

A NEW SPECIES OF *CATAGL YPHIS* FORSTER (HYMENOPTERA:
FORMICIDAE) FROM ISRAEL AND SINAI

JEHOSHUA KUGLER

*Department of Zoology, The George S. Wise Faculty of Life Sciences,
Tel Aviv University, Tel-Aviv, Israel*

ABSTRACT

The ant *Cataglyphis sabutosa* n. sp. is described from Israel and Sinai. Descriptions are given for the workers, female and male. The species is morphologically related to *C. bombycina* (Roger). Some observations are given on the behaviour of the new species.

Species of the genus *Cataglyphis* Forster are very common in all parts of Israel. The workers of most species are entirely black or with black-brown gaster and a red or yellow red head and alitrunk. The only known species which is entirely yellow to orange has been *Cataglyphis livida* (Andre'). The occurrence of similarly coloured ants, that belong to the new species described here, in the southern Arava Valley, was first recorded by Mr. Benjamin Shalmon (personal communication). In addition to the southern Arava Valley, ants of this new species were also found on sand dunes in the Southern Coastal Plain and in Northern Sinai. The purpose of this paper is to describe the new species. The terminology of Michener (1956) is used for the male genitalia and the terminology of Donisthorpe (1915) is given in parentheses in the legend for the figures of the genitalia.

The types of the new species are deposited in the Entomological Collection of the Department of Zoology, Tel-Aviv University.

Cataglyphis sabulosa n.sp.
(Figs. 1-13)

WORKER

Length. 3-6 mm.

Color. Yellow to orange, in some major workers gaster brown; most specimens with 3 brown-black spots connected to the ocelli, mandibular teeth brown; head, alitrunk, petiole, gaster and coxae usually with dense white-silvery pubescence; pilosity yellowish.

Head. (Figs. 1-3). As long as wide (length measured from the middle of the hind border to the level of the base of mandibles); hind border rounded; anterior border of clypeus convex; eyes and ocelli well developed, eyes oval, near the hind border of head, eye length half as long as distance from eye to base of mandible. Antennae long; 1st funicular segment nearly equal to last segment, 1.5 times as long as 2nd, intermediate segments twice as long as wide, penultimate segment shorter than intermediates. Mandible usually with 6 teeth: two well developed basals, the 3rd tooth is the smallest, the 4th is smaller than the basals, while the 5th is larger; the apical twice or a little more than twice longer than the 5th. In some specimens there are 7 teeth, the 3rd tooth being divided into 2 very small teeth. In few specimens there are only 5 teeth, the intercalary tooth near the basals is missing. Maxillary palp very long, 3rd segment slightly longer (at most by 1/6) than 4th, 5th segment slightly longer than 6th, 4th segment slightly longer than 5th and 6th combined. Third segment with long hairs which may be longer than 1/3 of the segment but do not reach 1/2 of its length; pilosity of 4th segment much denser and shorter. A well developed psammophore is formed by long hairs of the clypeus, of the mandibles, of the maxillary palps and 2 ventral pairs of forward directed long hairs at the base of the maxillae.

Alitrunk. (Fig. 4). With few standing hairs; mesonotum slightly depressed; metathoracic spiracles on small dorsal protuberances; dorsal part of propodeum passing in a curve into the equal long declivity.

Petiole scale. (Figs. 4, 5). Squamiform, convex anteriorly straight posteriorly, dorsal border slightly rounded.

Gaster. Oval, not compressed laterally.

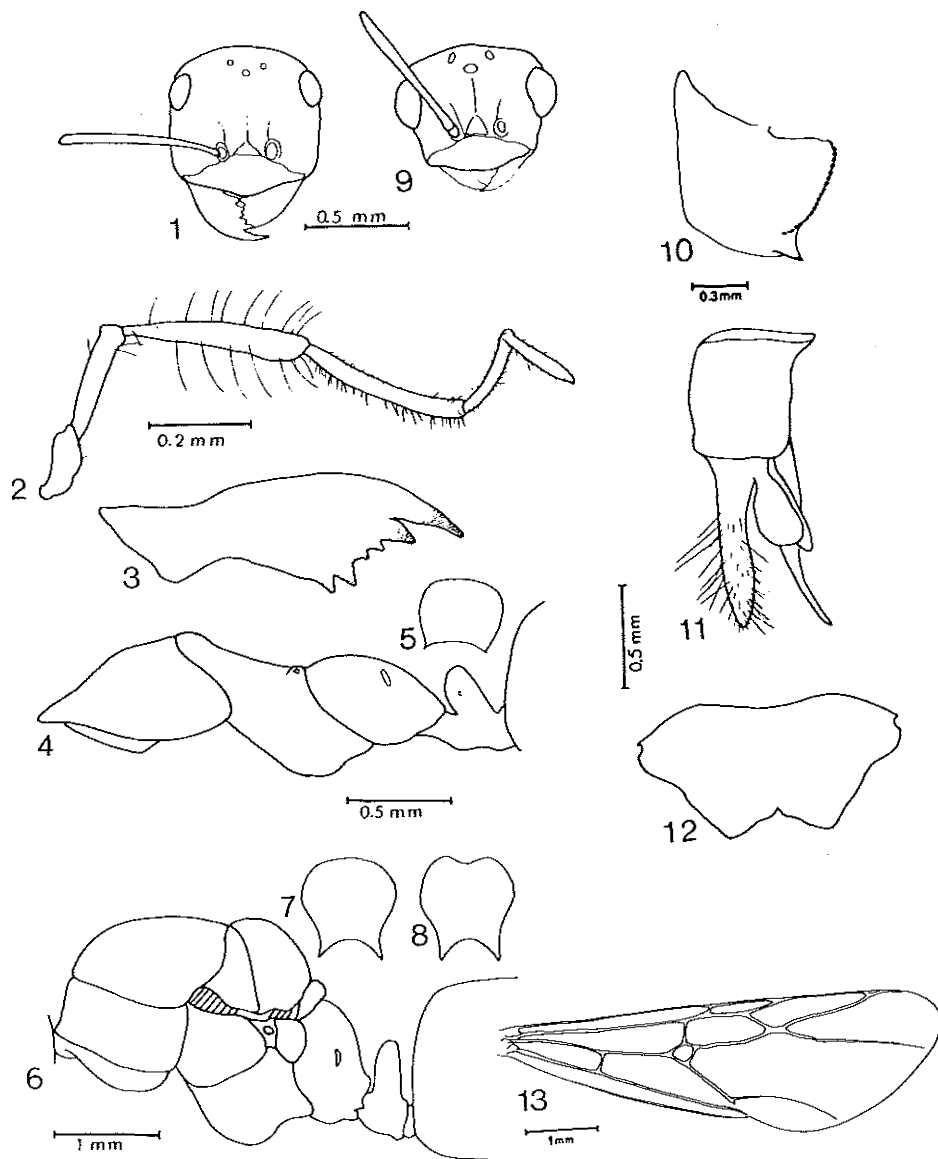
FEMALE

Length. 8.8-10 mm.

Color. Yellow brown; petiole and gaster light to dark brown; head, alitrunk and gaster very finely reticulated, only slightly shiny; pubescence silvery white to yellowish; pilosity yellow; wing slightly milky, veins yellow, stigma yellow brown.

Head. A little wider than long C.I. = 1.1; hind border straight with slightly rounded corners; more or less densely pubescent, except clypeus and mouth parts with few standing hairs; mandible striated with 6-7 teeth, apical tooth 2-3 times as long as sub-apical; clypeus more pilose than in ♀; maxillary palp similar to ♀.

Alitrunk. (Fig. 6). More or less densely pubescent with dispersed standing fine hairs; propodeum short, arched in profile.



Figs. 1-13. *Cataglyphis sabulosa* n.sp. 1. ♀, head. 2. ♀, maxillary palp. 3. ♀, mandible. 4. ♀, alitrunk and petiole. 5. ♀, petiolar scale. (posterior view). 6. ♀, alitrunk and petiole. 7. ♀ petiolar scale, posterior view (from Timna). 8. ♀ petiolar scale, posterior view (from Ashdod). 9. ♂, head. 10. ♂, gonapophyse (sagitta), lateral view. 11. ♂, gonocoxite (squamula), gonostylus (stipes), volsellar cuspide (lacinia) and volsellar digitus (volsela), latero-posterior view. 12. ♂, subgenital plate. 13. ♂, wing.

Wing. With discoidal cell of different size.

Petiolar scale. (Figs. 6-8). Squamiform, more compressed and wider than in ♀; laterally convex, anteriorly slightly convex; posteriorly straight, upper border with an excavation in the females (n = 10) from Ashdod, without an excavation in the females from Timna (n = 3).

Abdomen. Ovipositor with more or less dense pubescence and sparse standing, fine long hairs.

MALE

Length. 7-7.8 mm.

Color. Head, alitrunk, petiole, coxae and the greater part of femora black, antennae and gaster yellow to brown, tip of femora, tibiae and tarsi yellow; head, alitrunk and gaster very finely reticulated; pubescence silvery white to yellowish, pilosity yellowish; wings slightly milky, with pale yellow veins.

Head. (Fig. 9). Wider than long, narrowing anteriorly, C.I. = 1.3; hind border nearly straight, with slightly rounded corners, pubescent with dispersed standing hairs, dense standing hairs present on ventral side and on clypeus. Eye length little longer than the distance to the base of mandible; anterior ocellus little larger than posterior ocelli, as large or nearly as large as the distance to posterior ocelli; antenna long, scape extend beyond hind border of head with nearly half its length; funicular segments 3 times as long as thick, 1st segment only slightly shorter than 2nd, penultimate segment the shortest, 2/3 length of 2nd, last segment slightly longer than 2nd. Mandible with 1 short tooth and long standing hairs; maxilla similar to ♀ with long dispersed standing hairs on 3rd and shorter dense hairs on 4th segment.

Alitrunk. Similar to female, dense pubescent, with long dispersed standing hairs; scutellum poorly pubescent with few standing hairs.

Wing. (Fig. 13). With discoidal cell.

Petiolar scale. Pubescent, wider than high, convex laterally, slightly excavated dorsally.

Gaster. Nearly cylindrical, pubescent, only ventrally with dense long standing hairs.

Genitalia. (Fig. 10-12). Protruding as characteristic for the genus. Distal border of subgenital plate more or less concave with a small indentation in the middle. Gonocoxite shorter than gonostylus, (5:7) its distal border slightly convex; gonostylus fingerlike in lateral view, with dense long standing pilosity; dorsally near its base with a large racket form appendix; volsellar digitus long with pointed tip; volsellar cuspidate much shorter than digitus with rounded tip; gonapophyse laterally compressed, ventrally with a row of fine teeth and a large triangular spine at its postero-ventral angle.

MATERIAL EXAMINED. Holotype ♂, Israel, Ashdod (Southern Coastal Plain) 26.V.1981, J. Kugler. Allotype ♀ and 38 paratypes (22♀♀, 9♀♀ and 7♂♂) same data as holotype. Additional paratypes: Israel, 10♀♀ Ziqim 28.IV.1981, J. Kugler, 1♀ and 1♂ Holon 29.V.1959, J. Kugler; 3♀♀, Holon 4.V.1978, A. Freidberg; 2♀♀, Holon 19.VI.1979, E. Avital; 2♀♀, 5♂♂, Holon 5.V.1980, J. Kugler; 6♀♀, Holon 7.VII.1980, J. Kugler; 6♀♀, Tel-Aviv (north of the Yarkon River) 10.VII.1980, J. Kugler. All above mentioned localities are in the Southern Coastal Plain. 4♀♀, Timna (southern Arava

Valley) 29.IV.1976, B. Shalmon; 3♀♀, 3♂♂ Timna 26.III.1978, B. Shalmon; 20♀♀, Timna 25.II.1980, B. Shalmon; 3♀♀, 3♂♂, Timna 27.IV.1981, B. Shalmon; 1♀, Sinai, Nahal Yam near Bardawil (Northern Sinai) 1.II.1973, A. Freidberg.

AFFINITIES. *Cataglyphis sabulosa* resembles *C. bombycina* (Roger) in the following characters: rich pubescence on the gaster as well as on many other parts of the body; the petiolar scale is squamiform in all castes; the 3rd segment of the maxillary palp is longer than the 4th, with very long standing hairs; the 5th and 6th segments are subequal in length; all castes have a well developed psammophore formed by the long pilosity of the clypeus, mandibles, palps and ventral surface of the head. The main differences between the two species are as follows:

1. Gaster of worker brown. Erect hairs on 3rd segment of maxillary palp reach or extend beyond half length of segment. "Soldier" caste well differentiated; "soldier" with very long, cruciate, saberlike mandibles. Wing without discoidal cell. Posterior border of subgenital plate in male with a well developed tooth in the middle; gonostylus without dorsal appendage. Head of female not reticulated, shiny

. *Cataglyphis bombycina* (Roger)
(Deserts of North Africa, Sinai and southern Arava Valley in Israel).

– Workers usually uniformly yellow to orange; gaster light brown only in some major workers. Erect hairs on 3rd segment of maxillary palp extend beyond 1/3, but never reach half length of segment. "Soldier" caste not differentiated. Wing with discoidal cell. Posterior border of subgenital plate in male indented in the middle; gonostylus with large dorsal appendage. Head and scutum of female finely reticulated, not shiny

. *Cataglyphis sabulosa* n.sp.
(Southern Coastal Plain and southern Arava Valley in Israel, Northern Sinai)

Santschi (1929) included *C. bombycina* with *C. lucasi* Emery in the subgenus *Machaeromyrma* Forel. *Cataglyphis lucasi* is known only from the Sahara. Like *C. bombycina*, it has very long pilosity on the 3rd segment of the maxillary palp, however, the brown black gaster of the worker is shiny, with very poor pubescence.

Another yellow orange species of *Cataglyphis* common in Israel is *C. livida* André. In this species the petiolar scale is nodiform in the worker, as characteristic for the subgenus *Cataglyphis* (sensu Santschi 1929). The gonocoxite of the male is very long and pointed and the gonostylus lacks a dorsal appendage. The female is yellow with shiny gaster, nearly devoid of pubescence. The workers, like most species of the genus usually walk with an erect gaster, while the workers of the new species never do so.

BEHAVIORAL OBSERVATIONS. In the Coastal Plain *C. sabulosa* was found only on sand dunes and their edges. Only small and medium sized workers were seen on the surface of the sands. They run very fast, never with an erect gaster. Because of this behaviour and due to their silvery pubescence, they are much less visible than the workers of *C. livida* which may occur in the same habitat.

On 26.V.1981 in an area of sand dunes near the harbour of Ashdod (Southern Coastal Plain) an alate female was seen running on the sand. Nest openings which are very small, were located by following returning workers. Three nests were partly excavated. In the first nest in a depth of only 20 cm were found workers of different

size, a dealated female, many alate males and cocoons. The second was similar to the first, but no females were found. In the third nest in the same depth, many alate females were found, some of them still not darkened. In this nest no males were found. This observation supports the view of Shalmon (1981) that the males and females of the same nest do not fly at the same time. Workers of *C. sabulosa* were found in stomachs of 2 lizards *Acanthodactylus schreiberi* Boulenger collected in the sands of Holon 18.VI.79 by E. Avital, the Hebrew University, Jerusalem.

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