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Taxonomic revision of the genus *Gynecaptera* Skorikov, 1935 from Egypt, with description of a new species (Hymenoptera: Bradynobaenidae, Apterogyninae)

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The genus *Gynecaptera* Skorikov (Bradynobaenidae: Apterogyninae) is revised from Egypt, based on specimens collected from the Sinai Peninsula and those deposited in Egyptian insect collections as well as recorded data from the literature. Three species were previously recorded from Egypt, *G. alexandri* (Invrea), *G. alfierii* (Invrea) and *G. trimaculata* (Skorikov). *Gynecaptera sinaitica* sp. n. is described here. An illustrated key and a faunistic list comprising all *Gynecaptera* species recorded from Egypt are also given.

Keywords: Apterogyninae; *Gynecaptera*; new species; Egypt.

Introduction

The genus *Gynecaptera* Skorikov, 1935 is a small genus in the family Bradynobaenidae, with only ten recorded species (Pagliano, 2002). Members of this genus are restricted in their distribution to the African, Central Asian and South European regions (Pagliano, 2002). Their biology is still unknown.

Members of this genus are characterised by their small to medium size, 3.5–8 mm; body colour ranging from deep black to red and yellow; metasomal T3 of female with a large basal yellow band that may be divided or interrupted in the middle in some specimens; mesosoma marked with yellow or white; brachial cell of forewing in male closed or open; male metasomal T3 without fasciae of silvery setae, its mid trochanter devoid of any tooth or apophyses (Pagliano, 2002).

In Egypt, the genus *Gynecaptera* is represented by three species: *G. alexandri* (Invrea), *G. alfierii* (Invrea), and *G. trimaculata* (Skorikov). In the present study a new species is described and illustrated. An illustrated key for identifying the four Egyptian species is also given, followed by a faunistic list.

Material and Methods

The present study is based on specimens collected from the Sinai Peninsula and those deposited in Egyptian insect collections as well as previous records from Egypt. Sampling was done by means of sweepnet and pitfall trap. Morphological terms are based on Pagliano (2002). Body sculpture terminology is based on Harris (1979). Photos were taken by a Canon Camera attached to Optech stereomicroscope. Measurements and drawings of all preparations were made with the help of square and micrometer eyepieces and the computer software Adobe Photoshop (v. 7.0 ME). The type specimens of the new species are deposited in the Efflatoun Bey collection, Entomology Department, Faculty of Science, Cairo University, Giza (Egypt) (CUE).

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Collecting sites. Abu Rawash: 30°53'N, 31°06'E; Helwan: 29°85'N, 31°33'E; Kafr Hakim: 29°88'N, 31°42'E; Wadi Digla: 29°93'N, 31°42'E; Wadi Garawi: 29°78'N, 31°31'E; Wadi Hoff: 29°88'N, 31°36'E; Wadi Kheraza: 28°17'N, 34°33'E.

Abbreviations. CUE = Efflatoun Bey collection (Entomology Department, Faculty of Science, Cairo University, Egypt); F1, F2, F3, etc. = first, second, third, etc., antennal flagellomeres; MCSNG = Museo civico di Storia Naturale 'G. Doria', Genova, Italy; MOD = middle ocellus diameter; OOL = ocellocular line; POD = posterior ocellar line; S1, S2, S3, etc. = first, second, third, etc., metasomal sterna; T1, T2, T3, etc. = first, second, third, etc., metasomal terga.

Results and discussion

Key to females of the genus *Gynecaptera* of Egypt (female of *G. alfierii* is unknown)

1 Head red (Figure 11); mesoscutum entirely red without any yellow marking (Figure 9) ..... *G. sinaitica* sp. n.
– Head black; mesoscutum with transverse yellow marking 2

2 Posterior margin of pronotum strongly concave; mesoscutum with relatively large regular yellow marking occupying most of its length ..... *G. trimaculata*
– Posterior margin of pronotum slightly concave; mesoscutum with relatively smaller semi-circular yellow marking (Figure 13) ..... *G. alexandri*

Key to males of the genus *Gynecaptera* of Egypt

1 Fore wing with brachial cell closed 2
– Fore wing with brachial cell open 3

2 Smaller sized species (5 mm); mesosoma partly red; metasomal T2 red ..... *G. alexandri*
– Larger species (8 mm); mesosoma entirely red; metasomal T2 black ..... *G. trimaculata*

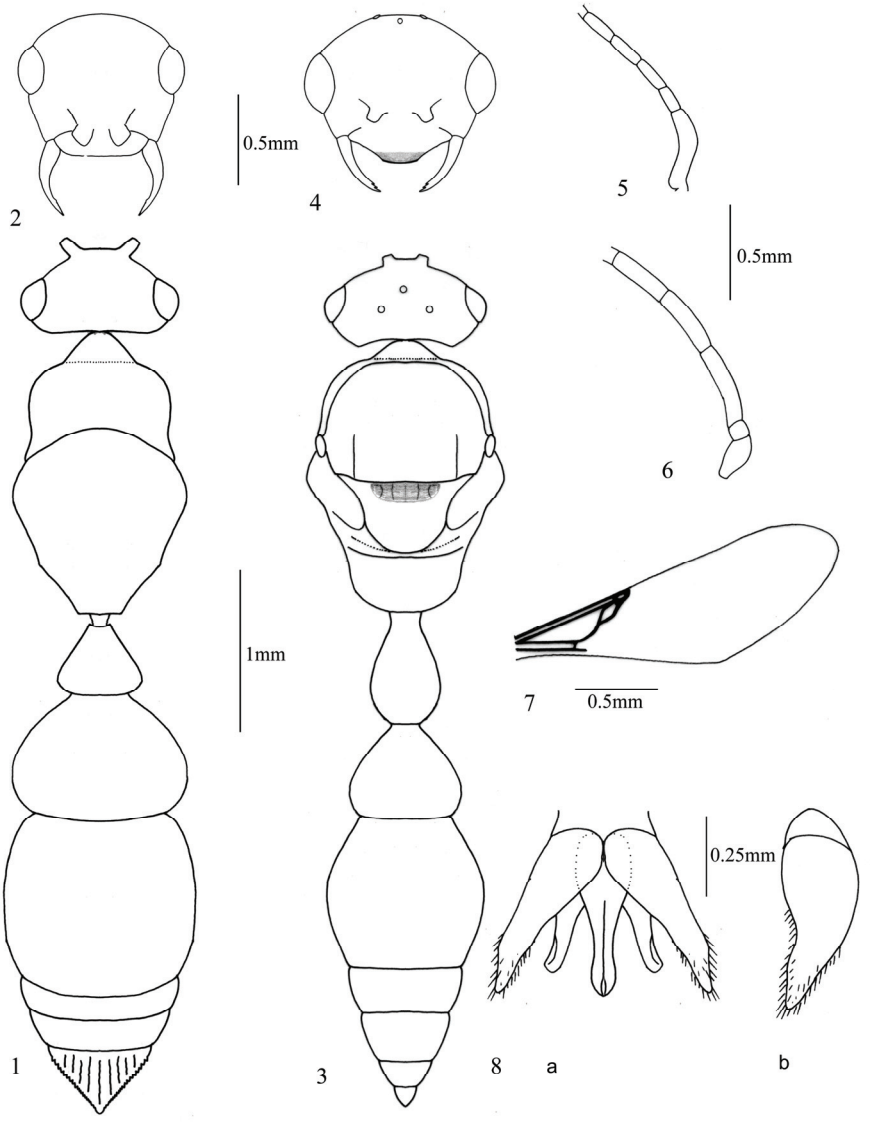
3 Body robust (Figures 14, 16), with coarse close sculpturing, densely covered with erect white hairs; antennae light red; ocelli relatively large and prominent (MOD about 0.8× as wide as F1); mesoscutum with areolated incomplete notauli; hind wing with 7 hamuli; fore wing veins hyaline except costal, subcostal veins and stigma that are dark coloured; T1 subspherical, slightly wider than long (1.25× as wide as long); T2 entirely black, distinctly wider than long (1.6× as wide as long) ..... *G. alfierii*
– Body slender (Figures 3, 10), with simpler sculpturing, sparsely covered with erect to recombined white hairs; antennae dark brown; ocelli small, not prominent (MOD about 0.5× as wide as F1); mesoscutum without notauli; hind wing with 6 hamuli; fore wing veins all brown in colour; T1 elongate (1.4× as long as wide); T2 reddish at base (Figure 10), slightly wider than long (1.2× as wide as long) ..... *G. sinaitica* sp. n.

List of Egyptian species of the genus *Gynecaptera* Skorikov

Gynecaptera alexandri (Invrea, 1950) (Figure 13)

Apterogyna alexandri Invrea, 1950: 1, ♂: Helwan (Egypt), holotype in MCSNG.
Apterogyna priesneri Invrea, 1960: 197, ♀.
Apterogyna alexandri f. *rubescens* Invrea, 1960: 202, ♂.

Material examined: 1♀, Helwan (Cairo), August? [CUE]. – Previous records from Egypt: Wadi Hoff, Wadi Digla, Wadi Garawi (Pagliano, 2002). – Distribution: Egypt, Israel, Tunisia (Pagliano, 2002).



Figures 1–8. *Gynecaptera sinaitica* Soliman & Gadallah sp. n.: 1, 2 & 5 female, holotype; 3–4, 6–8 male, paratype. 1 & 3 general habitus, dorsal view; 2 & 4 head, frontal view; 5 & 6 scape, pedicel and flagellomeres 1–3; 7 forewing; 8a–b genitalia.

Gynecaptera alfierii (Invrea, 1963) (Figures 14–16)

Apterogyna alfierii Invrea, 1963: 15, ♂: Abu Rawash (Egypt), holotype in MCSNG.

Material examined: 1 ♂, Kafr Hakim (Giza), 26.xi.1933 [CUE]. – Previous records from Egypt: Abu Rawash (Argaman, 1994; Pagliano, 2002). – Distribution: Egypt, Morocco (Pagliano, 2002).

Gynecaptera trimaculata (Skorikov, 1935)

Apterogyna (*Gynecaptera*) *trimaculata* Skoricov, 1935: 284, ♀, ♂: Russia.
Apterogyna henrici Invrea, 1960.

Previous records from Egypt: Wadi Digla, Wadi Hoff (Pagliano, 2002). – Distribution: Egypt (Argaman, 1994; Pagliano, 2002), Iran, Israel, Russia, Kazakhstan (Argaman, 1994), Turkmenistan (Nonveiller, 1972).

Gynecaptera sinaitica Soliman & Gadallah sp. n. (Figures 1–12)

Material: Holotype: Female, Egypt (Wadi Kheraza, South Sinai, 28°10'N, 34°19'E), 26.iv.2013, leg. Ahmed M. Soliman [CUE]. Paratype: Male, with the same label as holotype [CUE].

Female (Holotype): Body length 5.3 mm (Figures 1, 2, 5, 9, 11). Colour: Red: head (dark), antennae (antennal tubercles, scape, pedicel and first two flagellomeres light red, remaining flagellomeres dark red to brownish red as head), mandibles (darker at distal half), palpi light red; mesosoma including legs and first tibial spur light red; first metasomal segment, middle area longitudinally of metasomal T2, T6 (lighter than rest), and all metasomal sternites. Black: eyes; lateral sides of T2, posterior 2/3 of T3, all T4 and T5. White: two large creamy white quadrate markings on T3 (occupying almost all basal third, but interrupted in the middle leaving reddish background); mid and hind tibial spurs waxy white. – Pubescence: Body covered with light reddish hairs (whitish on legs, basal white markings of T2, T5 and all metasomal sternites), longer on metasoma than elsewhere.

Description: Head (Figures 2, 11): sparsely clothed with fine erect hairs, slightly broader than pronotum, feebly converging behind eyes (posterolateral angles gently rounded); vertex and frons with widely scattered coarse punctures, closer along inner eye orbit (upper area of frons and antennal scrobe smooth and bare); distance between antennal tubercles slightly less than tubercle length. Clypeus small and polished, with flattened and bent free margin; mandible slender, sickle-shaped, with very slight preapical tooth and long erect hairs at the base; malar space relatively long (slightly shorter than longitudinal eye diameter); eyes small, subspherical, slightly protruding. Scape of antenna 2.5× longer than F1, obviously convex from above but slender at basal half, clothed with recumbent whitish hairs; F1 equal to F2, F3 slightly longer than F2 (Figure 5). Palpi long with slender segments. – *Mesosoma*: Pronotum 0.5× as long as its maximal width, with humeral angle gently rounded and posterior margin broadly concave, largely areolated, clothed with fine erect hairs that are noticeably long laterally. Areolation of mesoscutum tending to be larger, appearing as if spaced longitudinal striae in the middle that extend posteriorly, clothed with same hairs as pronotum. Propodeum irregularly striate on dorsal face, posterior face gently declivitous and polished; mesopleura obliquely rugose; metapleura smooth. Legs covered with hairs similar to those covering body. – *Metasoma*: T1 pear-like or conical-shaped, slightly wider than long, with dense rounded shallow foveae; T2 transverse (bell-shaped), 1.4× as wide as long, with deep ellipsoid punctures forming interrupted short longitudinal striae; T3 slightly wider than T2, feebly wider than long, shiny, with fine and close longitudinal striations along its whole length; T4 and T5 combined about 0.3× as long as T3, both finely striate along their lengths (anterolateral portion of both terga smooth and polished); T6 with longitudinal coarse widely spaced striae, margined laterally with small regular teeth, rounded posteriorly. Metasomal sternites shiny; S1, S4 and S5 smooth (the two latter and S3 with a row of large punctures adjacent to their posterior margin); S2 and S3 laterally

Figures 9–12. *Gynecaptera sinaitica* Soliman & Gadallah sp. n.: 9 & 11 female, holotype; 10 & 12 male, paratype. 9 & 10 general habitus, dorsal view; 11 & 12 head, frontal view.

with large but spaced punctures; S6 with small but closer punctures leaving a narrow longitudinal median smooth stripe. Hairs covering sternites shorter than those of tergites, distributed as follows: posterior margin of S2 and S3 slightly longer than those concentrated in the middle, fewer on posterior margin of S4 and S5 and lateral sides of S6.

Male (Paratype): Body length 5 mm (Figures 3, 4, 6, 7, 8a–b, 10, 12). Body colour: Head, mesosoma and metasomal segments 2–6 shiny black, metasomal segment 1 and base of 2 ferruginous red, segment 7 light brown, hook light red; antennae and legs dark brown; mandibles reddish brown, dark at the base; eyes dark brown; palpi reddish brown; wings hyaline giving off brightly coloured reflections, with brown costal and subcostal veins as well as stigma, remaining veins yellowish brown. Fore tibial spur reddish, mid and hind spurs waxy white. – Pubescence: Hairs covering body whitish to silvery.

Description: Head (Figures 4, 12): finely and closely punctured (the area in front of median ocellus smooth), with fine short scattered hairs, becoming longer on vertex and behind eyes; vertex posterolaterally with a distinct polished tubercle closer to eye than lateral ocellus; ocelli arranged in a widely obtuse triangle; OOL as long as POL. Antennae present in a wide depression, antennal tubercles separated by a distance that equals the length of the antennal tubercle; scape obviously short, 1.5× as long as wide and about 0.5 length of F1, F1 distinctly long (5× as long as wide), slightly longer than F2 and about 1.3× as long as F3 (Figure 6). Malar space short, about half the length of longitudinal diameter of eyes. Clypeus slightly convex, with flattened free margin;

Figures 13–16: Figure 13. *Gynecaptera alexandri* (Invrea). Female habitus, dorsal view. – Figures 14–16. *Gynecaptera alfierii* (Invrea), male; 14 & 16 general habitus, dorsal and lateral view respectively; 15 head, frontal view.

mandible slender, with two very slight sub-apical teeth. – *Mesosoma*: Mesosomal dorsum areolate on pronotum, scutellum and propodeum, areolae larger on propodeum than elsewhere (about 1.75× as wide as MOD), slightly narrower on scutellum and as wide as MOD on pronotum. Pronotum greatly declivitous in front, obscured by strongly convex mesoscutum, with extremely concave posterior margin, broadly rounded humeral angle and horizontally striate lateral sides; mesoscutum moderately punctate (punctures more spaced posteromedially), with transverse area in front and longitudinal narrow stripe smooth and polished; notauli absent; parapsidal lines obscured; scutellum covered with erect, fine hairs. Mesopleuron coarsely areolate above, punctate below (punctures more spaced ventrally leaving a distinct smooth area posteroventrally); metapleuron irregularly striate anteriorly, with areolae intermixed with small punctures posteriorly. Fore wing with open brachial cell (Figure 7); hind wing with six hamuli. Legs covered with longer hairs, with front femora swollen above, mid and hind femora swollen be-

neath and distinctly truncate distally. – *Metasoma*: provided with scattered and erect long white hairs on segments 1–3, such hairs restricted only to posterior margin of remaining segments. T1 distinctly longer than wide (1.4× as long as its maximal width), shallowly areolated; T2 bell-like, slightly wider than long (1.2× as wide as long), with fine spaced punctures; T3 with minute and close longitudinal striae along middle part, laterally the tergite with fine widely spaced punctures; T4–6 with extremely minute transverse striae along their anterior two-thirds, posteriorly the tergites are foveolate; T7 finely punctulate. Metasomal sternites polished; S1 impunctate; S2 and S3 with scattered fine punctures (closer on S2), S3 with long but scattered erect white hairs along posterior margin; rest of sternites impunctate, with such transverse fine sculpturing as that present on the corresponding tergites. Genitalia (Figures 8a–b).

Etymology: The specific name originates from Sinai to which the type locality belongs.

Remarks: The collecting of a male and a female of the new species at the same time by a sweepnet allows us to suggest that the pair was caught in *copula*. The female of the new species, *G. sinaitica*, is nearest to *G. africana* Pagliano and the two species are distinguished by the following features:

– Head uniformly dark red; metasomal T2 black, with middle area longitudinally red; T3 black, with two relatively large sub-quadrate ivory markings laterally, with red between; face, vertex laterally and antennal scrobes shiny and impunctate; metasomal S2 smooth with no traces of longitudinal carina; S4 and S5 with a row of large punctures along their posterior margins .....*G. sinaitica* sp. n.

– Head not uniformly red, with brownish interocular area; metasomal T2 entirely black; T3 with two large clear yellow markings laterally, with black between; entire head with large punctures, 1–3 diameters apart; metasomal S2 with weak longitudinal carina; S4 and S5 longitudinally striated like their corresponding tergites ..... *G. africana*

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