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SPECIES COMPOSITION OF THE SUBFAMILY EUMENINAE (HYMENOPTERA: VESPIDAE) IN THE KYZYLKUM DESERT OF UZBEKISTAN

Abstract. This study aims to determine the species composition of wasps belonging to the subfamily Eumeninae in the Kyzylkum Desert of Uzbekistan. According to the results, 22 species belonging to 14 genera were recorded for the first time in the study area. In addition, two species were documented for the first time in the fauna of Uzbekistan. The obtained results contribute to the enrichment of the regional entomofauna and provide an important scientific basis for future research.

Keywords. Hymenoptera, Kyzylkum, Vespidae, potter wasps, Eumeninae.

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ВИДОВОЙ СОСТАВ ПОДСЕМЕЙСТВА EUMENINAE (HYMENOPTERA: VESPIDAE) В ПУСТЫНЕ КЫЗЫЛКУМ В УЗБЕКИСТАНЕ

Аннотация: *целью исследования является определение видового состава ос, принадлежащих к подсемейству Eumeninae, в пустыне Кызылкум в Узбекистане. Согласно результатам, 22 вида, принадлежащие к 14 родам, были впервые зарегистрированы на исследуемой территории. Кроме того, впервые в фауне Узбекистана были зарегистрированы два вида. Полученные результаты способствуют обогащению региональной энтомофауны и обеспечивают важную научную основу для будущих исследований.*

Ключевые слова: *перепончатокрылые, пустыня Кызылкум, осы, одиночные осы, Eumeninae.*

The study of biological diversity and the determination of its spatial distribution are among the priority directions of modern biological science. Representatives of the subfamily *Eumeninae* of the family кVespidae (order кHymenoptera) play an important ecological role in ecosystems as predatory insects. Arid and extreme environments, including the Kyzylkum Desert, are important scientific objects for the study of insect fauna. However, the species composition and distribution of the subfamily *Eumeninae* in this region have not been sufficiently studied. In the course of our research, the species composition of *Eumeninae* occurring in the Kyzylkum Desert of Uzbekistan was determined, and their spatial distribution was analyzed.

To date, more than 4,600 species of wasps belonging to the subfamily *Eumeninae* (family *Vespidae*) have been recorded worldwide (Catalogue of Life Consortium, 2026). The aim of this study is to investigate the species composition and distribution of potter wasps (*Eumeninae*) occurring in the Kyzylkum Desert of Uzbekistan.

Field studies on wasps of the subfamily *Eumeninae* were conducted during the spring-summer season of 2025 (May-June) in the Kyzylkum Desert, specifically in the Tomdi and Uchquduq districts (Mingbuloq village) of Navoi region, as well as in the Qorao'zak district of the Republic of Karakalpakstan. The research methodology was based on the approaches recommended by V. Moericke (1951) and other authors. Entomological specimens were collected using sweep nets (38–40 cm in diameter), Moericke-type yellow pan traps, and other standard field methods. Specimens collected with the net were transferred using forceps and preserved in 96% ethanol or stored in special containers with cotton. All collected materials were processed and curated in the Entomology Laboratory of the Institute of Zoology, Academy of Sciences of the Republic of Uzbekistan, and incorporated into the scientific collection.

The identification of wasps belonging to the subfamily *Eumeninae* was carried out using SMZ-161-TL and ZEISS Stemi 305 stereomicroscopes, based on relevant taxonomic literature (Cumming, 1989; Gusenleitner, 1999; Selis et al., 2024). Photographs of the study areas, habitats, and host plants associated with the identified species were taken using a Canon EOS 5D Mark II camera and a Xiaomi 12X smartphone. The geographic coordinates of the sampling sites were recorded using the Maps.me mobile application, and distribution maps were generated using ArcGIS Pro software (Figure 1).

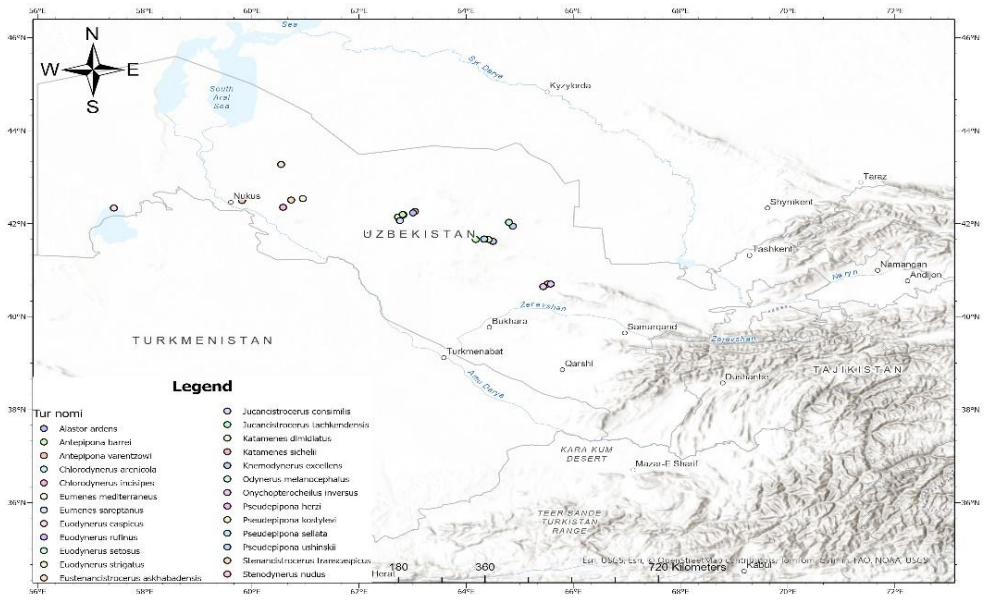

Fig. 1. Map of the geographic coordinates of the study areas

According to the results of our study, 25 species belonging to 14 genera of the subfamily *Eumeninae* were recorded in the Kyzylkum Desert of Uzbekistan. According to previously available literature, only 2 species were reported by A.V. Fateryga (2024) and 1 species by A.G. Davletshina (1979) from this region prior to our study. Of the species identified in this study, 22 are recorded for the first time in the study area (Table 1).

Table 1

Comparative analysis of Eumeninae species (Hymenoptera: Vespidae) in the Kyzylkum Desert of Uzbekistan

Family	Subfamily	Genus	Species name	Our data	A.V. Fateryga	A.G. Davletshina
Vespidae	Eumeninae	*Alastor* Lepeletier, 1841	*Alastor ardens* Kostylev, 1935	+	-	-
		Antepipona de Saussure, 1855	*Antepipona barrei* (Radoszkowski, 1893)	+	-	-
			Antepipona varentzowi (Morawitz, 1895)	+	-	-
		Chlorodynerus Blüthgen, 1951	*Chlorodynerus arenicola* (Kostylev, 1935)	+	+	-
			Chlorodynerus incisipes (Kostylev, 1935)	+	-	-
		Eumenes Latreille, 1802	*Eumenes mediterraneus* Kriechbauber, 1879	+	-	-
			Eumenes sareptanus André, 1884	+	-	-
		Euodynerus Dalla Torre, 1904	*Euodynerus strigatus* Radoszkowski, 1893	+	-	-
			Euodynerus setosus Gusenleitner, 1970	+	+	-
			Euodynerus caspicus (Morawitz, 1873)	+	-	-
			Euodynerus rufinus Blüthgen, 1942	+	-	-
		Eustenancistrocerus Blüthgen, 1938	*Eustenancistrocerus askhabadensis* (Radoszkowski, 1886)	+	-	-
		Jucancistrocerus Blüthgen, 1938	*Jucancistrocerus consimilis* (Morawitz, 1895)	+	-	-
			Jucancistrocerus tachkendensis (Dalla Torre, 1889)	+	-	-

		Katamenes Meado Waldo, 1910	*Katamenes dimidiatus* Brulle, 1832	+	-	-
			Katamenes sichelii de Saussure, 1852	+	-	+
		Knemodynerus Blüthgen, 1940	*Knemodynerus excellens* (Pérez, 1907)	+	-	-
		Odynerus Latreille, 1802	*Odynerus melanocephalus* (Gmelin, 1790)	+	-	-
		Onychopterocheilus Bluthgen, 1955	*Onychopterocheilus inversus* (Kostylev, 1935)	+	-	-
		Pseudepipona Saussure, 1856	*Pseudepipona herzi* (Morawitz, 1895)	+	-	-
			Pseudepipona kostylevi Fateryga, 2022	+	-	-
			Pseudepipona sellata (Morawitz, 1885)	+	-	-
			Pseudepipona ushinskii (Kostylev, 1940)	+	-	-
		Stenodynerus Saussure, 1863	*Stenodynerus nudus* (Morawitz, 1889)	+	-	-
		Stenancistrocerus Saussure, 1856	*Stenancistrocerus transcaspicus* (Kostylev, 1935)	+	-	-
Total	*1*	*14*	*25*	*25*	*2*	*1*

During the course of scientific research conducted in the Kyzylkum Desert of Uzbekistan, 25 species belonging to 14 genera of the subfamily *Eumeninae* (family *Vespidae*) were identified. Of these, 22 species had not previously been recorded in this region. In addition, *Euodynerus caspicus* and *Onychopterocheilus inversus* were recorded for the first time in the fauna of Uzbekistan (Gulnara S. Mirzaeva et al., 2026).

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