



Ants of the genus *Sylophopsis* Santschi, 1915 (Hymenoptera: Formicidae) in Saudi Arabia with description of a new species

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The myrmicine ant genus *Sylophopsis* in Saudi Arabia is reviewed. Two species are recognized, *S. kondratieffi* (Sharaf & Aldawood, 2013) and *S. saudiensis* sp. n. *Sylophopsis saudiensis* is described and illustrated from the central and eastern regions of Saudi Arabia based on the worker caste. This new species is most similar to *S. thrascolepta* (Bolton, 1987) from the Ivory Coast, Africa, but readily separated by the less abundant and sparse cephalic pilosity, the smaller eyes, the shallow impressed metanotal groove, and obtusely angled propodeal profile. New distributional records are provided for *S. kondratieffi* which was previously only known from the type locality, Makkah Province, Saudi Arabia.

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Keywords: Middle East; Arabian Peninsula; taxonomy; revision; Palaearctic Region; Myrmicinae

Introduction

The myrmicine ant genus *Sylophopsis* was established by Santschi (1915) for the species *Monomorium modestum* Santschi, 1914. The genus currently includes 20 valid species (Bolton, 2014) distributed in the Afrotropical and Malagasy regions (Bolton, 1987; Heterick, 2006), and two widespread species occurring in the Indo-Australian region and on the islands of the Pacific and Indian oceans (Wilson & Taylor, 1967).

In his comprehensive review of the *Solenopsis* genus-group and the Afrotropical fauna of the genus *Monomorium* Mayr, Bolton (1987) synonymized *Sylophopsis* under *Monomorium*, recorded seven species and described three new African species, *S. malamixta* and *S. thrascolepta* from Ivory Coast and *S. sersalata* from Rwanda. These 10 species were included in the *M. fossulatum*-group. In a revision of the Malagasy *Monomorium*, Heterick (2006) included the species of the *M. fossulatum*-group with the *hildebrandti*-group. Recently, *Sylophopsis* was resurrected as a valid genus by Ward, Brady, Fisher, and Schultz (2014).

The only treatment of *Sylophopsis* for the Arabian Peninsula was by Sharaf & Aldawood (2013), recording the genus for the first time from southwestern Saudi Arabia by the new species, *S. kondratieffi* based on the worker caste. In addition, a key was provided for the species of *Sylophopsis* known from the Afrotropical region. Recently, Sharaf, Fisher, Collingwood, and Aldawood (unpublished data) reported the genus from Socotra Island (Yemen) for the first time by an undescribed species. In North Africa, Sharaf (2007) described *S. dentatum* from the Nile Valley, upper Egypt.

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In this paper, *Syllophopsis* of Saudi Arabia are reviewed and a new species is described based on the worker caste. New locality records for *S. kondratieffi* are also presented.

Material and Methods

Measurements. EL: Eye Length (maximum diameter of eyes). – HL: Head Length (maximum length of head from anterior clypeal margin to posterior margin of head). – HW: Head Width (maximum width of head behind eyes in full face view). – ML: Mesosoma Length (maximum length of mesosoma from the point at which pronotum meet with cervical shield to posterior edge of propodeal lobes in lateral view). – PL: Petiole Length (maximum length of petiole from anterior margin to posterior margin in dorsal view). – PPL: Postpetiole Length (maximum length of postpetiole in dorsal view). – PPW: Postpetiole Width (maximum width of postpetiole in dorsal view). – PRW: Pronotal Width (maximum width of pronotum in dorsal view). – PW: Petiole Width (maximum width of petiole in dorsal view). – SL: Scape Length (maximum length of scape excluding basal neck). – TL: Total Length (outstretched length of ant from mandibular apex to gastral apex).

Indices. CI: Cephalic Index ($HW/HL \times 100$). – SI: Scape Index ($SL/HW \times 100$).

Abbreviations of depositories. KSMA: King Saud University Museum of Arthropods, King Saud University, College of Food and Agriculture Sciences, Plant Protection department, Riyadh, Kingdom of Saudi Arabia. – CASC: California Academy of Sciences Collection, California Academy of Sciences, San Francisco, California, USA. – WMLC: World Museum Liverpool Collection, World Museum Liverpool, Liverpool, United Kingdom.

Digital images of lateral and dorsal views of the entire body and full-face views of the head of each species were created using a Leica DFC450 digital camera with a Leica Z16 APO microscope and LAS (v3.8) software. These images are accessible using the unique identifying specimen code. All measurements are given in millimetres and follow the standard measurements of Bolton (1987).

Results and Discussion

Key to species of *Syllophopsis* in Saudi Arabia

The worker caste of *Syllophopsis* is readily identified by the combination of the following characters (Bolton 1987): monomorphic; antennae 12-segmented terminating with a 3-segmented club; median clypeal portion distinctly longitudinally bicarinate that project anteriorly as a pair of blunt teeth; eyes tiny with one or two ommatidia; promesonotal suture absent; metanotal groove impressed, sometimes less-developed but distinct; propodeal dorsum making a minute dent with declivity. In many species, propodeal outline obtusely angulate; petiole pedunculate, with a high and rounded node; postpetiole node smaller and lower than petiolar node in profile.

- Small species, TL 1.46–1.49, ML 0.44; scapes shorter (SI 88–100), when laid back from their insertions distinctly fail to reach posterior margin of head; body pilosity sparse and fine (Figure 1); colour uniformly clear pale yellow *S. kondratieffi* (Sharaf & Aldawood)
- Larger species, TL 2.09–2.1, ML 0.53; scapes longer (SI 107), when laid back from their insertions distinctly reach posterior margin of head (Figure 2); body pilosity abundant and stiff (Figure 3); colour dirty yellow with brownish tint *S. saudiensis* n. sp.

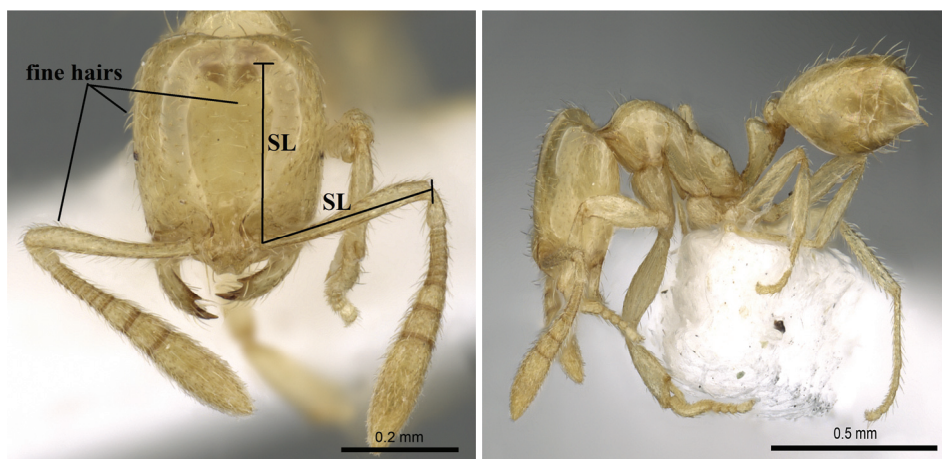


Figure 1. *Sylophopsis kondratieffi*. Left: head in full-face view showing short antennal scapes. Right: Body in profile, showing sparse and fine pilosity.

***Sylophopsis kondratieffi* (Sharaf & Aldawood, 2013)**

Monomorium kondratieffi Sharaf & Aldawood, 2013: 79 (w.) SAUDI ARABIA. Afrotropical. Holotype worker, Makkah Province (incorrectly indicated in Sharaf & Aldawood 2013 as Al Bahah Province), Al Urdiyah gov. Wadi Gonouna, 19.42936°N, 41.60503°E, 353 m, 12.v.2011, (M. R. Sharaf leg.) (KSMA) (CASENT0249587) [examined].

Worker. Measurements: EL 0.01, HL 0.42–0.44, HW 0.32–0.35, ML 0.42–0.44, PL 0.12, PPL 0.05–0.08, PPW 0.08–0.09, PRW 0.21–0.22, PW 0.07–0.09, SL 0.28–0.35, TL 1.46–1.49. Indices: CI 76–80, SI 88–100 (Sharaf & Aldawood 2013).

Head. Longer than broad, with feebly concave posterior margin and slightly convex sides; anterior clypeal margin feebly convex; eyes minute, consisting of single ommatidium, situated at midlength of head sides; scapes when laid back from their insertions failing to reach posterior margin of head; terminal segment of antennal club about 1.5 x longer than proceeding segments. Mesosoma. Promesonotal dorsum flat in profile view; metanotal groove shallow; propodeal dorsum meeting declivity in a weak obtuse angle; propodeal spiracles large and circular. Petiole. Petiolar node high with long anterior peduncle. Postpetiole. Lower than petiole in profile and wider than long in dorsal view. Pilosity. Cephalic pilosity abundant and shorter than mesosomal and gastral hairs, mesosoma with many pairs of scattered long hairs; propodeum with two pairs of hairs on its dorsal face and two pairs on lower side of declivity face. Sculpture. Smooth and shining. Colour. Uniformly clear pale yellow.

Material examined. Riyadh Province: Dhurma, 24.61945°N, 46.14882°E, 665 m, 25.iv.2014 (Salman, S. leg.) (2); Asir Province, Almajadah, Wadi Bagara, 18.79287°N, 42.01857°E, 436 m, 10.xi.2012, (M. R. Sharaf leg.) (15); Jizan Province: Fayfa, Dayer Bani Malek, 17.28797°N, 43.14434°E, 871 m, 4.iv.2013, (M. R. Sharaf leg.) (1); Fayfa, Wadi Al Jorah, 17.27856°N, 43.06169°E, 419 m, 6.iv.2013 (M. R. Sharaf leg.) (3); Wadi Shahdan, 17.455222°N, 42.71516°E, 200 m, 13.xi.2012, (M. R. Sharaf leg.) (10); Abu Arish, 17.01347°N, 42.80160°E, 90 m, 10.iv.2012, (M. R. Sharaf leg.) (4). All in KSMA.

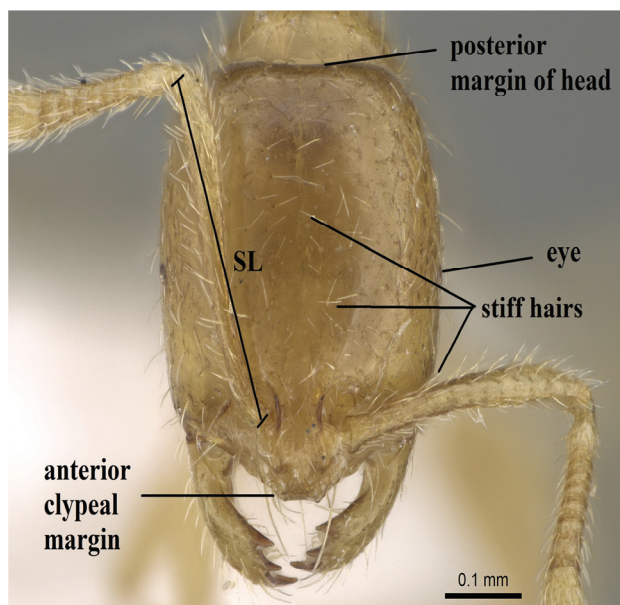


Figure 2. *Sylophopsis saudiensis* sp. n., head in full-face view showing long antennal scapes.

Remarks. *Sylophopsis kondratieffi* was only known from the type locality in Makkah Province based on the holotype and a paratype specimen. Additional material listed above increases the range of this species.

***Sylophopsis saudiensis* Aldawood, n. sp. (Figures 2–3)**

Holotype (worker): Saudi Arabia, Riyadh Province, Al Majma'ah, 25.88036°N, 45.36566°E, Alt. 743 m, 14.ii.2015 (S. Salman, leg.) (KSMA). – Paratype: 1 worker, Saudi Arabia, Riyadh Province, Al Majma'ah, 25.88032°N, 45.36531°E, Alt. 730m, 07.i.2015 (S. Salman, leg.) (casent0919825) (CASC), 1 worker, Saudi Arabia, Al Qatif, Eastern Province, 26.51028°N, 49.96889°E, 30 m. 14.iv.1984 (C. A. Collingwood, leg.) (casent0906341) (WMLC).

Measurements of workers. Holotype worker (paratype worker in brackets). EL 0.01 (0.01); HL 0.48 (0.48); HW 0.38 (0.40); ML 0.52 (0.54); PL 0.18 (0.17); PPL 0.10 (0.10); PPW 0.13 (0.13); PW 0.11 (0.11); SL 0.41 (0.42); TL 2.11 (2.09). Indices: CI 79 (82); SI 107 (107).

Diagnosis. *Sylophopsis saudiensis* seems closest to *S. thrascolepta* (Bolton 1987) from the Ivory Coast in body colour, eyes, antennae, outline of promesonotal dorsum, and body pilosity. Both species shares the following characters, colour yellow, eyes with one ommatidium; funicular segments 2–8 distinctly broader than long; scapes just reaching posterior margin of head when laid back from their insertions; dorsal outline of promesonotum evenly convex. However, *S. saudiensis* can be easily distinguished from *S. thrascolepta* by the following characters, cephalic pilosity is less abundant and sparse on median surface and lateral margins of head, eyes are smaller (EL 0.02 x HW), propodeum immediately after metanotal groove not raised, metanotal groove shallowly impressed, propodeal dorsum forming an obtuse angle with declivity, body pilosity less



Figure 3. *Sylophopsis saudiensis* sp. n., body in profile (left) and dorsal view (right), showing abundant and stiff pilosity. Photographer: Michele Esposito, casent0919825.

abundant, whereas in *S. thrascolepta* (CASENT0902228), all cephalic surfaces are covered with long and dense hairs which appear as a fringe surrounding the posterior and lateral margins of head, eyes are distinctly larger (EL 0.07 x HW), metanotal groove in the form of U-shaped depression, propodeal dorsum meet declivity in a tiny but distinct dent, body pilosity profuse.

Sylophopsis saudiensis differs from the sole Arabian species, *S. kondratieffi* (Sharaf & Aldawood) by the longer scape (SL 0.41–0.42), and petiole (PL 0.17–0.18), the larger head width (HW 0.38–0.40), and postpetiole width (PPW 0.13), and the smaller pronotal width (PRW 0.11), versus SL 0.28–0.35, PL 0.12, HW 0.32–0.35, PPW 0.08–0.09, PRW 0.21–0.22 in *kondratieffi*. In addition, scapes of *saudiensis* when laid back from their insertions in full-face view reaching posterior margin of head, whereas in *kondratieffi*, scapes when laid back from their insertions fail to reach posterior margin of head. Moreover, the body pilosity in *saudiensis* is abundant and more stiff while it is sparse and fine in *kondratieffi*.

Worker. Head. Rectangular with slightly convex sides; posterior margin of head feebly concave in full face view; posterior corners of head broadly rounded; masticatory margin of mandibles with four testaceous teeth, fourth tooth same size as third; anterior clypeal margin feebly concave; median clypeal portion distinctly raised and bicarinate; apical funicular segment longer than the two proceeding segments together; funicular segments 2–8 broader than long; antennal scapes when laid back from their insertions reaching the posterior margin of head; eyes minute, of a single ommatidium, situated at the mid-length of head sides. Mesosoma. Metanotal groove shallowly but distinctly impressed; propodeal dorsum flat, lower than promesonotal dorsum, nearly twice longer than declivity in profile, slightly sloping posteriorly, making obtuse angle with declivity; propodeal spiracle tiny and circular. Petiole. Petiole with long anterior peduncle and high node in profile; dorsal surface of petiole gently sloping anteriorly and posterior surface sloping abruptly. Postpetiole. Postpetiole lower than petiole in profile, globular and broader than long in dorsal view. Gaster. Sting well-developed. Sculpture. Body smooth and shining, except impression between mesopleuron and metapleuron faintly cross-ribbed. Pilosity. whole body covered with abundant hairs, cephalic pilosity shorter and stiff; propodeal dorsum bare; dorsum of pronotum and mesonotum with several

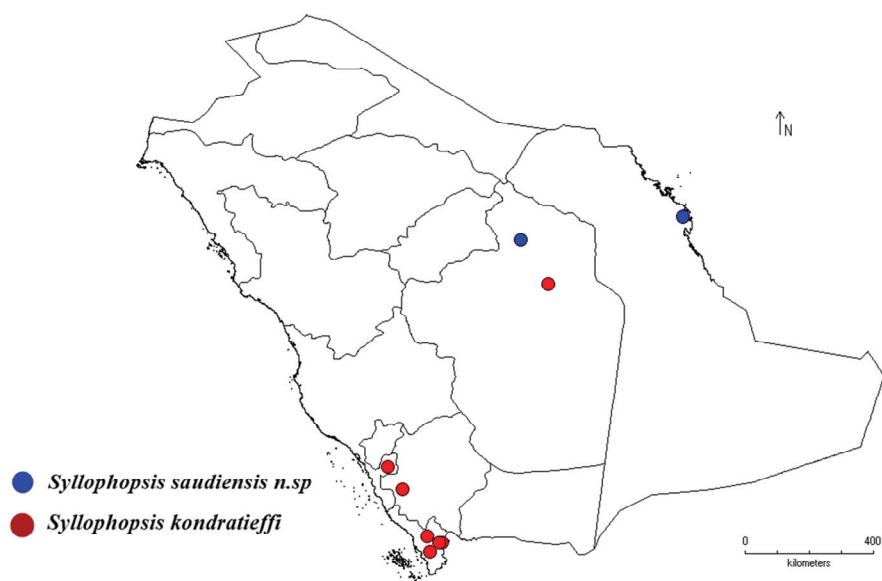


Figure 4. Distribution of *Sylophopsis kondratieffi* and *S. saudiensis* sp. n. in Saudi Arabia.

pairs of long, erect hairs; pilosity of mesosoma, petiole, postpetiole and gaster fine and longer than cephalic pilosity; antennae covered with dense decumbent pubescence; petiole with several short decumbent hairs and one pair of long hairs. Colour. Yellow with brownish tint on head and gaster.

Etymology. The new species was named after the country of the type locality.

Biological and ecological notes.

Habitat. The new species was foraging in the upper layer of loose soil under a date palm tree *Phoenix dactylifera* L. with an understory of grasses. Only two workers were collected and this species was coexisting with many workers of *M. exiguum* Forel, 1894 and *Tapinoma simrothi* Krausse, 1911. The soil was dry but rich in organic material. Specimens were collected using a sifting tray. The paratype specimen from Al Qatif was found in the soil around a date palm tree and associated with the ants *Nylanderia jagerskioeldi* (Mayr, 1904), *M. monomorium* Bolton, 1987, *M. carbonarium* (Smith, 1858), and *T. melanocephalum* (Fabricius, 1793). It is noteworthy to mention the habitats preference of this group of tiny yellow ants is confined to soil, and leaf litter surrounding *P. dactylifera* trees. The type localities of both *kondratieffi* and *saudiensis* have extensive date palm plantations.

Distribution. Based on the known collections, *S. kondratieffi* seems widely distributed in southwestern Saudi Arabia, and perhaps future studies may reveal much broader geographical distribution of the region. The distribution of *S. saudiensis* may be similar in the central and eastern regions of Saudi Arabia, especially if the apparent preferred habitat occurs. Both species may have a wider distribution that could include other countries of the Arabian Peninsula (Figure 4).

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Disclosure Statement

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