae) from Egypt is given at the first time with a description of 7 species. The present investigation deals with two species within genus *Rodolia* and revealed that genus *Rodolia* belong to tribe Novini under the subfamily Ortaliinae in agreement with Nedvěd and Kovář (1996), while, Alfieri (1976) mentioned this tribe under subfamily Coccinellinae. The taxonomic status of five species within subfamily Sticholotidinae is discussed and revealed that, two species of *Pharoscymnus ovoideus* and *Ph. Pilosus priesneri*, are considered new record in Egypt, according to the recent catalogue whereas, Alfieri mentioned the two species in his monograph as recorded from Egypt. As mentioned in Alfieri's monograph *Ph. varius* not species but a subspecies of species *Ph. setulosus*, with subspecies of *anchorago*, *bifasciatus*, *brunneonotatus*, and *letourneuxi* the last three subspecies mentioned as aberrations. Seven species and subspecies are listed and recorded from Egypt, depending on fresh material collected from the Egyptian fauna and reference insect collections; **ALFC**, **ASUC**, **CUC**, and **MAC**. The diagnostic characters of subfamilies, tribes, and genera are mentioned and keys to subfamilies, species and subspecies are constructed with illustrations for the identification of species. Geographical distributions in Egypt and world are given.

INTRODUCTION

The family Coccinellidae commonly known as ladybugs or ladybird beetles, one of the largest family of the superfamily Cucujoidea, and comprise approximately 6000 species (Vandenberg, 2002). Coccinellidae will remain attractive to entomologists due to economic important, a few species are pests while, most species are predacious especially subfamilies Ortaliinae and Sticholotidinae which includes the predators of injurious insect pests, from these are scale insects, mealy bugs, and other homopterous insects (Frank and Mizell 2000), in Egypt these subfamilies includes approximately 7 species in two genera, *Rodolia* (two species) belonging to Ortaliinae, and *Pharoscymnus* (five species) belonging to Sticholotidinae.

The subfamilies Ortaliinae and Stichlotidinae were investigated by many authors from Egypt such as Peyermihoff (1907); Sicard (1907); Crotch (1876); Andres (1913, a & b); Pic (1925) and the list of the Egyptian Coccinellidae including the *Rodolia* and *Pharoscymnus*

species was published by Bohem (1908). Alfieri (1976) in his Monograph "Coleoptera of Egypt" recorded 11 species and three aberrations within the tribe Pharini, some of these species are synonymized to other species, some species were enumerated recorded from other countries, and two species and one aberration within tribe Noviini.

The taxonomic status of the subfamilies Ortaliinae and Sticholotidinae and related genera were poorly discussed by Mader (1936, 1949, and 1955); Sasaji (1971); Nedvěd and Kovář (1996); Raimundo *et al.*, (2000); Vandenberg (2002); Slipinski (2007), and Löbl and Smetana (2007), in their catalogue.

The aim of this work is to shed light on subfamilies Ortaliinae and Sticholotidinae. The present taxonomic study deals with seven species belonging two subfamilies and to investigate the taxonomic status of these species in Egypt.

MATERIALS AND METHODS

The present taxonomic study based on the examination of the preserved specimens in the Egyptian Reference Insect Collections. These collections are: Collection of Alfieri, Department of Plant Protection, Faculty of Agriculture, Al-Azhar University (**ALFC**); Collection of Ain Shams University, Faculty of Science, Department of Entomology (**ASUC**); Collection of Cairo University, Faculty of Science, Department of Entomology (**CUC**) and Collection of the Plant Protection Research Institute, Ministry of Agriculture (**MAC**).

The fresh materials were collected by using the sweeping net and hand picking during three years (2013-2015). The specimens, which were collected, are sent to Dr. Canepari, (Societa Entomologica Italiana), for identification and confirmation, in addition comparisons were made with the specimens in the Reference Insect Collections.

The measurements were made for six specimens of each species (Kovar, 2005) using an ocular micrometer attached to a dissecting microscope as follows: total length, from apical margin of clypeus to apex of elytra (TL); pronotal length, from the middle of anterior margin to margin of basal foramen (PL); pronotal width at widest part (PW); elytral length along suture, including scutellum (EL) and elytral width across both elytra at widest part (EW).

Entire beetles boiled in 10% solution of KOH and rinsed with distilled water, then transferred to glycerol and examined on slides. The genitalia was illustrated from slide preparations by using a camera lucida attached to SZ61 stereomicroscope. Characters of subfamilies, genera, species, and subspecies are given and keys are constructed to separate them. Full descriptions are provided for 7 species and subspecies related to two subfamilies based on the external morphological characters of adults, male genitalia and spermatheca of female genitalia in some species.

RESULTS

Key to subfamilies Ortaliinae and Sticholotidinae

- 1- Antenna short, two thirds or less as long as head width, 7 to 8 segments; apical segment of maxillary palpus usually parallel sided or barrel shaped, rarely securiform.....Ortaliinae
- Antenna long, usually more than two thirds as long as head width, 7 to 11 segments; apical segment of maxillary palpus conical.....Sticholotidinae

Subfamily Ortaliinae, Mulsant

Ortaliinae Mulsant, 1850; Ortaliinae Kovář, 1996; Nedvěd and Kovář, 2012: 5.

Diagnosis: Body robust, oval to rounded, discontinuous, of medium to large size; pubescence simple and short. The eyes are large to strikingly enlarged, prominent anteroventrally at the

sides, eye facets small to minute. The antennal insertions are placed between the eyes. Antenna short. The apex of the mandible is bifid, basal tooth present. The pronotum is trapezoidal, emarginate anteriorly with the anterior corners widely rounded and the posterior corners not pointed. The elytral epipleura not foveolate for reception of legs, and rather broad and short. The colour pattern, if present, is simple, not strongly aposematic, resembling that of certain Epilachninae.

Tribe Noviini, Mulsant

Noviini Mulsant, 1850

Diagnosis: Body oval or elongate-oval, dorsum densely hairy. Head broad, with eyes large, setose and broadly separated on vertex. Antenna 7 to 8-segmented distinctly shorter than head capsule, with scape enlarged and indistinct, antennal club serrate. Terminal maxillary palpomere large and strongly securiform; labial palps 2-segmented. Prothoracic hypomeron without fovea near anterior angles; prosternum very short in front of coxae; prosternal process very narrow and setose without distinct carinae. Elytral epipleuron complete not foveate. Protibia angulate externally. Tibial spurs absent; tarsi 3-segmented. Abdominal postcoxal line recurved and complete.

Genus *Rodolia* Mulsant, 1850

Rodolia Mulsant, 1850: 902; Type species: *Rodolia ruficollis* Mulsant; Synonym: *Macronovius* Weise, 1885: 63.

Diagnosis: Body oval to round, moderately convex, densely pubescent. Antennae 8-segmented, each with first segment broadly lobed, second globose, remainder smaller, club weak. Terminal segments of maxillary palpus broadly securiform (Fig. 1a). Each mandible with subapical tooth remote from apex; labium palpomere 2-segmented (Fig. 1b). Prosternal protuberance margined apically, prosternal process narrow without carinae (Fig. 1c). Abdomen with 6 visible sterna. Postcoxal lines on first abdominal sternum complete (Fig. 1d), rarely extending beyond middle of the segment. 6th sternum of male with apical emargination strong. Tibiae bluntly angulate externally. Tarsi three-segmented. Tarsal claws dimorphic, cleft in male, and each with broad basal tooth in female.

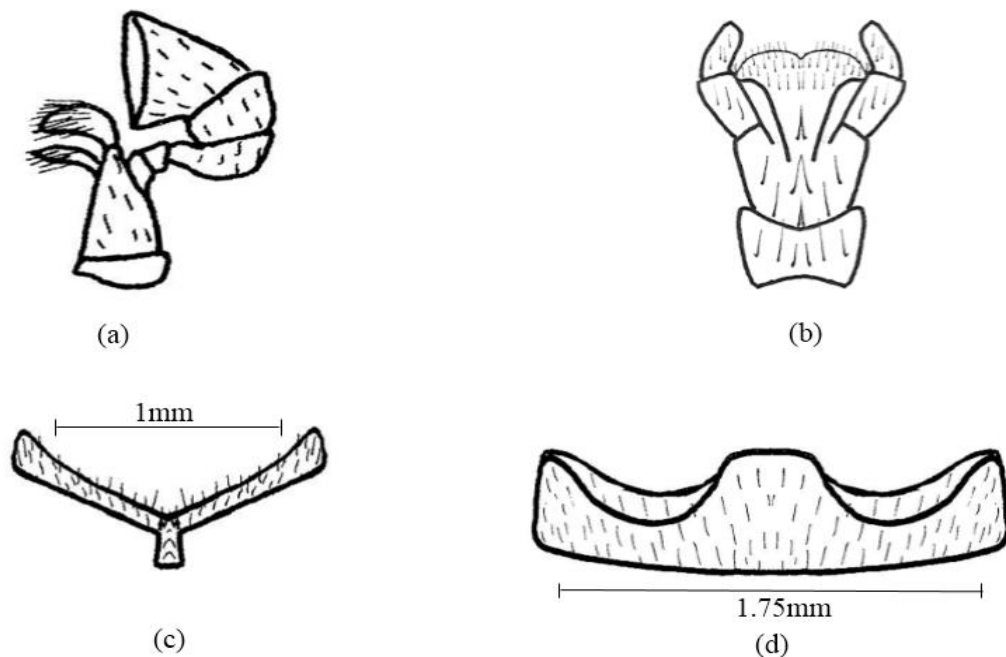


Fig. 1. *Rodolia* ssp., (a) maxilla; (b) labrum; (c) prosternum; (d) first abdominal sternum with postcoxal line.

Key to species of genus *Rodolia*

- 1-Head black; elytra reddish purple, each elytron with two black markings.....*cardinalis* Mulsant
 - Head brownish; elytra red, without any spots.....*rufipennis* Pic

***Rodolia cardinalis* (Mulsant, 1850) (fig. 3)**

Vedalia cardinalis Mulsant, 1850: 906; *Rodolia cardinalis* Weise, 1905: 220; *Rodolia aegyptiaca* Sicard, 1907: 68; *Novius cardinalis* Crotch, 1874: 283.

Description: Length 3-4.2 mm. T.L. 3.75mm.; P.L.0.75mm.; P.W. 2mm.; E.L. 3mm.; E.W. 3mm.; B.H. 1.5mm.; H.W. 1mm. Body short oval; moderately convex, reddish purple; densely short pubescence; Head black, antennae and mouthparts red. Pronotum with black band (bar) at the base doesn't reach the lateral margins; each elytron with two black markings.

Head: subquadrate, transverse, black, slightly covered by pronotum; **eyes** large, dark brown, finely faceted not emarginated, interfaceted setae distinct, broadly separated on vertex; **antennal insertion** under weak shelf, but scape well visible from above, frons around antennal insertion not emarginated; **clypeus** short, transverse, anterior clypeal margin straight; **antenna** 8-segmented, with indistinct club, setose, scape asymmetrical, pedicle distinctly narrower than scape, antennomere three smaller than four and five antennomeres or longer than four, antennal club weak, 3-segments, penultimate antennomere shorter than terminal antennomere, terminal antennomere elongate, trapezoidal, prominent apically separated from penultimate segment, inner margin of antenna serrate; **labrum** entirely exposed, transverse, setose, anterior margin truncate; **mandible** bifid apically, dorsal tooth longer than ventral one, molar part with basal tooth, prosthema distinct; **maxillary cardo** quadrate, palpomere two subquadrate, palpomere three short, terminal palpomere distinctly securiform, setose; **labium** with mentum cordiform narrowly joined with the submentum, labial palp with two segments ventral on prementum, apical palpomere distinctly shorter than penultimate one and narrower than penultimate segment.

Thorax: pronotum transverse, elongate, anterior angles not thickened, blunt indistinct, lateral edges smooth, posterior margin shorter than elytral base, posterior margin which extended at all its base black with two black spots forward the middle of the posterior one, or pronotum black with large rectangular area at each anterior angle, anterior and lateral margins red; or red with broad black bar at base; prothoracic hypomeron without foveae near anterior angles; **prosternum** very short in front of coxae, arcuate, **prosternal process** very narrow, setose, without carinae; anterior margin of mesoventrite straight medially. **Elytra** reddish-purple, the suture narrowly black, with two slightly enlargements at basal third, continuing around apex as marginal stripe which joins outer of two median spots; the anterior spot next to the shoulders, which forms half, moon-shaped with the convexity directed to the suture, partially inclosing humeral callus, the posterior spot, make irregular shape formed by the intersection circular spot, sometimes this spot connected with elytral suture, distriated at apical black third circular spot; **elytral epipleuron** incomplete apically, feebly inclined, not foveae. Scutellum triangular-shaped, black. **Legs** have an extended and irregularly flattened tibiae, forming a space housing the tarsus when at rest, tibiae angulated externally, tibial spurs absent; tarsi 3-segmented, apices of hind femora reaching to outer margin of elytral epipleuron, tarsal claws bifid in male, appendiculate on mid and hind legs, while with broad basal tooth in female.

Abdomen: six visible abdominal sternites in both sexes, sternite one slightly longer than sternum two, posterior margin weakly arcuate; **postcoxal line** on the first abdominal sternum complete, recurved, reaches to the inner margin of the first lateral sternum, posteriorly distinctly separated from hind margin of the same sternum; ventrite five in male deeply emarginated medially.

Male genitalia: Apodeme of male sternum 9 absent; parameres and trabes symmetrical, basal piece (bp) short, basal lobe (bl) elongate, longer than parameres, with apical margin nearly pointed, orifice long with two protuberance; parameres (pa) finger-like, bears at its apex numerous short setae; siphon (s) stout consisting of single sclerite, siphonal capsule (sc) distinct and T-shaped, siphonal apex (sa) slightly pointed.

Female genitalia: coxites distinctly elongate, triangular, slightly chitinized, apical portion bears numerous short setae, stylus absent; infundibulum absent, sperm duct simple, spermathecal accessory gland absent; spermatheca semiglobular, with compressed cornu (c), nodulus (n) and ramus (r) distinctly separated and visible.

Specimens examined: Cairo 15.I.1910; Giza 2.II.1920 (2).....(ALFC)

Alexandria X.1930 (1); (2) without date and locality.....(ASUC)

Giza 16.XII.1956 (3)(CUC)

Giza 13.II.1917; Cairo 19.X.1919; Abu Zaabal 30.XI.1931; Alexandria 6.X.1933 (4)(MAC)

Zoharieh Garden 19.XI.2013 (4); Helwan 9.VIII.2015 (4); Nefiya (Tanta) 19.XII.2015 (4); El-Bagor 18.III.2.16 (4)**Author Coll.**

Local distribution: Cairo, Giza, Qaluobiya, Alexandria, Gharbiya.

World distribution: Egypt, Canary Island, Algeria, Morocco, Libya, Tunisia, Albania, Bulgaria, Croatia, France, Greece, Italy, Spain, Malta, Turkey, Asia, **AFR**, **AUR**, **NAR**, **NTR** and **ORR**.

***Rodolia rufipennis* (Pic, 1925) (Fig. 4)**

Novius (Macronovius) rufipennis Pic, 1925: 230-213.

Description: Length 4mm. in T.L.4mm.; P.L.0.75mm.; P.W. 2mm.; E.L. 3mm.; E.W. 3mm.; B.H. 1.5mm.; H.W. 1mm. Body short, sub-oval, moderately convex, slightly shiny, with short gray rough hairs. Pitch black, antennae, tarsi and tibiae red, pronotum and elytra red, the former on the front disk brownish. Pronotum short and wide rounded laterally.

Head: brownish, subquadrate, partially covered by pronotum, finely punctured with densely hairs, anterior margin of clypeus straight with lateral projections; **eye** finely faceted, kidney-shaped, setose, with fine edge, ocular canthus distinct; antennal insertion exposed, **antenna** red, 8-segmented, antennal club weak, 3-segmented, terminal antennomere elongate, trapezoidal; **labrum** transverse, anterior margin truncate; **terminal maxillary palpomere** securiform.

Thorax: **Pronotum** nearly elongate, short and broad, evenly convex, external bordered narrowly upturned; anterior corners prominent and rounded, punctured fine, but sparsely; **prosternum** very short in front of fore coxae; **prosternal process** very narrow without distinct carinae, except fine ridge besides the inner margins of fore coxae, setose; anterior margin of mesoventrite straight medially. **Scutellum** triangular. **Elytra** red, finely punctured, and wider than the pronotal punctured, sometimes with very fine wrinkled; elytral base distinctly longer than pronotal base; lateral margins with fine ridges, not reach the elytral apex; elytral epipleura, strongly inclined apically, without foveae. **Legs** with tibiae and tarsi red; protibiae angulated externally, tibial spurs absent, tarsi 3-segmented, tarsal claws with subquadrate basal tooth.

Abdomen: six visible abdominal sternites; **postcoxal line** on the first abdominal sternum recurved and complete.

Specimens examined: Kharga Oasis 13.III.1932 (1)(MAC)

Local distribution: New Valley.

World distribution: Egypt, Libya and Iran.

Subfamily Stichlotidinae, Weise

Stichlotinae Weise, 1901: 430; Stichlotinae Sasaji, 1968: 19; Stichlotidinae Gordon,

1977: 186 (emendation).

Diagnosis: Body small to medium-sized; form hemispherical or elliptical. Dorsally pubescent or not. Apical segment of maxillary palpus more or less tapered, conical, barrel shaped or elongate oval; mentum and submentum narrowly joined. Antennae usually inserted more or less dorsally, rarely laterally with 7 to 11 segments, antennal club with 1 to 5 segments. Anterior coxal cavities open behind. Middle coxal cavities broadly separated by compact and broad articulation of mesosternum and metasternum. Abdomen with 5 or 6 visible sterna; male 9th sternum flat. Tarsus trimerous or cryptotetramerous. Female genital plate elongate, triangular. This subfamily is representing in the Egyptian fauna by one genus belonging to tribe Stichlotidini.

Tribe Stichlotidini, Weise

Stichlotini Weise, 1901: 430.

Diagnosis: Body minute to small, dorsum glabrous or uniformly pubescent. Antennae consisting of 10 to 11 segments; antennal clubs with 2 or more segments. Terminal segments of maxillary palpus usually conical. Prosternum broad, quadrate, not lobed in front, mouthparts visible. Abdomen composed of 5 or 6 visible sterna, 2 basal sterna usually not fused.

Genus *Pharoscymnus* Bedel, 1906

Pharoscymnus Bedel, 1906: 93; **Synonym:** *Pharus* Mulsant, 1850: 942- 948.

Diagnosis: Body minute to small, dorsum pubescent. Antennae, moderate in length, consisting of 9 or 10-segments (Fig. 2 a and b); antennal club, narrow with 3-segments; epistoma sinuato-truncate at apex, extends only to the eyes; eye finely faceted, not emarginated, pubescence; terminal maxillary palpomere conical, pointed apically (Fig. 2c); prosternum broad, widely separated the coxae, with two parallel carinae (Fig. 2d); elytra variable colour with bright spots, elytral epipleura descending externally; legs feebly retractile, tarsi are elongate, generally rather compressed, tarsal claws simple; abdomen with five segments; abdominal postcoxal line incomplete (Fig. 2 e).

Key to the species of genus *Pharoscymnus*

- 1-Antennae 10-segmented, variable in colour; pronotum dark brown or black.....2
 - Antennae 9-segmented, yellow; pronotum yellowish brown.....*ovoideus* Sicard
- 2-Antennae red; pronotum finely punctured at disc and coarsely punctured at sides.....3
 - Antennae yellowish or reddish yellow; pronotum finely punctured.....4
- 3- Posterior margin of pronotum with distinct ridge; elytra reddish brown, with black triangular basal edge extended from the base to backwards, with elongated markings at the disc fused from the base with elytral black suture, then extended on both sides at outer margins of elytral apex, forming an anchor-shaped; legs brown
*anchorago* Fairmaire
- Posterior margin of pronotum with fine ridge; elytra dark brown or black, each elytron five brownish yellow spots, arranged as 2,2,1 in three transversal row; legs red.....*varius* Kirsch
- 4- Antennae yellowish; elytra yellowish with base, elytral suture and lateral margins brownish; legs brick red.....*priesneri* Mader
- Antennae reddish yellow; elytra entirely black; legs reddish brown...
*eichleri* Mader

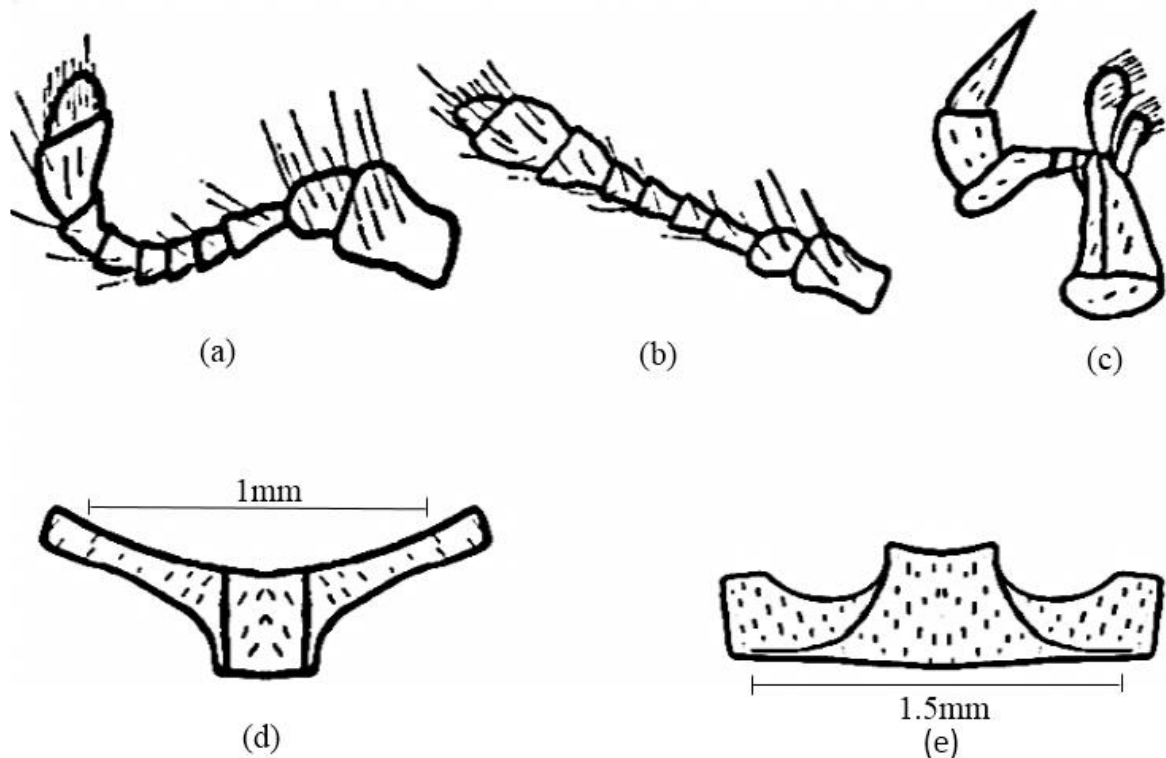


Fig. 2, *Pharoscymnus* ssp., (a and b) antennae; (c) maxilla; (d) prosternum; (e) first abdominal sternum with postcoxal line.

Pharoscymnus ovoideus (Sicard, 1929) (Fig.5)

Description: Length 1.8mm. T.L. 1.8mm.; P.L.0.3mm.; P.W. 0.85mm.; E.L. 1.35mm.; E.W. 1.25mm.; B.H.0.6mm.; H.W. 0.55mm. **Body** short oval, convex, moderately shiny, brownish yellow or brick red, finely punctured with pubescence or with erect fine yellow gray short hairs.

Head: subquadrate exposed, brown, finely punctured; **epistoma** transverse sinuate at apex, with slightly expanded clypeal area partially covered the antennal insertion; **eye** finely faceted bears numerous short setae with inner margin brownish, ocular canthus distinct and small; **antennae** yellow, 9-segmented, with 3-segmented club-shaped, the scape cylindrical, the second segment stout barrel-shaped as broad as the scape, antennomere three as long as or slightly longer than antennomere four, 5th and 6th antennomeres as wide as long, terminal antennomere conical, strongly embedded in penultimate antennomere; **labrum** short, lateral margins nearly rounded, anterior margin truncate; **mandible** with apical and subapical without basal teeth, dorsal tooth longer than the ventral one; **terminal maxillary palpomere** conical shaped; **mentum** trapezoidal narrowly joined with the submentum.

Thorax: **pronotum** finely punctured, with semierect yellow grayish hairs, yellowish brown, anterior margin arcuate at the middle, anterolateral margins finely upturned, posterior margin narrower than elytral base, with distinct ridge; **prosternum** with anterolateral angles slightly lobed; distinctly ridge at the anterior margin, **prosternal process** broad, with two longitudinal carinae not lobed in front of forecoxae; **mesosternum** without emargination at the middle, meso and metasternum closely compact, mesocoxal cavities broadly separated by compact and broad articulation of meso and metasternum. **Elytra** oval, brownish yellow, finely punctured, pubescence, with three yellow spots, the first at the humeral in 1/4 of the elytral length, cross-moon shaped, outer margin wider than the inner one, the second rounded spot at the middle length, near the suture than the lateral margin, the third transversal spot, at the apical third near the lateral margin than the suture and elytral apex, lateral margins with

obvious ridge reaches to elytral apex; **elytral epipleuron** broad, without foveae. **Legs** foxy red; tibiae without terminal spurs, tarsi 4-segments, elongate, compressed, tarsal claw simple. **Abdomen:** five abdominal sternites in both sexes; **postcoxal line** on the first abdominal sternum incomplete, runs parallel to the posterior margin of the same sternum, not reach the lateral margin, the fifth abdominal sternum longer than the rest.

Specimens examined: Luxor 7.VII.1909 (1).....(ALFC)

Siwa oasis 16.IX.2014 (1) **Author Coll.**

Local distribution: Luxor and Matrouh.

World distribution: Egypt, Algeria, Morocco, Tunisia, Iran, Jordan, Syria and AFR.

Pharoscygnus setulosus anchorago (Fairm., 1884) (Fig. 6)

Pharus anchorago Fairmaire, 1884: 19.

Description: Length 2mm. T.L. 2mm.; P.L.0.45mm.; P.W. 1mm.; E.L. 1.4mm.; E.W. 1.45mm.; B.H.0.6mm.; H.W. 0.5mm. **Body** hemispherical, convex, black shiny, pubescence gray, fine and short; **elytra** reddish brown with black markings; **antennae** and **legs** red.

Head: subquadrate, dark brown or black, with densely and finely punctured, and fine hairs; **epistoma** transverse sinuate at apex, distinctly upturned, with slightly expanded clypeal area partially covered the antennal insertion; **eye** finely faceted with numerous short setae, **ocular canthus** dark brown, distinctly small; **antenna** red, short, slightly shorter than the half of the head capsule, shorter than the distance between the eyes, 10-segmented, with 3-segmented club-shaped, the scape symmetrical cylindrical, the second segment stout barrel-shaped as broad as the scape, or slightly broader, antennomere three longer than antennomere 4th, 5th, 6th and 7th antennomeres, 8th, 9th and 10th antennomeres forming a fusiform club, terminal antennomere conical, embedded

in penultimate antennomere ; labrum truncate anteriorly, lateral margins rounded, setose; **mandible** bifid apically, dorsal tooth longer than the ventral one; **mentum** narrowly joined with the submentum, prementum subquadrate with numerous minute hairs; **terminal segment of maxillary palpus** conical-shaped.

Thorax: **pronotum** dark brown or black, evenly convex, finely and densely punctured at the disc, coarser at the sides, with densely semierect gray short forward hairs, anterior margin arcuate, pronotal width longer than two times as length, anterior angles slightly narrowed, lateral margins nearly straight, posterior angles rounded with distinct ridge; **prosternum** brownish, prosternal process broad, with two longitudinal carinae; **mesocoxal cavities** broadly separated by compact and broad articulation of mesosternum and metasternum.

Elytra reddish brown semicircular narrow margins, coarsely punctured with densely semierect short backward hairs, with black triangular basal edge extended from the base to backward, with elongated markings at the disc fused from the base with elytral black suture, then extended on both sides at outer margins of elytral apex, forming an anchor-shaped; lateral margins with fine edge reaches to elytron apex. **Legs** red, tibiae without terminal spurs, tarsi 4-segments, elongate, compressed, tarsal claws simple.

Abdomen: five abdominal sternites in both sexes; **postcoxal line** on the first abdominal sternum incomplete, runs parallel to the posterior margin of the same sternum, not reach the lateral margin; the second, third and fourth abdominal sternites as the same length, the fifth abdominal sternite long, convex in the female, truncated in the male.

Specimens examined: Wadi Um Arad 9.IV.1934 (2); Wadi Um Arad 14.X.1934 (1); Wadi Fieran 29-30.V.1935 (1); Cairo 2.IV.1912 (1)..... (ALFC)

Wadi El-tih 26.XI.1954 (2) (ASUC)

Ein Shams 17.V.1914 (1); Toukh 13.XII.1931 (1); Faques

17.XI.1931 (1); Maadi 23.III.1932 (1); Mahalla 9.I.1932 (1); Wadi Fieran 17.V.1934 (1)

..... (MAC)

Local distributions: Cairo, South Sinai, Qaluobiya, Sharqiya and Gharbiya.

World distributions: Egypt, Algeria, Libya, Morocco, Tunisia, Spain, Arab Emirate, Iran, Palestine, Jordan and Saudi Arabia.

Pharoscymnus setulosus varius (Kirsch, 1871) (Fig. 6)

Pharus isidis ab. *varius* Kirsch, 96 (1871): 394; *Scymnus varius* Kirsch, 96(1871): 394.

Description: Length 2mm. T.L. 2mm.; P.L.0.4mm.; P.W. 1.25mm.; E.L. 1.5mm.; E.W. 1.5mm.; B.H.0.65mm.; H.W. 0.65mm. **Body** broadly short oval to hemispherical, convex, dark brown or black, finely to strongly punctured, pubescence gray, fine and short; **elytra** colour variable, with brownish yellow spots.

Head: subquadrate, black, with densely and finely punctured, and fine hairs; **epistoma** transverse sinuate at apex, distinctly upturned, rounded laterally, with slightly expanded clypeal area partially covered the antennal insertion; **eye** finely faceted with numerous short setae; ocular canthus dark brown, distinctly small; **antenna** red, short, slightly shorter than the half of the head capsule, shorter than the distance between the eyes, 10-segmented, with 3-segmented club-shaped, the scape symmetrical cylindrical, the second segment stout barrel-shaped as broad as the scape, or slightly broader, antennomere three longer than antennomere 4th, 5th, 6th and 7th antennomeres, 8th, 9th and 10th antennomeres forming a fusiform club, terminal antennomere conical, strongly embedded in penultimate antennomere; **labrum** yellow, truncate anteriorly, lateral margins rounded, setose; mandible bifid apically, dorsal tooth longer than the ventral one; **mentum** narrowly joined with the submentum, prementum subquadrate with numerous minute hairs; **terminal segment of maxillary palpus** conical-shaped.

Thorax: **pronotum** black, evenly convex, finely and densely punctured at the disc, strongly at the sides or wrinkled, with densely semierect gray short forward hairs, anterior margin arcuate, pronotal width longer than three times as length, anterior angles slightly rounded, lateral margins nearly straight, posterior angles slightly rounded with fine ridge; **prosternum** short, prosternal process broad, with two longitudinal carinae; reaches to anterior margin; anterior margin of **mesosternum** without emargination, mesocoxal cavities broadly separated by compact and broad articulation of mesosternum and metasternum. **Elytra** dark brown or black, strongly punctured as pronotal punctured at the sides, with densely semierect short backward hairs, elytra with five brownish yellow spots, per each elytron, arranged as follows: 2,2,1, in three transversal row, the first subquadrate spot at one third of the elytral length, on the humeral callus or slightly behind, the second elongate spot between the base and elytral suture, the third rounded spot at the middle of the elytral length near the outer margin, the fourth triangular spot at the middle of the elytral length, beside the suture, the fifth spot elongate at the elytral apex, between the suture and lateral margin, lateral margins with distinct raised edge reaches to elytron apex; **elytral epipleuron** broad strongly descending. **Legs** brown, tibiae without terminal spurs, tarsi 4-segments, elongate, compressed, tarsal claws simple.

Abdomen: five abdominal sternites in both sexes; **postcoxal line** on the first abdominal sternum incomplete, runs parallel to the posterior margin of the same sternum, not reach the lateral margin; the second, third and fourth abdominal sternites as the same length, the fifth abdominal sternite long, convex in the female, truncated in the male.

Specimens examined: Matarieh ?IV.? (1); Abu Rawash 8.IX. 1911 (1); Helmieh 2.V.1913 (5); Hawamed (December); Choubrah 17.VI.1910 (1); Giza 5.X.1923 (1); Cairo 12.VI.1912 (1)..... (ALFC)

Local distributions: Cairo, South Sinai, Qaluobiya, Sharqiya and Gharbiya.

World distributions: Egypt, Algeria, Libya, Morocco, Tunisia, Spain, Arab Emirate, Iran, Palestine, Jordan and Saudi Arabia.

Remark: Sometimes some of these spots in the species of *Pharoscygnus setulosus* are fused forming the subspecies as follows:

- a. The first and second spots are fused, the third and fourth spots are also fused, and the fifth spot.....*bifasciatus* Pic
 b. The first, second, third and fourth spots are fused forming a letter-C, the fifth spot present.....*letourneuxi* Pic

Pharoscygnus pilosus priesneri (Mader, 1936) (Fig. 7)

Pharoscygnus priesneri Mader, 1936: 26.

Description: Length 2mm.; T.L. 1.6mm.; P.L.0.4mm.; P.W. 1mm.; E.L. 1.3mm.; E.W. 1.3mm.; B.H.0.6mm.; H.W. 0.6mm.

Body almost circular, convex, brownish yellow, densely and finely punctured, pubescence; **elytral** base slightly longer than pronotal base.

Head: subquadrate, brick red, dark brown or black, densely punctured, with densely recumbent hairs; **epistoma** transverse, with anterior margin sinuate at the middle, distinctly upturned, lateral margin rounded; **eye** finely faceted; ocular canthus distinctly small; **antennal insertion** slightly exposed, **antenna** yellowish, 10-segmented; **labrum** transverse, with anterior margin.

Thorax: **pronotum** dark brown or black, partially covered the posterior margin of the head, densely punctured with recumbent toward the lateral margins, densely grayish short hairs, lateral margins parallel, distinctly upturned, anterior margin arcuate, posterior margin with distinct ridge, anterior and posterior margins reddish. **Scutellum** brownish. **Elytra** yellowish, densely punctured, same pronotal punctured, with semierect relatively long backwards hairs, base, elytral suture and lateral margins of elytra brownish, lateral margins with obvious ridge, reaches to elytral apex, elytral length as long as elytral width, elytral epipleuron brick red. **Legs** brick red, tarsi 4-segments yellowish.

Abdomen: five abdominal sternites in both sexes; **postcoxal line** on the first abdominal sternum incomplete, runs parallel to the posterior margin of the same sternum, not reach the lateral margin, abdominal sternites brick red, base of sternites black.

Specimens examined: One specimen collected from Wadi Fieran 29-30.V. 1935, by Rabinovitch, and preserved in (MAC), under genus *Pharoscygnus sp.* identified by Mader, 1936: 26 and 1949: 20-23 a key of Palaearctic *Pharoscygnus* species.

Local distribution: South Sinai

World distribution: Egypt, Kazakhstan and Uzbekistan.

Pharoscygnus numidicus eichleri (Mader, 1936) (Fig. 8)

Pharoscygnus eichleri Mader 1936: 26.

Description: Length 2mm.; Body short oval, strongly convex, entirely black except the antennae, mouthparts, legs, epipleura, epimera of mesothorax and abdominal edges reddish brown.

Head: supquadrate, black, except the mouthparts reddish brown, finely punctured, with densely recumbent hairs; **epistoma** transverse, with anterior margin sinuate at the middle, distinctly upturned, lateral margin rounded; **eye** finely faceted, ocular canthus distinctly small, posterior margin slightly covered by pronotum; antennal insertion slightly exposed, **antenna** 10-segmented, reddish yellow, scape cylindrical, antennomeres 8th, 9th and 10th antennomeres forming a fusiform club, terminal segment conical; **labrum** reddish brown, anterior margin truncate; **apical segment of maxillary palpus** conical-shaped.

Thorax: **pronotum** black, finely and densely punctured, with recumbent forward hairs, lateral margins parallel, distinctly upturned, strongly descending at its anterior angles;

prosternum short, dark brown, prosternal process broad with two longitudinal carinae; **mesosternum** straight medially, mesocoxal cavities broadly separated by compact and broad articulation of meso and metasternum; **meso** and **metasternum** dark brown. **Elytra** black, finely punctured, with recumbent short hairs, lateral margin with fine ridge, reaches to elytral apex, **elytral epipleuon** reddish brown slightly broad. **Legs** reddish brown.

Abdomen: five abdominal sternites in both sexes, reddish brown; **postcoxal line** on the first abdominal sternum incomplete, runs parallel to posterior margin, not reach the lateral margin; the fifth abdominal sternite longer than the third and fourth abdominal sternites combined.

Specimens examined: One specimen collected from **Marsa Halaib** 22.I.1933 by Prof. Priesner, and preserved in Ministry of Agriculture Collection, under genus *Pharoscymnus* sp., **co-type**, identified by Mader, 1936: 26 and 1949: 20-23 a key of Palaearctic *Pharoscymnus* species.

Local distribution: Red Sea (Gabel Elba).

World distribution: Egypt, Algeria, Libya, Tunisia, Palestine, Jordan, Saudi Arabia and AFR.

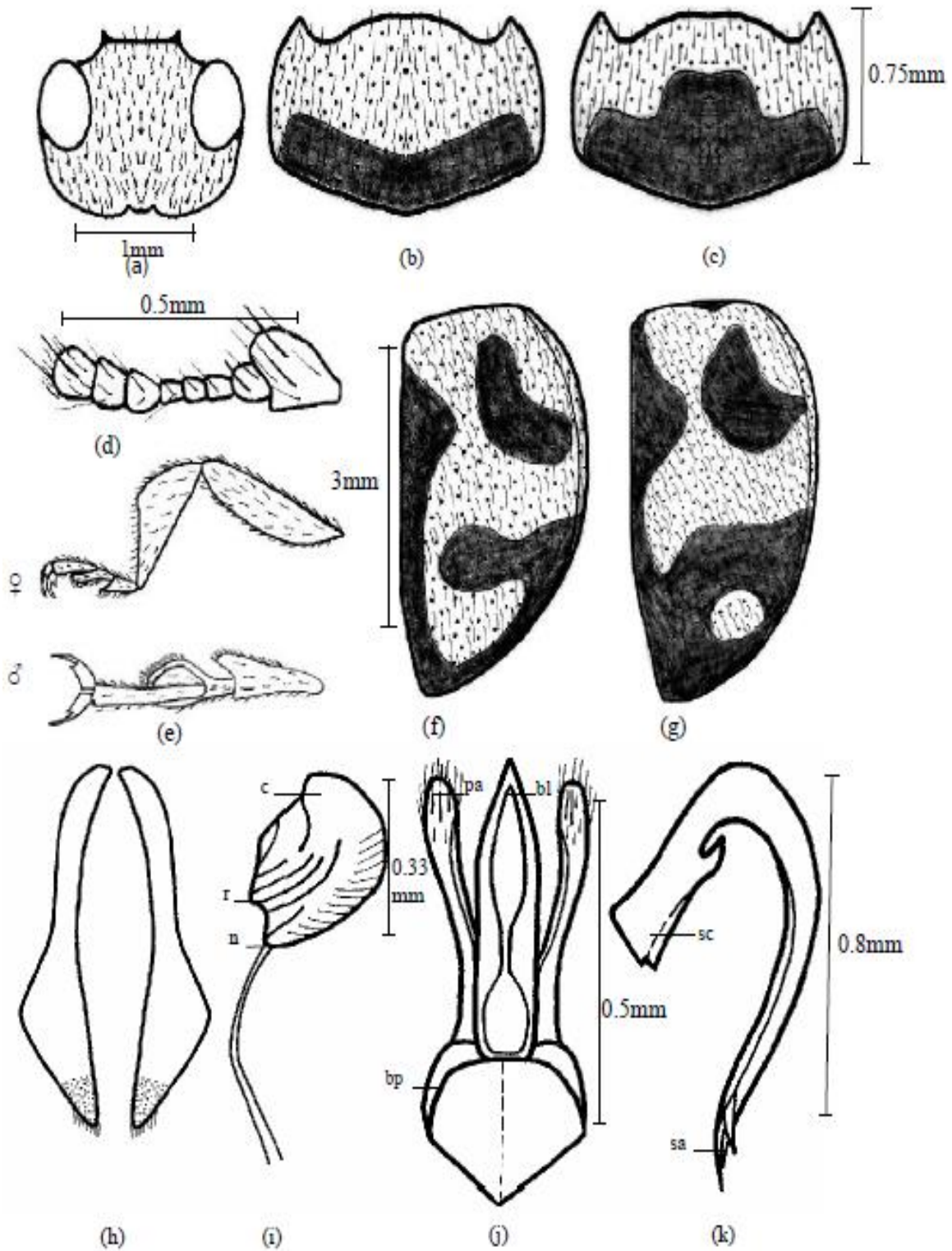


Fig. 3. *Rodolia cardinalis* (Mulsant), (a) head; (b and c) pronotum; (d) antenna; (e) tarsi of male and female, (f and g) right elytron of *cardinalis* and ssp. *aegyptiaca*, respectively; (h) coxites; (i) spermatheca; (j) tegmen, (k) siphon; (n) nodulus; (r) ramus; (c) cornu; (pa) paramera; (bl) basal lobe; (bp) basal base; (sc) siphonal capsule and (sa) siphonal apex.

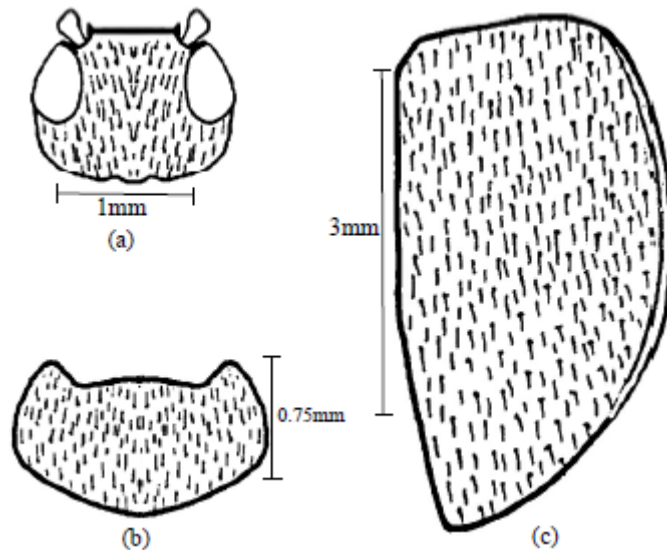


Fig. 4, *Rodolia rufipennis* (Pic), (a) head; (b) pronotum; (e) right elytron.

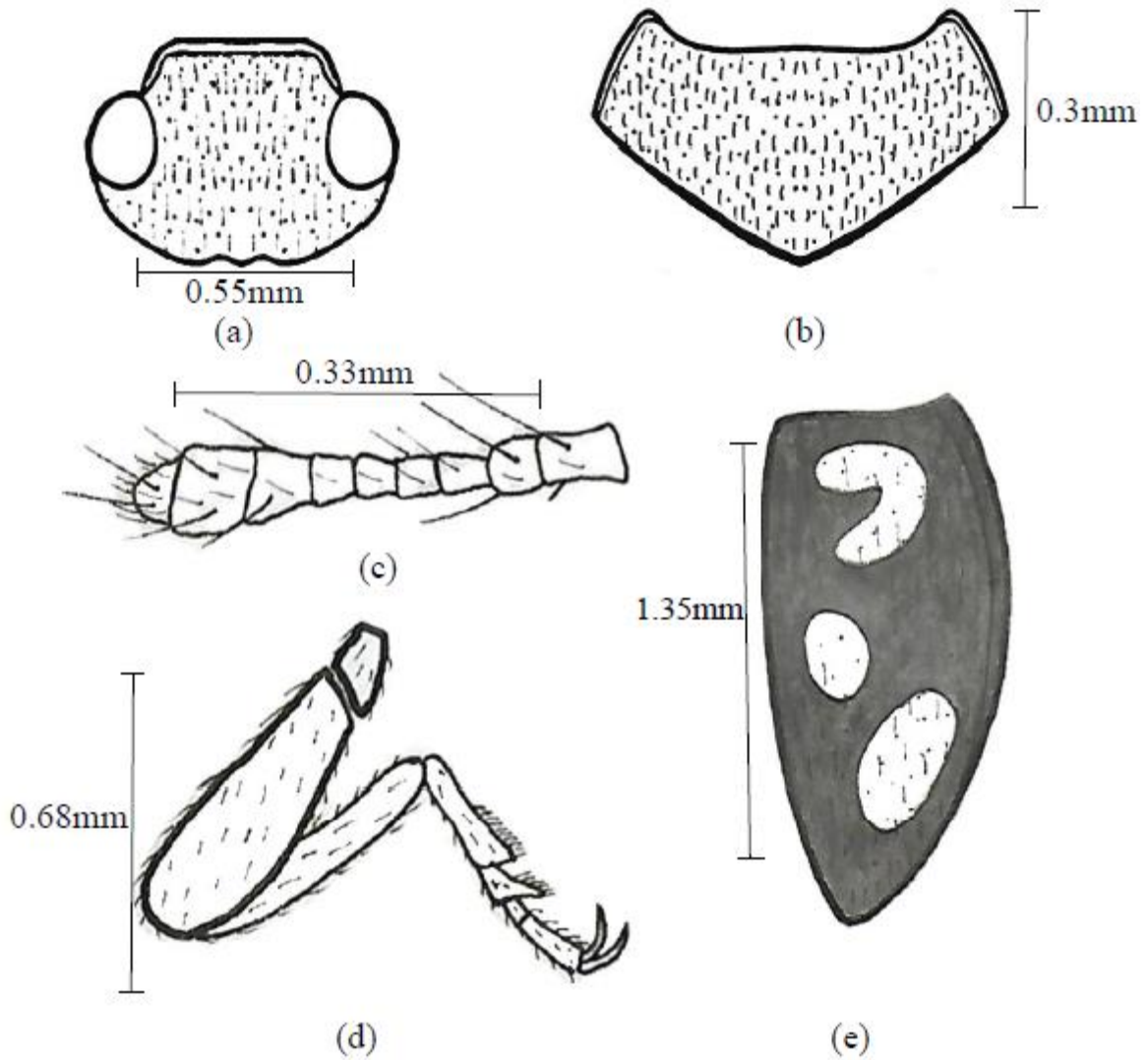


Fig. 5, *Pharoscyrnus ovoideus* (Sicard), (a) head; (b) pronotum; (c) antenna; (d) tarsus; (e) right elytron.

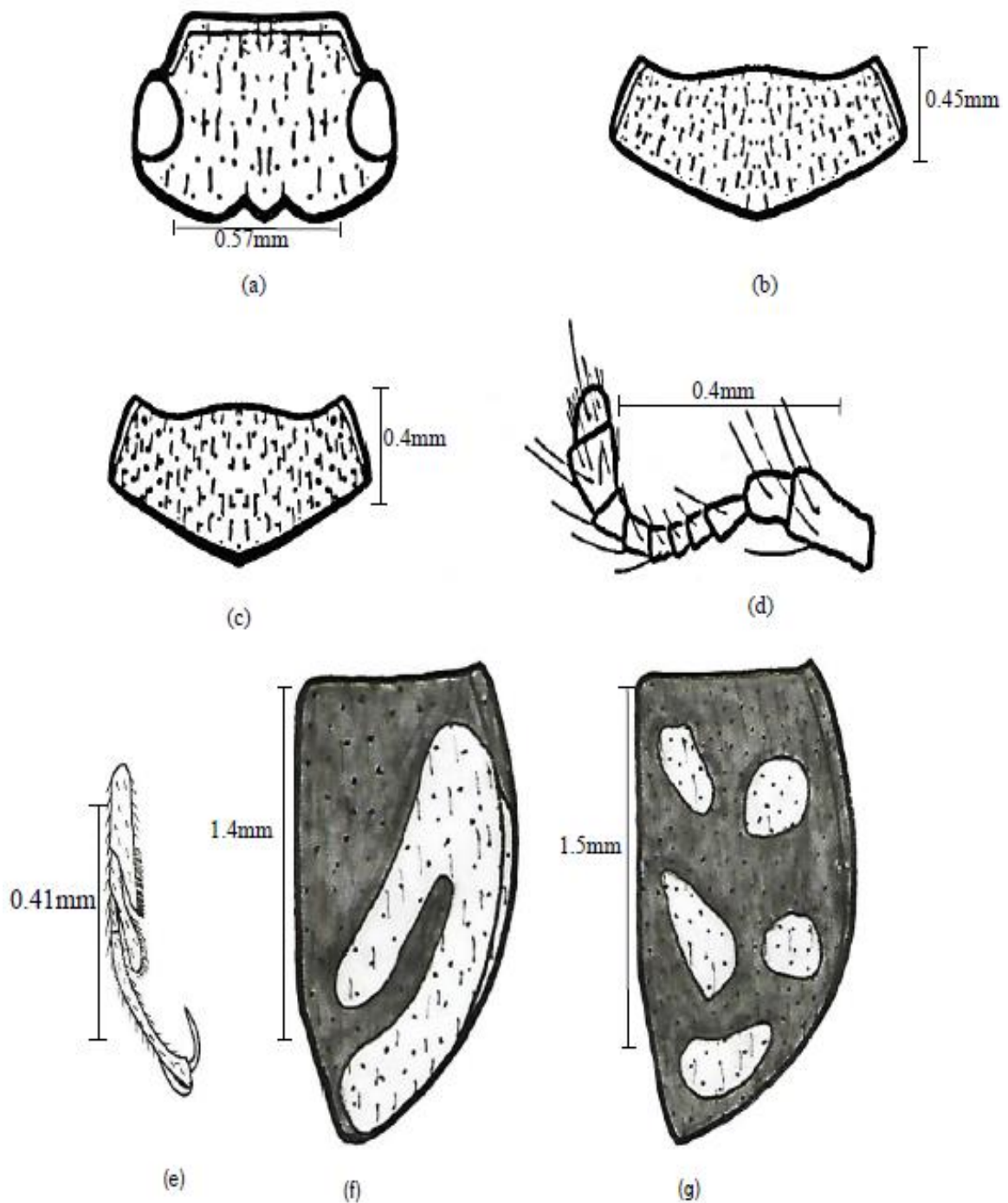


Fig. 6. *Pharoascymnus setulosus* ssp. *anchorago* (Fairmaire) and ssp. *varius* (Kirsch), (a) head; (b and c) pronotum of *anchorago* and *varius* respectively; (d) antenna; (e) tarsus; (f and g) right elytron of *anchorago* and *varius* respectively.

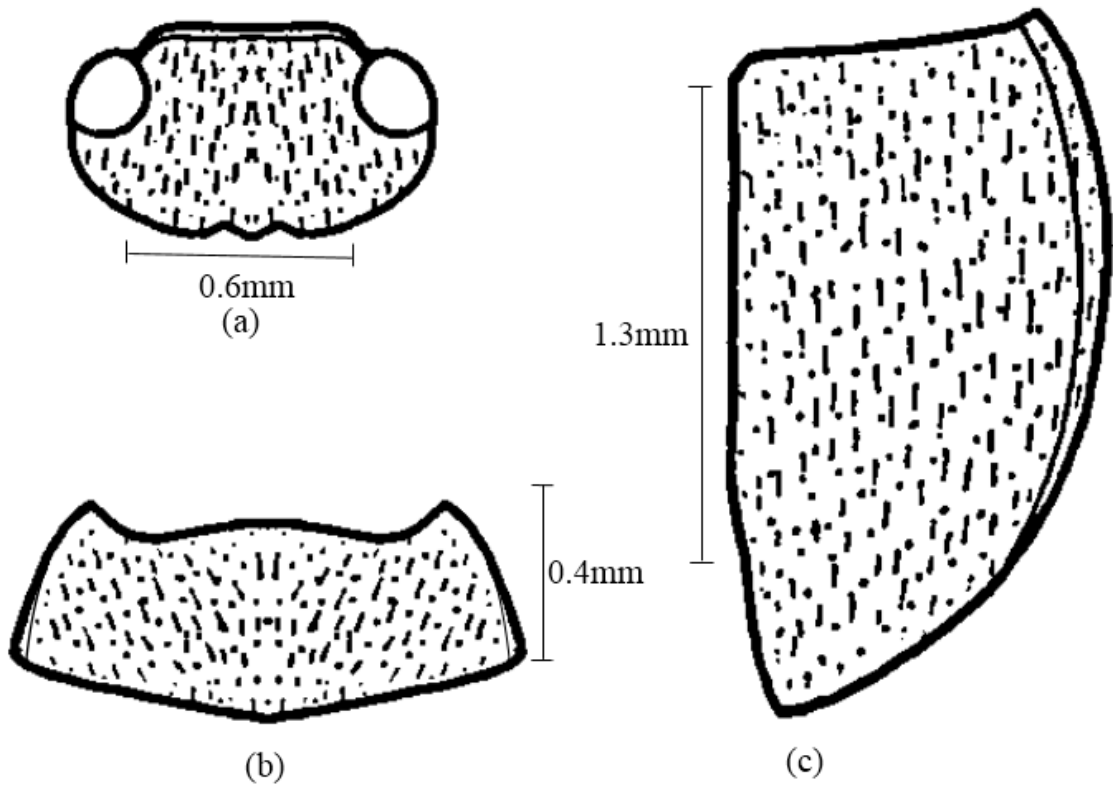


Fig.7, *Pharoscygnus pilosus priesneri* (Mader), (a) head; (b) pronotum; (c) right elytron.

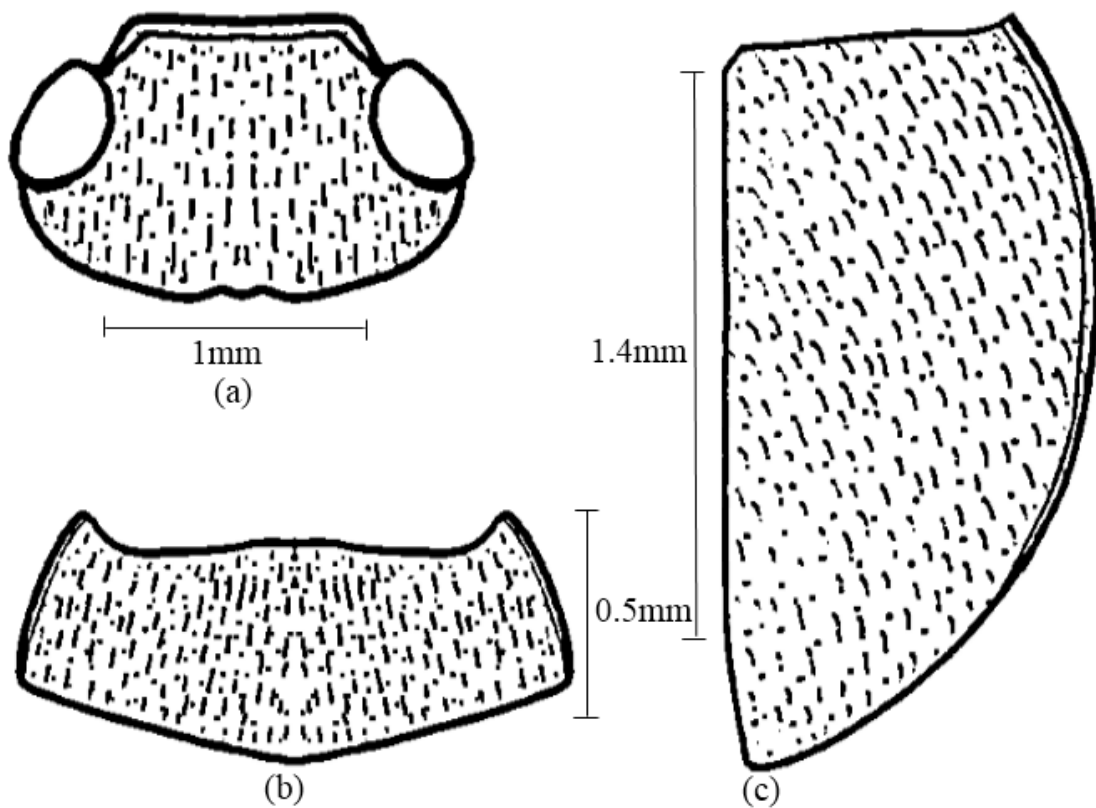


Fig. 8, *Pharoscygnus numidicus eichleri* (Mader), (a) head; (b) pronotum; (c) right elytron.

DISCUSSION

The systematic position of the ortaliniids and sticholotidids taxa within scope of the present work follows: in the major part Alfieri (1976) in his professional monograph about the Coleoptera of Egypt. In some cases, the names used to be applied to these group have been subjected to some nomenclatural changes, i.e., some categories subjected to change by transportation and the picture of Ortaliinae and Stichlotidinae under investigation became well established during the present study according to catalogue of Palaearctic Coleoptera (Löbl and Smetana, 2007). **We found that:** the genus *Rodolia* belong to tribe Noviini under the subfamily Ortaliinae in agreement with Nedvěd and Kovář (1996), while, Alfieri (1976) mentioned this tribe under subfamily Coccinellinae.

Seven species and subspecies represented the subfamily Stichlotidinae in the Egyptian fauna; five of them are represented in the insect collections belonging to genus *Pharoscymnus* Bedel.

Pharoscymnus species were studied and discussed in the present study within tribe Stichlotidini under the subfamily Sticholotidinae in concurring with Sasaji (1968) and Gordon (1985) who emended it from Sticholotinae to Sticholotidinae, and in contradiction with Alfieri (1976) who placed *Pharoscymnus* genus in the tribe Pharini within subfamily Coccinellinae.

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The authors wish to express their sincere thanks and gratitude to the owners and the custodians of the Collections which belonging to the following Universities and Institute; (ALFC) Department of Plant Protection, Faculty of Agriculture, Al-Azhar University; (ASUC) Faculty of Science, Department of Entomology; (CUC) Faculty of Science, Department of Entomology; (MAC) Plant Protection Research Institute, Ministry of Agriculture, for the privilege of examining the specimens. Sincere thanks to **Dr. Claudio Canepari (Societa Entomologica Italiana)**, for identification and confirmations of the specimens. Thanks are also extended to all staff members of the Department of Plant Protection Faculty of Agriculture, Al-Azhar University, for their cooperation and help.

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ARABIC SUMMARY

"دراسات تقسيمية على فصّلتى اورتاليينى واستيكولوتيدينى (غمدية الأجنحة: كوكسينيليدى) في مصر"

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قسم وقاية النبات- كلية الزراعة بالقاهرة- جامعة الازهر

يعتبر هذا البحث هو الأول في مصر على فصّلتى اورتاليينى واستيكولوتيدينى والذي يهدف إلى دراسة سبعة أنواع، إثنين منهما تابعان لفصّيلة اورتاليينى وخمسة أنواع تابعة لفصّيلة استيكولوتيدينى، تم بناء الدراسات التقسيمية الحالية بالإعتماد على العينات المجموعة من الحقل خلال فترة الدراسة والعينات المحفوظة فى المجموعات الحشرية المرجعية - مجموعة الفييرى- كلية الزراعة- جامعة الازهر- مجموعة معهد بحوث وقاية النباتات- وزارة الزراعة- مجموعة كلية العلوم- جامعة عين شمس- مجموعة كلية العلوم- جامعة القاهرة. وقد وجد من خلال البحث أن جنس رودوليا يتبع قبيلة نوفيينى والتي تتبع بدورها فصّيلة اورتاليينى وهذا يتوافق مع ما ذكره كلاً من (Nedvéd and Kovář, 1996)، بينما ذكر ألفييري تلك القبيلة ضمن فصّيلة كوكسيديوليني، أيضا رجعت الحالة التقسيمية لفصّيلة استيكولوتيدينى، حيث اعتبر نوعين تسجيلات جديدة طبقاً للكatalog الخاص بغمدية الأجنحة، العدد الصادر في عام 2007م، بينما ذكر ألفييري 1976م أن هذان النوعان مسجلان في مصر. أيضا النوع فاروسكمنس فارييس ليس بنوع ولكنه نوع تحت النوع فاروسكمنس سيتولوسس بالإضافة إلى النويجات انكوراوجو، بايفاشيتيس، بوريونوتيتيس، ليتورنكس، وقد كان ألفييري قد ذكر النويجات الثلاثة الأخيرة كإنحرافات عن النوع الأصلي تحت النوع فاروسكمنس فارييس. تم اظهار الصفات المورفولوجية المميزة للفصّيلتين والقبائل والاجناس والانواع والنويجات التابعة لكل فصّيلة، معتمدا على الصفات المورفولوجية الخارجية للحشرات الكاملة مزودا بالرسومات التوضيحية، ثم تم عمل المفاتيح التصنيفية للفصّيلات والانواع والنويجات التابعة لها، اضافة الى ذلك، تم تسجيل المرادفات والتوزيع الجغرافى لكل نوع فى مصر والعالم.