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Survey and taxonomical study of ants that collected from indoor in different regions of Iraq

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Abstract

The aim of this study to determine the worker ants, which had several important, related to human activities in different aspects; furthermore, there was no paper deals with this matter previously in Iraq. The present investigation showed, the ant worker species that found indoors, which collected from different regions of Iraq are identified; they were registered as eight species belonging to six genera under three subfamilies. The species of *Monomorium brunneolucidulum* Collingwood & Agosti *and Monomorium rimae* Collingwood & Agosti are new recorded for Iraqi fauna. Identification key to subfamilies, genera and species was designed with illustrated of the morphological characters.

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Introduction

The family Formicidae includes about 474 genera belonging to 20 subfamilies more than 16, 029 species have been described worldwide (Bolton, 2018); ants found in all terrestrial environments, excluding the Polar Regions, and some Pacific Islands (Hölldobler and Wilson,1990).

Species of ants are significant components of the majority of terrestrial ecosystems in terms of biomass and diversity, playing a necessary role in their function (Hölldobler and Wilson, 1990); also they are useful indicators in monitoring programs and natural areas restoration efforts, because of their fast response to changes in environment quality, their abundance and relatively easy sampling and identification (Brown, 2000; Andersen *et al*., 2002). From the other hand, some of ant species are invade the hospitals, as they represent a nuisance for patients and staff and are capable of mechanically transporting bacteria (Plamer and Brody, 2007; Rodovalho *et al*., 2007); also attack the houses and food facilities (Fowler *et al*., 1993; Zarzuela *et al*., 2005). Furthermore, when occurring in human establishments, especially in the kitchens, pantries and bathrooms, ants can be important nuisances (Eichler, 1978).

The aim of this investigation is to survey and identify the species of ants that occurrence in houses and buildings from different localities of Iraq.

Materials and methods

In total, there were 542 specimens that collected by direct method using brush and aspirators from the different localities of Iraq; the plates are photographs made using a Dino-light microscope.

The specimens were diagnosed based on workers to subfamilies, genera and species by depending on different identification keys for example: Collingwood (1985); Agosti and Collingwood (1987); Bolton (1994); Collingwood and Agosti (1996); Mohamed *et al.* (2001); La Polla *et al*., (2013, 2014); Abdul-Rassoul *et al*., (2013) and Taylor (2015); also were compared to the species diagnosed that stored in the collection of insects and invertebrate department at Iraq Natural History Research Center and Museum, University of Baghdad. From the other hand, the world distribution in current study based on Borowiec (2014).

Results and discussion

In this study there were eight species belonging to six genera under three subfamilies, that collecting from different regions of Iraq are diagnosed and listed below:

Key to subfamilies, genera and species:

1-Petiole with single node or scale shaped 2

- Petiole with distinct two node or scale shaped ..... Subfamily: Myrmicinae.....4

2- Gaster with circular orifice apically; petiole with distinct node..... Subfamily: Formicidae 3

- Gaster with transverse slit apically; node of petiole flat and indistinct .....Subfamily: Dolichoderinae (one species identified only: *Tapinoma simrothi*, this species determined by: body uniformly black color, apical of clypeus with a slit like cleft and legs with uniformly brownish-black color.

3-Scape of antenna very long, that extending the mesonotum; scape and tibia without any sub erect hairs; mandible with five teeth; hairs on body not stout.....*Paratrechina longicornis*

-Scape of antenna shorter than above; scape and tibia with sub erect hairs; mandible with five teeth; body with stout hairy.....*Nylanderia jaegerskioeldi*

4-Apical segments of antenna with three distinct enlarged that composed a distinct club ..... Genus: *Messor* Forel 1890 (one species identified only *M. buttikeri* that identified by: body with wholly black color; first funicule segment longer than second; posterior part of head with long J shaped hairs laterally; spurs simple on apical part of mid and hind tibiae; posteriorsurface of propodeum slightly rounded, first gasteral tergite with long and paly hairs.

Apical segments of antenna with four or five slightly enlarged that composed a distinct club 5

5-Propodeum dentate with spines or teeth; clypeus flat or rounded medially 6
Propodeum without any spines or teeth; clypeus with bicarinate longitudinally.....Genus: *Monomorium* Mayer 1855 7
6- Clypeus with a ridged in front of the antennal insertions..... Genus: *Tetramorium* Mayer 1855 (the species of *T. depressiceps* was identified only, and characterized by: first node of petiole not clearly wider than long; all tibiae covered by stout and suberect hairs; dorsal surface of nodes smoothly; head and alitrunk with weakly sculptures; dorsum of head with distinct depression; spines short and cute on propodeum).
- Clypeus not above, head enlarge compare with body .....Genus: *Pheidole* Westwood, 1839 (*Ph. Minuscula* species only diagnosed that characterized with distinct elongated head than wide).
7-Body uniformly dark color, chocolate-brown .... *M. brunneolucidulum*
Body bicolored, alitrunk yellowish-brown with black gaster (Fig. 3E) ..... *Monomorium rimae*
Distribution species and collection date:
Subfamily: Formicinae

Paratrechina longicornis (Latreille, 1802) (Fig. 1 A)
Material examined: (204 specimens): Baghdad: 5 workers, Bab Al-Muadham, 6.IX.2017; 51 workers, Al-Shrtaa Al Khamssa, 22.IIX.2017; 148 workers Baghdad, Al- Kadhumyia, 16.XI.2017.

Fig. 1. A: *Paratrechina longicornis*; B: *Nylanderia jaegerskioeldi.*

Distribution: Algeria, Egypt, Saudi Arabia, Oman, United Arab Emirates, Yemen, Israel, Cyprus, France, Malta, Spain and Turkey.
Nylanderia jaegerskioeldi (Mayr, 1904) (Fig. 1B)
Material examined: (10 specimens): Baghdad province: Hayy Ur, 16, 17. I.2017.
Distribution: Egypt, Palestine, Oman, Saudi Arabia, United Arab Emirates, Yemen, Turkey and Cyprus.
Subfamily: Dolichoderinae
Tapinoma simrothi Krausse, 1911 (Fig. 2)
Material examined: (300 specimens): 40 workers, Baghdad Governorate, Bab Al– Muadham, 10.X.2017 and 93 workers, 19.XI.2017; Al Taji, 5 workers, 1.XII.2017; 25 workers, Al- Jadirya, 8.VI.2017; 137 workers, Al– Kadhumyia, 1.XII.2017.
Distribution: Algeria, Egypt, Libya, Morocco, Armenia, Serbia, Cyprus, Turkey, France, Portugal, Greece, Spain, Italy, Malta, Montenegro, Kuwait, Saudi Arabia, Oman, United Arab Emirates and Yemen.
Subfamily: Myrmicinae
Messor buttikeri Colingwood, 1985 (Fig. 3 A)
Material examined: (4 specimens): Wasit, Al Zubaidiya, 2.IX.2017 this species were recorded previously as new recorded (Abdul Rassoul *et al.*, 2013).
Distribution: Kuwait and Saudi Arabia.
Tetramorium depressiceps Menozzi, 1933 (Fig. 3 B)
Materials examined: (5 specimens): Babylon Governorate, 3.IX.2017.

Fig. 2. *Tapinoma simrothi.*

Distribution: Palestine, Egypt, Oman and Saudi Arabia.

Pheidole minuscula Bernard, 1953 (Fig. 3C)

Material examined: (1 specimen): Dohuk, Akra, 15.IIX.2017.

Distribution: Palestine, Saudi Arabia and Yemen.

Monomorium brunneolucidulum Collingwood & Agosti, 1996 (Fig. 3D)

Materials examined: (6 specimens): Baghdad, Al Taji, 1.XII.2017.

Distribution: Oman and Saudi Arabia; newly recorded for Iraq.

Monomorium rimae Collingwood & Agosti, 1996 (Fig. 3E)

Material examined: (12 specimens): Wasit Governorate, Al-Zubaidiya, 2.IX.2017.

Distribution: Yemen and Saudi Arabia; newly recorded for Iraq.

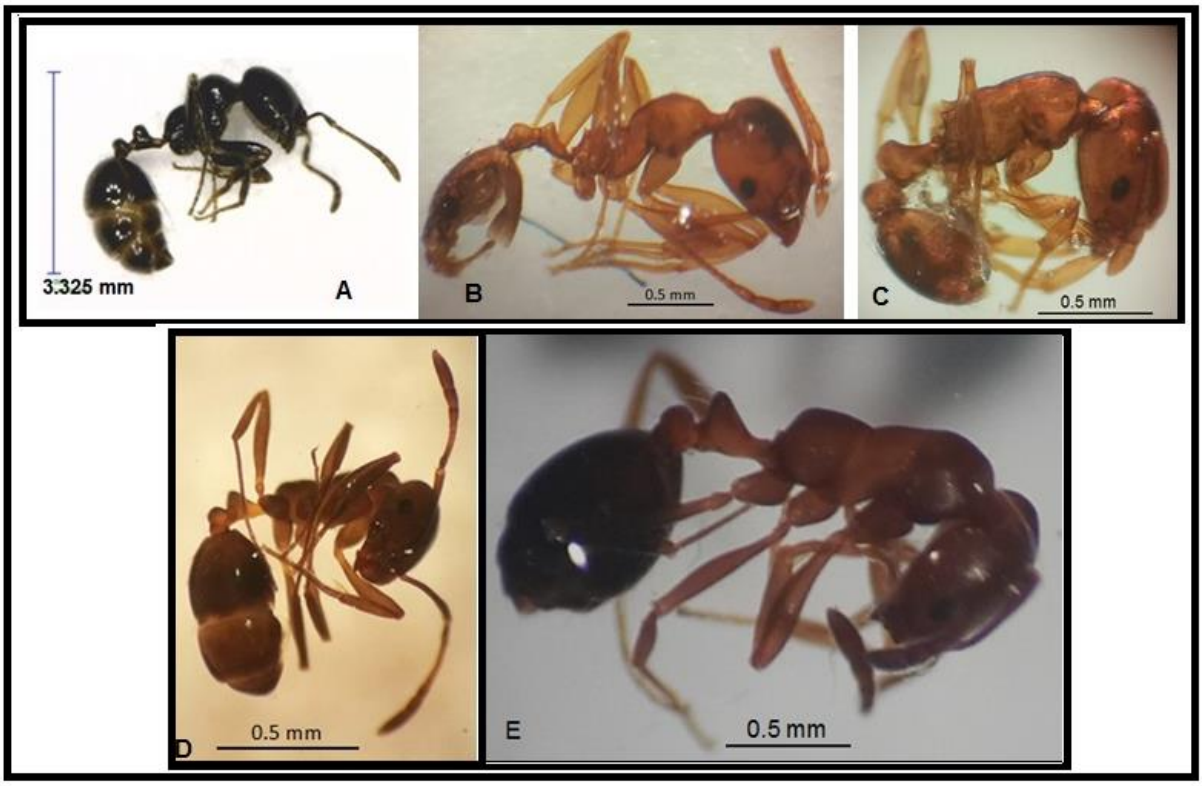

Fig. 3. A: *Messor buttikeri*; B: *Tetramorium depressiceps*; C: *Pheidole minuscula* D: *Monomorium brunneolucidulum*; E: *M. rimae.*

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