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RESEARCH ARTICLE

Two new records of the eumenine wasps (Hymenoptera: Vespidae: Eumeninae) from Uzbekistan

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Abstract

During faunistic surveys of the family Vespidae conducted in Uzbekistan between 2022 and 2025, two eumenine wasp species – *Euodynerus* (*Euodynerus*) *caspicus* (Moravitz, 1873) and *Symmorphus* (*Symmorphus*) *crassicornis* (Panzer, 1798) – were recorded for the first time from Uzbekistan. These findings significantly expand the known distribution range of both species in Central Asia and contribute to the knowledge of the Eumeninae fauna of the region. Diagnostic characteristics and notes on habitat preferences are provided.

Keywords

First records, Hymenoptera, Vespidae, wasps, Eumeninae, Uzbekistan

Introduction

Wasps of the family Vespidae are not only important pollinators of plants but also active predators, playing a significant role in the natural regulation of pest populations. Among Hymenoptera, this is one of the dominant families in terms of species diversity, with more than 5000 species known worldwide (Pickett and Carpenter 2010; Rahmani et al. 2020). The family is divided into six subfamilies – Polistinae, Vespinae, Masarinae, Eumeninae, Stenogastrinae and Euparagiinae (Pham and Li 2015). Among them, representatives of the subfamily Eumeninae exhibit the highest species richness and widest distribution. At present, about 3900 species belonging to 205 genera are known globally, of which 963 species in 78 genera are recorded from the Palaearctic region (Antropov and Fateryga 2017; Luo et al. 2022). The earliest records of Eumeninae species distributed in Central Asia, particularly in Uzbekistan, were provided in the works of E. André and G. Kostylev (André 1881, 1886; Kostylev 1927, 1935, 1940). Subsequently, based on field expeditions conducted in Uzbekistan and analyses of published data, 104 species belonging to 29 genera of the subfamily Eumeninae were confirmed to occur in the country (Castro and Dvořák 2010; Mokrousov and Zryanin 2015; Antropov and Fateryga 2017; Fateryga 2018; Fateryga and Proshchalykin 2022; Fateryga et al. 2021, 2022, 2023, 2024; Medetov et al. 2025).

The climatic conditions of Uzbekistan are characterized by a sharply continental climate, with extensive desert and steppe areas as well as forest-steppe zones, which provide favorable habitats for vespid wasps. However, information on the species composition, distribution, and bioecology of these insects remains insufficient. Therefore, the study of species belonging to the subfamily Eumeninae, their distributional patterns, and ecological roles represents an important and timely scientific task.

Materials and methods

Field investigations were conducted during 2022-2025 to study wasp species belonging to the subfamily Eumeninae across various regions of Uzbekistan. For specimen collection, an entomological net with a diameter of 38-40 cm, Merike traps (yellow plastic containers), Malaise traps, and other standard techniques were employed. Specimens captured in the net were collected using forceps and preserved in 96% ethanol or in cotton-filled containers. From the collected material, voucher collections were prepared in the Entomology Laboratory of the Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan. Species identification of vespid wasps was carried out using SMZ-161-TL and ZEISS Stemi 305 microscopes, with reference to relevant taxonomic literature (Cuming 1989; Gusenleitner 1999; Selis et al. 2024). Photographs of the study sites, habitats, and host plants where species were identified were taken using a Canon EOS 5D Mark II camera and a Xiaomi

12X smartphone camera. The geographic coordinates of sampling localities were recorded via the Maps.me application, and the distribution map was generated using ArcGIS Pro software.

Results

As a result of scientific investigations conducted in Karakalpakstan, the Fergana and Navoi regions, and the city of Tashkent, two species were recorded for the first time in the fauna of Uzbekistan – *Euodynerus* (*Euodynerus*) *caspicus* (Moravitz, 1873) and *Symmorphus* (*Symmorphus*) *crassicornis* (Panzer 1798) (Fig. 1).

Figure 1. Location of *Euodynerus* (*Euodynerus*) *caspicus* (Moravitz, 1873) and *Symmorphus* (*Symmorphus*) *crassicornis* (Panzer 1798), first registered in Uzbekistan next page.

Family Vespidae Laicharting, 1781

Subfamily Eumeninae Leach, 1815

Genus *Euodynerus* Blüthgen, 1938

***Euodynerus (Euodynerus) caspicus* (Moravitz, 1873)**
Fig. 2

Material examined. Uzbekistan: Karakalpakstan, southern Ustyurt Plateau, near Lake Sarykamysh (42°20'14.5"N, 57°25'33.4"E, 104 m a.s.l.), from *Tamarix* sp., 14 May 2025, 1♂, 2♀, E. Muratbay and D. Musaev, det. A.V. Fateryga; **Navoiy Region**, Uchquduq District, Mingbuloq Village (42°11'36.4"N, 62°48'43.0"E, 68 m a.s.l.), 10 May 2025, 1♂, 1♀, M. Agzamov and Sh. Nazarov, det. A.V. Fateryga.

Distribution. Armenia, Azerbaijan, China, Iran, Kazakhstan, Kyrgyzstan, Mongolia, Russia, Turkmenistan (Fateryga 2017), Uzbekistan*.

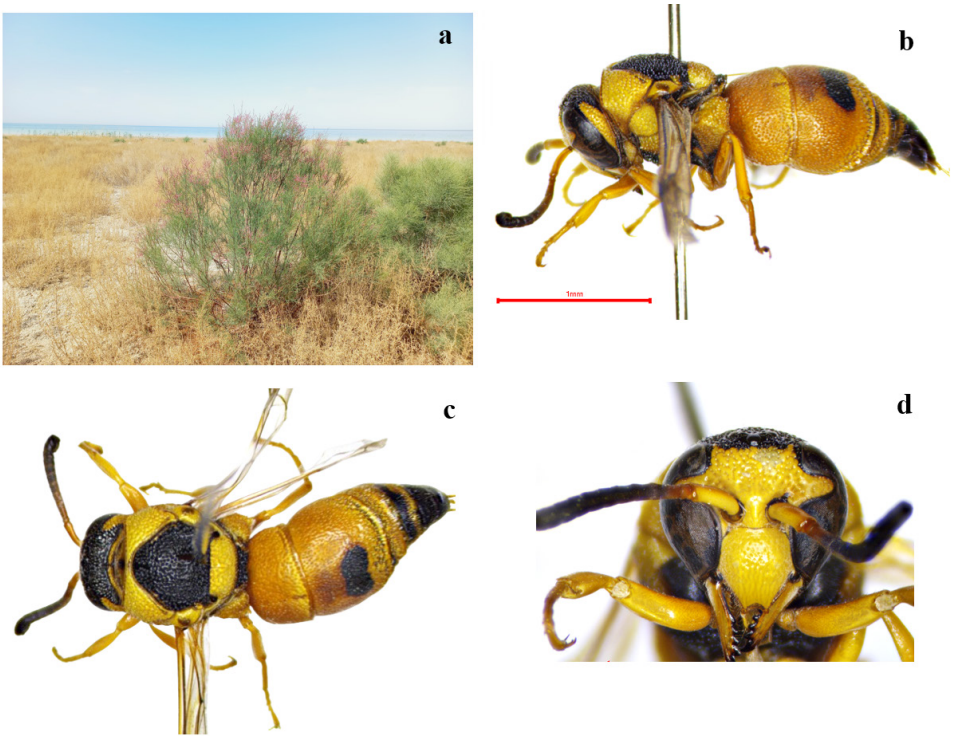

Figure 2. *Euodynerus caspicus*: a – *Tamarix* sp., plant from which *Euodynerus caspicus* was collected (Karakalpakstan, southern Ustyurt Plateau, near Lake Sarykamysh); b – lateral view; c – dorsal view; d – frontal view of the head.

Genus *Symmorphus* Wesmael, 1836

Symmorphus (Symmorphus) crassicornis (Panzer, 1798)

Fig. 3

Material examined. Tashkent, Botany Garden (41°20'37.81"N 69°18'36.42"E), 477 m a.s.l., 17 July 2022, 1♀, A. Akhmedov, det. A.V. Fateryga; **Fergana region**, Quvasay district, (40°17'08"N 72°01'04"E, 858 m a.s.l.), from a fruit orchard located

less than 1 km from the Kyrgyzstan border, 06 July 2023, 2♀, D. Musaev, det. A.V. Fateryga.

Distribution. Caucasus, China, Europe, India, Iran, Kazakhstan, Mongolia, Russia, Turkey (Fateryga 2017), Uzbekistan*.

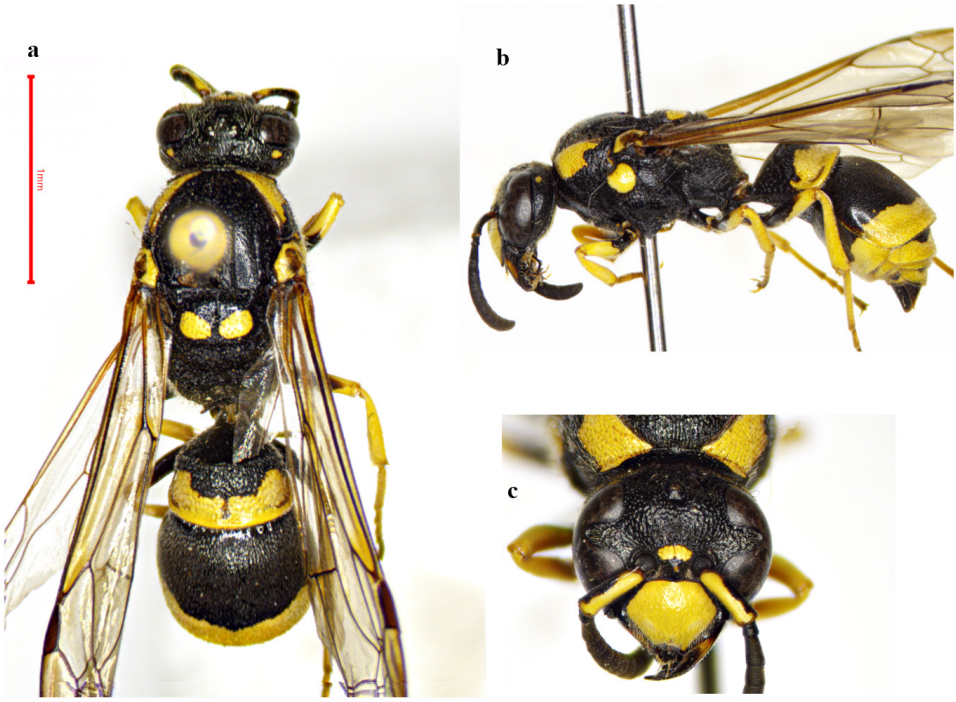

Figure 3. *Symmorphus crassicornis* female: a – dorsal view; b – lateral view; c – frontal view of the head.

Discussion

The discovery of *Euodynerus* (*Euodynerus*) *caspicus* and *Symmorphus* (*Symmorphus*) *crassicornis* in Uzbekistan extends the known distribution of both species southward within Central Asia. *E. caspicus* was previously known from neighboring Turkmenistan, Kazakhstan, and Iran (Fateryga 2017), whereas *S. crassicornis* is a widespread Palaearctic species recorded from Europe to Mongolia.

The occurrence of *E. caspicus* in the southern part of the Ustyurt Plateau and *S. crassicornis* in fruit orchards of the Fergana region indicates the presence of diverse ecological niches suitable for solitary wasps in Uzbekistan. The Ustyurt findings, in particular, highlight the importance of arid desert habitats, which remain insufficiently explored entomologically.

These new faunistic records complement recent surveys of solitary vespids in the region (Fateryga et al. 2023, 2024; Medetov et al. 2025), demonstrating that the Eumeninae fauna of Uzbekistan is still far from being completely documented. Further systematic sampling across different biotopes and seasons is required to obtain a more comprehensive picture of the country's vespid diversity.

Conclusion

In conclusion, two eumenine wasp species, *Euodynerus* (*Euodynerus*) *caspicus* and *Symmorphus* (*Symmorphus*) *crassicornis*, are recorded from Uzbekistan for the first time. These findings expand the known ranges of both species within Central Asia and contribute to the documented diversity of the subfamily Eumeninae in the country, which currently comprises 106 species belonging to 29 genera. The results highlight the importance of continuing faunistic and ecological studies on eumenine wasps across various regions of Uzbekistan.

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