A new ant species of the *Technomyrmex albipes*-group from Saudi Arabia (Hymenoptera: Formicidae)[1]

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Abstract: *Technomyrmex briani* n. sp. is described and illustrated from Saudi Arabia based on the worker caste collected in Wadi Abha. It belongs to the *Technomyrmex albipes*-group and most closely resembles *T. setosus* Collingwood, 1985. It is distinguished from the latter species by the relatively posteriorly located eyes, the deep metanotal groove, the bare first gastral tergite and the few pairs of setae on the second, third and fourth gastral tergites.

نوع جديد من النمل من مجموعة *Technomyrmex albipes* من المملكة العربية السعودية (غشائية الأجنحة: النمليات)

مصطفى شرف

خلاصة: تم وصف وتوضيح بالرسم النوع الجديد *Technomyrmex briani* من المملكة العربية السعودية اعتماداً على فئة العاملات التي جمعت من وادي أبها. ينتمي هذا النوع الجديد إلى مجموعة *Technomyrmex albipes* وتشبه إلى حد كبير النوع *T. setosus*. ويتميز النوع الجديد عن ذلك الشبيه بأعينه الموجودة نحو الخلف نسبيا وبوجود أخدود عميق لظهر منطقة الصدر وتخلو الصفيحة البطنيه الأولى من الشعيرات وبعدد قليل من الشعيرات على الصفائح البطنية الثانية والثالثة والرابعة.

INTRODUCTION

The ant genus *Technomyrmex* was described by Mayr in 1872, based on the type-species *Technomyrmex strenuus*. It is one of the largest genera in the subfamily Dolichoderinae and includes 90 species (Bolton 2007). It is mainly distributed throughout the tropical and sub-tropical zones; most species occur in the Oriental-Malesian (sensu Bolton 2007) and Afrotropical Regions. Two endemic species are known from the Neotropical Region (Fernández & Guerrero 2008) and two from Dominican amber (Brandão et al. 1999). The majority of *Technomyrmex* species are arboreal or sub-arboreal, with a very limited number apparently restricted to life in the leaf litter layer. Most species that nest in the ground also ascend shrubs and trees to forage on the trunks and in the canopy (Bolton 2007).

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[1] This paper is dedicated to my friend, the famous Egyptian journalist Mr. Salah Montaser, Al-Ahram newspaper

Within the subfamily Dolichoderinae workers of the genus *Technomyrmex* are easily recognised by the combination of the following characters: masticatory margin of mandible multidentate, with 12-14 teeth; palp formula 6,4 in the vast majority of species; median portion of anterior clypeal margin transverse to very deeply incised; eyes always present; antennae 12-segmented, without a club; metanotal groove present; propodeum unarmed, its dorsum-declivity junction broadly rounded to distinctly angular; petiole extremely reduced, forming a low narrow segment without a node or scale; petiole concealed in dorsal view when gaster is in line with mesosoma, overhung by the anteriorly projecting first gastral tergite. A groove is present in the anterior face of the first gastral tergite that accommodates the petiole. The gaster has five visible tergites and sternites, the pygidium being small.

The *T. albipes* group (Bolton 2007) is distinguished from other *Technomyrmex* species-groups by the following characters: palp formula 6,4; anterior clypeal margin with a shallow median impression or a small notch; frontal carinae with setae present, usually 2-3 along each carina; pronotum usually with at least one pair of setae; mesosoma relatively short and compact, mesonotum never with a constricted or elongated form in dorsal view or in profile.

The *Technomyrmex* ant fauna of the Arabian Peninsula has been little studied. The first study was that of Collingwood (1985) included in an overview of the Saudi Arabian Formicidae. He recorded *Technomyrmex albipes* (Smith, 1862) from Al Qatif and described *T. setosus* from Wadi Shugub and Bishah. In the second study, Collingwood & Agosti (1996) listed and keyed ant species from the entire Arabian Peninsula. They recorded the two above species of *Technomyrmex* plus *T. bruneipes* Forel, 1895 from Yemen. This is now considered a junior synonym of *T. albipes* (Bolton 2007). The authors recorded *T. setosus* Collingwood, 1985 from Yemen and from additional localities in Saudi Arabia including Jebel Beles, El-Farah and Harithi.

In this paper a new species of the genus *Technomyrmex*, *T. briani* n. sp. is described from Saudi Arabia.

MATERIALS AND METHODS

Measurements and indices follow Bolton (2007).

Measurements:

Total Length (TL): The total outstretched length of the ant from the mandibular apex to the gastral apex.

Head Length (HL): The length of the head capsule excluding the mandibles; measured in full-face view in a straight line from the mid-point of the anterior clypeal margin to the mid-point of the posterior margin. In species where one or both of these margins is concave the measurement is taken from the mid-point of a transverse line that spans the apices of the projecting portions.

Head Width (HW): The maximum width of the head behind the eyes, measured in full-face view.

Scape Length (SL): The maximum straight-line length of the scape, excluding the basal constriction or neck that occurs just distal of the condylar bulb.

Pronotal Width (PW): The maximum width of the pronotum in dorsal view.

Weber's length of Mesosoma (WL): The diagonal length of the mesosoma in profile, from the most anterior point of the pronotum to the posterior basal angle of the metapleuron.

All measurements are expressed in millimeters.

Indices:

Cephalic Index (CI): HW divided by HL, × 100.

Dorsal Thoracic Index (DTI): In dorsal view the length from the mid-point of the anterior pronotal margin to the midpoint of the metanotal groove, divided by PW, × 100.

Eye Position Index (EPI): In full-face view the straight-line length (parallel to the long axis of the head) from the most anterior point of the eye to the anterior clypeal margin, divided by the straight-line length from the most posterior point of the eye to the posterior margin, × 100.

Ocular Index (OI): Maximum diameter of eye divided by HW, × 100.

Scape Index (SI): SL divided by HW, × 100.

The photographic images were taken with a digital camera attached to a stereomicroscope. The microscope was equipped with a Z-Stepper to enable the generation of usually 30 images in different focus layers, from which a montage image was computed using AutoMontage Pro.

Depositories of type specimens:

BMNH	Natural History Museum, London, UK
EESC	Entomological collection of the Egyptian Entomological Society, Cairo, Egypt
MAC	Entomological collection of the Ministry of Agriculture, Giza, Egypt
OXUM	Oxford University Museum of Natural History, Oxford, UK
SMNH	Staatliches Museum für Naturkunde Karlsruhe, Germany
SNMNH	Saudi Arabian National Museum of Natural History, Riyadh, Saudi Arabia

Technomyrmex briani n. sp. Plates 1-3

Holotype: worker, Saudi Arabia, Wadi Abha, 18°12'59''N 42°30'19''E, 2261 m a.s.l., 18 Mar. 2004, Mostafa R. Sharaf, EESC. — Paratypes: 9 workers, same data as holotype, MAC, BMNH (deposited by B. Bolton), OXUM (deposited by B. Taylor), SMNH, Mostafa Sharaf collection.

Diagnosis: The new species is characterized by the combination of the following characters: eye position index (EPI) relatively large 73-117, eyes located relatively posteriorly; metanotal groove deep; pronotum with one or two pairs of hairs; propodeal dorsum and first gastral tergite bare; the second to fourth gastral tergites with greatly reduced number of setae.

Measurements: Holotype worker: TL: 2.62; HL: 0.65; HW: 0.65; SL: 0.60; PW: 0.45; WL: 0.90; EL: 0.175 *Indices*: CI: 100; SI: 92; OI: 27; EPI: 117; DTI: 122.

Paratype workers: TL: 2.62-3.0; HL: 0.62-0.72; HW: 0.60-0.67; SL: 0.62-0.72; PW: 0.42-0.47; WL:0.80-0.92; EL: 0.15-0.17 (9 measured). *Indices*: CI: 89-100; SI: 100- 112; OI: 22-29.1; EPI: 73-114; DTI: 106-128.

Description of worker: In profile head with a single pair of very long setae at level of anterior eye margin, posterior to this is one pair of relatively short setae at level of posterior eye margin; sometimes one pair between latter and posterior margin of head; one or two pairs at occipital margin, which is sometimes bare; dorsum of head in few individuals completely bare and without any setal pits, which indicates that setae have never been present; anterior clypeal margin transverse; in full-face view posterior margin of head appears transverse or even very slightly convex, but when head tilted slightly forward from full-face, margin appearing very shallowly evenly concave across its entire width; outer eye margins just fail to break outlines of sides in full-face view.

Mesosoma frequently bare, but in some individuals some setal pairs are distributed as follows: pronotum one or two, mesonotum bare rarely with two, propodeal dorsum bare, lateral margin of propodeal declivity one; mesonotum in profile evenly rounded, without a differentiated declivitous

Plate. 1. Profile of *Technomyrmex briani* n. sp. (Paratype, SMNH).

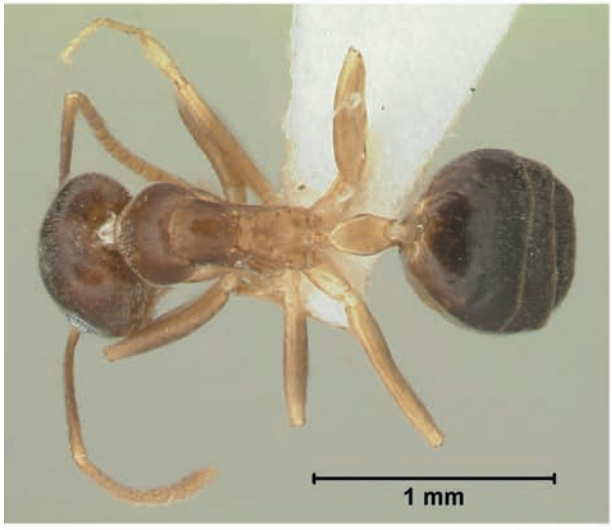

Plate 2. Dorsal view of *Technomyrmex briani* n. sp. (Paratype, SMNH).

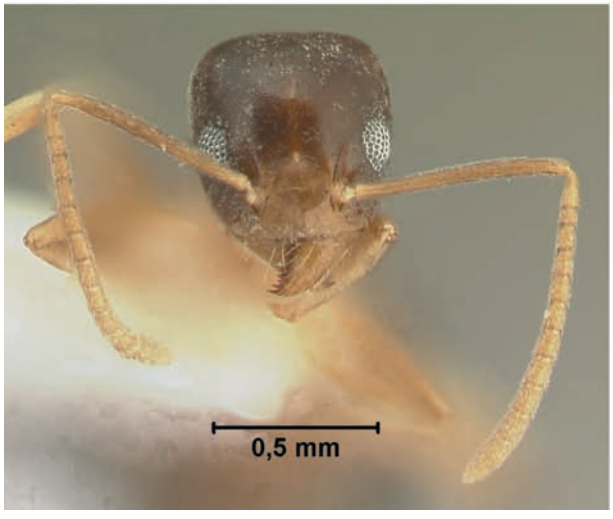

Plate 3. Full face view of *Technomyrmex briani* n. sp. (Paratype, SMNH).

face; propodeal dorsum in profile very short, much shorter than depth of declivity to spiracle, dorsum and declivity meet at an angle; gastral tergites one to four with dense greyish pubescence, second and third gastral tergites completely bare in most specimens, some specimens with a seta or rarely with three pairs of long setae; head and gaster brown to dark brown, mesosoma a much

lighter yellowish brown and distinctly contrasting; antennae and legs yellow, clearly lighter than mesosoma.

Derivatio nominis: A patronymic name (*T. briani*) has been selected in honor of Dr Brian Taylor, Nottingham, U.K.

Remarks: This new species belongs to the *Technomyrmex albipes*-group and the *T. pallipes* complex as defined by Bolton (2007). It cannot be identified with Bolton's (2007) key to *Technomyrmex* species. *Technomyrmex briani* appears to be closest to *T. setosus* Collingwood, 1985, from Saudi Arabia. The two species are similar in size and colour, with head and gaster brown to dark brown, mesosoma yellowish brown, antennae and legs yellow. Moreover both species have a very similar complement and arrangement of setae. Comparing *Technomyrmex briani* with *T. setosus*, the eye position index (EPI) in *T. briani* is larger, EPI 73-117, versus EPI 75-78; this means that the eyes are located relatively posteriorly in *T. briani*, whereas they are located in front of the midlength in *T. setosus*. The metanotal groove in *T. briani* is deep whereas in *T. setosus* it is shallow, as mentioned in Collingwood (1985). Moreover, *T. briani* can be separated by the few pairs of setae on the second to the fourth gastral tergites. The first gastral tergite is always bare; second and third gastral tergites mostly bare, sometimes with a single seta; the third rarely with three pairs of setae; the fourth gastral tergite always with several pairs of setae. In *T. setosus* the gastral tergites 1 to 4 have several pairs of setae, the longest on the first tergite about equal to the maximum diameter of the eye or fractionally shorter. Furthermore, *T. briani* has the posterior margin of the head with a single pair of setae in most specimens, in some specimens two or completely bare; *T. setosus* has two pairs of setae present on the posterior margin of the head.

Ecological notes: The new species has been collected from Wadi Abha nesting under a stone. The author made several field trips to this wadi in 2007 and 2008 to search for additional specimens, but none were found. It seems that it was greatly affected by human impact through developmental projects mainly the construction of a new road in Wadi Abha. Competition with the closely related and abundant *T. setosus* Collingwood, 1985 might also have had an effect.

ACKNOWLEDGEMENTS

I am indebted to Barry Bolton for the long discussion about the *Technomyrmex* species and for valuable comments on the manuscript. I would like to thank Dr Brian Taylor and Dr Xavier Espadaler for a critical reading of the manuscript. Special thanks are due to Dr Cedric Collingwood for the loan of samples of *Technomyrmex setosus*. I am grateful to Dr Christiana Klingenberg and Dr Manfred Verhaagh (Staatliches Museum für Naturkunde, Karlsruhe, Germany) for taking photos of the new species. My gratitude is due to Prof. Cesare Baroni-Urbani for reviewing the manuscript and for providing many useful comments. I wish to express my sincere thanks to Col. Hisham K. El-Hennawy (spider taxonomist), Prof. Hassan H. Fadl, Prof. Reda F. Bakr (Ain Shams University) and my wife Amal M. El-Saadany for the great help and advice they kindly gave during this work.

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Manuscript submitted: 15 April 2008
Manuscript accepted: 4 February 2009