



Identification of *Paederus fuscipes* (Coleoptera, Staphylinidae, Paederinae) from Iraq

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Paederus fuscipes Curtis, 1826 is described and illustrated from Al-Smawa province, South of Iraq, as well as, important taxonomic characters are illustrated. This document was written to aid in the identification of this species because of the significance of these insects in medicine and the dearth of diagnostic knowledge among agricultural workers.

Keywords: *Staphylinidae; Paederinae Paederus fuscipes; Iraq.*

1. INTRODUCTION

More than 600 species belonging to the genus *Paederus* are registered around the world, causing medical diseases [1]. Insect

haemolymph contains two toxic substances called pederin and pseudopederin [2]. Toxic substance synthesized by endosymbionts bacteria *Pseudomonas aeruginosa* located in the female accessory glands [3]. Pederin is

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transferred from the female to the eggs [4]. Insects attracts light in homes, which is a source of injury [5]. Infection occurs as a result of crushing beetles, the body fluids of the insect are released, and the poison penetrates the skin [6]. The number of infections is high in agricultural areas in Turkey [7]. *Paederus* outbreak occurs during the rainy season in Sudan. In Iraq, studies were poor on the importance of this genus. Davidson and Norton [8] published Twenty cases of injuries in the USA army appeared at the Balad base in central Iraq due to the outbreak of dermatitis linearis caused by *Paederus iliensis* and *Paederus ilsae*. Al- Dhalimi [9] published 87 cases of skin injury that were diagnosed in Najaf Hospital during the period between April 2006 and April 2007 due to beetles *Paederus*. Because of the medical importance of these insects, as well as the lack of diagnostic information among agricultural workers, this paper was prepared to assist in the identification of this species.

2. MATERIALS AND METHODS

Study area: The study was conducted at Al-Smawa province south of Iraq, coordinates (31,55 36; 45,35 56).

The specimens were collected from the rice fields by light traps during September 2022. They were preserved in 70% ethanol. Using Leica EZ 4HD binocular dissecting microscope in the laboratory of Entomology, Department of Biology, College of Science, Basrah University.

Identification was done according to Paulian *et al.* [10] and Zhou [11].

3. RESULTS AND DISCUSSION

Specimens examined: 22 males, 8 females (*Paederus fuscipes*).

Morphological description:

Coloration: The head, Elytra and the last two segments of abdomen are all in black. The Mouth parts, antenna and the first five segments of the abdomen are yellow. Pronotum is reddish-yellow. The legs are all yellow with the top of the metafemur are black (Fig.1).

Length: 8-8.5 mm.

Head: 1.2 mm. length, 1.7 mm width from the dorsal view. Eyes is prominent. (Fig.2,a). Maxillary palpus is visible. Antenna with the third segment longer than the second segment of the antenna (Fig.2,a).

Mouth parts: Mandibles is visible from dorsal side, mandibular plate with two tooth (Fig.2,b). Labarum M-shaped (Fig.2,c) . Maxillary palpus consists of 4 segments, 1st small, 2nd thin from the base transverse from the top, 3rd amplified and the 4th reduced (Fig.2,d).

Pronotum: The length is about 1.4 the width (Fig.3, b).

Elytra, The length is about 2.6 the width (Fig.3, a).

Abdomen: The dorsal view consists of seven segments (Fig.1, a). In males, 8th tergite is subrectangular, apical margin rounded (Fig.4, c). While 8th sternite is split from the middle in parallel (Fig.4, d). 9th tergite consists of two long and parallel parts with long setae (Fig.4, a).

Male genitalia: Aedeagus, the median lobe is shorter than the two parameres, with a pointed apex (Fig.5).



Fig. 1. Habitus of male *Paederus fuscipes*, a; Dorsal view, b; Ventral view

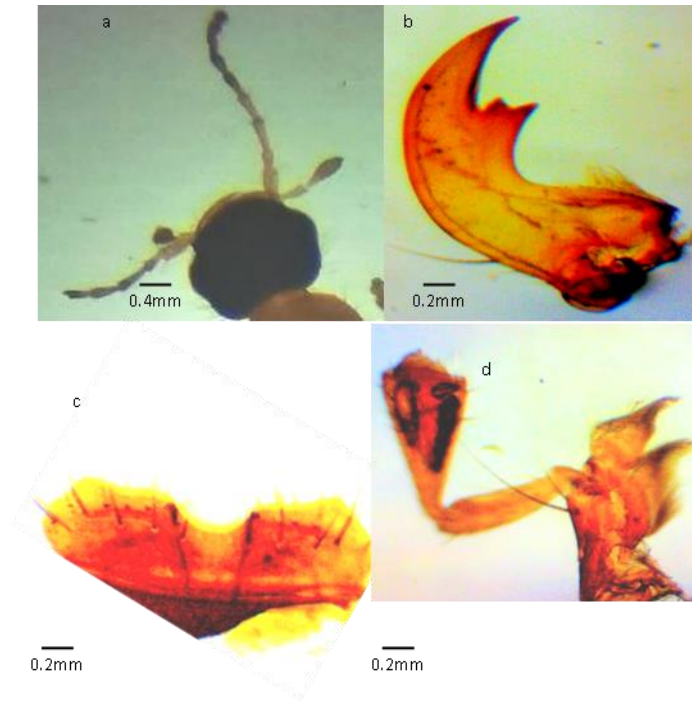


Fig. 2. a; Head, b; Mandible, c; Labrum, d ; Maxillary palpus

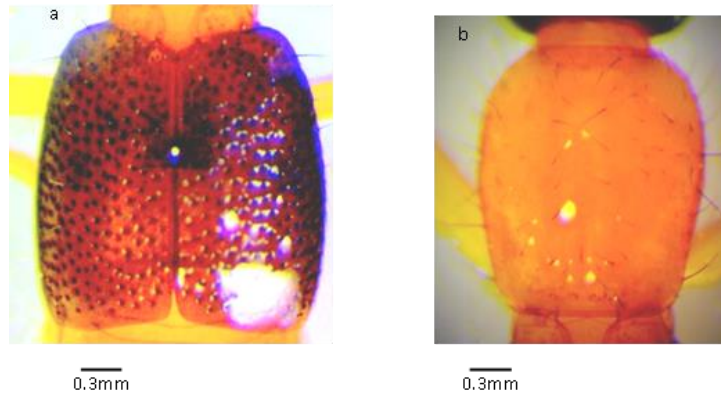


Fig. 3. a; Elytra , b; Pronotum

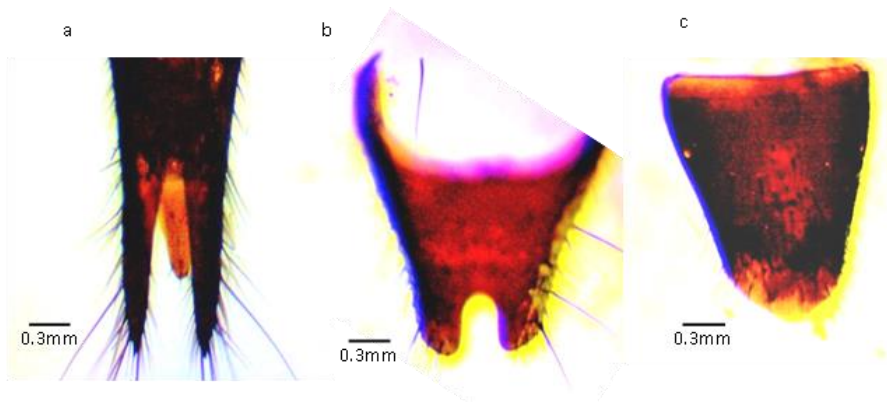


Fig. 4. a; male 9th tergite , b; 8th sternite ,c; male 8th tergite

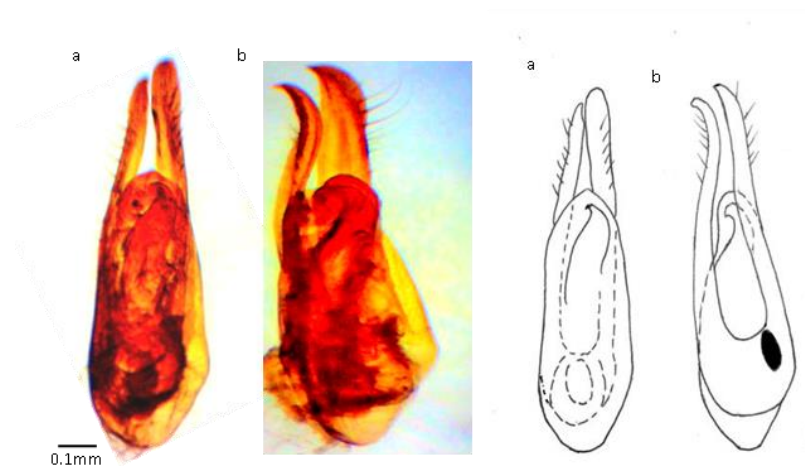


Fig. 5. Aedeagus a; Dorsal view, b; Lateral view

4. CONCLUSION

According to our examination of many parts of the body of *Paederus fuscipes*, e.g. the head, the mandible, the labrum and the aedeagus, proved that this species is quietly different from other species also recorded in Iraq by Davidson and Norton [8] these are *Paederus iliensis* and *Paederus ilsae*, and that mean this species was first recorded in this country.

Kellner [4], reported than *Paederus fuscipes* in Italy is of medical importance through its cause's injuries to human being, but here, we could not confirm whether is it an ectoparasite or not, and because of that more studies need to prove that here in Iraq.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Nikhita R, Srithilak R, Radhakrishnan MV. 'Prevalence of *Paederus* spp. (Coleoptera ; Staphylinidae) and dermatitis in Annamalainagar , Chidambaram , Tamilnadu. 2014;2(4):194–196.
2. Bhandari DR, Schott M, Römpf A. Metabolite localization by atmospheric pressure high-resolution scanning microprobe matrix-assisted laser desorption / ionization mass spectrometry imaging in whole-body sections and individual organs of the rove beetle *Paederus riparius*. 2015;2189–2201. DOI: 10.1007/s00216-014-8327-1.
3. Piel J, Hui D, Fusetani N, Matsunaga S. Targeting modular polyketide synthases with iteratively acting acyltransferases from metagenomes of uncultured bacterial consortia. 2004;6:921–927. DOI: 10.1046/j.1462-2920.2004.00531.x.
4. Kellner RLL. When Do *Paederus riparius* Rove Beetles (Coleoptera: Staphylinidae) Biosynthesize Their Unique Hemolymph Toxin Pederin?. *Zeitschrift für Naturforschung - Section C Journal of Biosciences*. 1998;53(11–12):1081–1086. DOI: 10.1515/znc-1998-11-1222
5. Cai C, Richard AB, Leschen H, David S. Hibbett, Fangyuan X, Diying H. Mycophagous rove beetles highlight diverse mushrooms in the Cretaceous. *Nature Communications*. Nature Publishing Group. 2017;8:1–7. DOI: 10.1038/ncomms14894
6. Kerdel Vegas F, Gohman Yahr M. *Paederus* Dermatitis. *Archives of Dermatology*. 1966; 94(2):175–185. DOI:10.1001/archderm.1966.01600260067008.
7. Uzunoglu E, Kir B, Akdemir C. Clinical and Epidemiological Features of *Paederus* Dermatitis among Nut Farm Workers in Turkey. 2017;96(2):483–487. DOI: 10.4269/ajtmh.16-0582.
8. Davidson S, Norton S. Outbreak of dermatitis linearis caused by *Paederus ilsae* and *Paederus iliensis* (Coleoptera: Staphylinidae) at a military base in Iraq; 2009. Available: <https://www.researchgate.net/publication/41086839>.

9. Al-Dhalimi, Muhsin. 'Paederus dermatitis in Najaf province of Iraq. Saudi Med J. 2008;29(10). Available:<https://www.researchgate.net/publication/234116759>
10. Paulian MR, MM. Ch-P. Blanc A, Crosnier RJ, Gumierrez L, Matile JJ, Petter G. Ramanantusovina, P. Roederer, P. Viette. Faunede Madagascar. Publiée sous les auspices du Gouvernement de la République Malgache . Museum of Natural History, Paris; 1993 .
11. Zhou HZ. Phylogenetic analysis and taxonomy of the subgenus Gnathopaederus Chapin and related groups of Paederus s.l (Coleoptera ,Staphylinidae, Paederinae). Institute of Zoology, Chinese Academy of Sciences, Beijing China. Invertebrate Systematics. 2009;23:422–444.

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