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FIRST RECORD OF *APORRECTODEA JASSYENSIS*
(MICHAELSEN, 1891) (CLITELLATA, LUMBRICIDAE)
FROM RILA MOUNTAIN

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Abstract: The paper presents the first record of *Aporrectodea jassyensis* (Michaelsen, 1891) from Rila Mountain. In the current study, we summarized the knowledge about the distribution of *Aporrectodea jassyensis* from the Trans-Aegean region – Balkan and Anatolian Peninsula. The species belongs to the Trans-Aegean species group, and probably is semiperegrine, because it is highly adaptive. *Aporrectodea jassyensis* is native to Southeastern Europe and Asia Minor, beside it is registered, and probably introduced in many countries from the central parts of Europe and Asia. The paper also provided information on the ecology, habitats and zoogeography of *Aporrectodea jassyensis*.

INTRODUCTION

Aporrectodea jassyensis is a Trans-Aegean species (Csuzdi et al., 2011). According to Szlavecz et al. (2010) it lives in hummus layer of the soil and belongs to endogeic ecological group.

Aporrectodea jassyensis prefers wet soils in meadows (Šapkarev, 1986). It also could be found in cultivated soils (Mihailova, 1966) and forests (Szederjesi,

2013), but usually near river banks (Valchovski, 2014; Valchovski and Szederjesi, 2016).

This species was found in many localities on the territory of Balkan and Anatolian Peninsula. In Bulgaria, it was registered for the first time by Plisko (1963). After that it was recorded by Mihailova (1966) and Šapkarev (1986). In last decade, *Aporrectodea jassyensis* was found in few localities (Stojanović et al., 2012; Szederjesi, 2013; Valchovski, 2014; Valchovski and Szederjesi, 2016). Also it was registered from Greece (Zicsi and Michalis, 1981; Michalis, 1982; Michalis et al., 1989; Szederjesi and Csuzdi, 2012), Macedonia (Šapkarev, 1978), Bosnia & Herzegovina, Slovenia (Mršić, 1991), Serbia (Mršić, 1991; Milutinović et al., 2010), Montenegro (Stojanović and Karaman, 2003), Croatia (Hackenberger and Hackenberger, 2013). On the territory of Turkey, *Aporrectodea jassyensis* was registered from many localities also (Zisci, 1973; Omodeo and Rota, 1989, 1991; Mısırlıoğlu, 2002, 2007; Csuzdi et al., 2007; Pavliček et al., 2009; Szederjesi et al., 2014; Mısırlıoğlu and Szederjesi, 2015).

The aim of the paper is to present new data of *Aporrectodea jassyensis* and to provide comprehensive information about distribution of the species on the territory of Balkan and Anatolian Peninsula.

MATERIALS AND METHODS

The field investigations were carried out during the spring of 2016 in Rila Mountain at the region of Kostenets fall. Earthworms were collected by the diluted formaldehyde method (Raw, 1959) complemented with digging and hand-sorting. The combination of both methods provides a more complete sampling of species, because the formalin method alone is not efficient in collecting species living in horizontal burrows. All the specimens were killed in 96% ethanol, fixed in 4% formalin solution and in 96% ethanol, and then transferred into 75% ethanol. The material is deposited in the Institute of Soil Science, Agrotechnologies and Plant Protection “N. Poushkarov”, Sofia, Bulgaria in private earthworm collection of Hristo Valchovski (PCHV). Identification of species was done in accordance to Mršić (1991).

RESULTS AND DISCUSSION

Family Lumbricidae Rafinesque-Schmaltz, 1815

Genus *Aporrectodea* Örley, 1885

***Aporrectodea jassyensis* (Michaelsen, 1891)**

Allolobophora jassyensis Michaelsen, 1891: 15; Mihailova 1966: 188; Šapkarev 1986: 83.

Aporrectodea jassyensis jassyensis: Csuzdi *et al.* 2006: 6; Valchovski 2014: 3.

Aporrectodea jassyensis: Omodeo & Rota 1989: 182; Mısırlıoğlu 2002: 18; Csuzdi *et al.* 2007: 349; Pavlíček *et al.* 2009: 119; Szederjesi 2013: 77; Szederjesi *et al.* 2014: 557.

Material examined: PCHV/61 two ex. Kostenets, mixed forest, 870m, 42° 15' 05N 23° 48' 22E, 19 march 2016, leg. H. Valchovski.

Aporrectodea jassyensis is a widely distributed species on the territory of Southern parts of the Balkan Peninsula - Greece, Macedonia, Southern Bulgaria, Central and Southern Serbia (**Table 1**). This species was found in the neighboring countries of the Southeastern Europe: Romania (Pop 1949; Pop *et al.* 2012), Hungary (Zicsi 1959), Northern Slovenia (Mršić 1991), Moldova (Fedorovich 1991) and Austria (Christian & Zicsi 1999). *Aporrectodea jassyensis* is also common in the territory of Anatolian Peninsula. It is registered from neighboring area of Turkey: Syria (Omodeo 1956), Lebanon (Omodeo 1956), Israel (Omodeo 1956; Csuzdi & Pavlíček 2005) and Iran (Farhadi *et al.* 2013).

Table 1. Distribution of *Aporrectodea jassyensis* in Balkan and Anatolian Peninsula.

Country	Locality	Data
Bulgaria	Sofia plain	Plisko (1963); Šapkarev (1986); Valchovski (2014)
	Vitosha Mountain	Stojanović <i>et al.</i> (2012)
	Thracian lowland	Mihailova (1966); Šapkarev (1986); Valchovski and Szederjesi (2016)
	South-Western Bulgaria	Šapkarev (1986)
	Rhodope Mountains.	Mihailova (1966); Szederjesi (2013).
	Rila Mountain	Author's data
Bosnia & Herzegovina	Šator Mountain	Mršić (1991)
Croatia	Alpine and Continental region	Mršić (1991); Hackenberger and Hackenberger (2013)
Greece	Western Macedonia	Michalis (1975); Michalis (1982)
	Central Macedonia	Michalis (1972); Zicsi and Michalis (1981)
	Thessaly	Michalis (1976); Zicsi and Michalis (1981)
	Peloponnese	Zicsi and Michalis (1981); Szederjesi and Csuzdi (2012)
	Central Greece	Zicsi and Michalis (1981)
	Western Thrace	Michalis (1982); Michalis (1987); Szederjesi and Csuzdi (2012); Szederjesi (2015)

Macedonia	Polog region	Šapkarev (1978); Mršić (1991)
	Northeastern region	Šapkarev (1978); Mršić (1991)
	Southwestern region	Šapkarev (1978); Mršić (1991)
	Southeastern region	Šapkarev (1978); Mršić (1991)
	Vardar region	Šapkarev (1978); Mršić (1991)
	Pelagonia region	Šapkarev (1978); Mršić (1991)
	Eastern region	Šapkarev (1978); Mršić (1991)
Montenegro	Biogradska Gora Mountain	Stojanović and Karaman (2003)
Serbia	Šumadia	Mršić (1991); Milutinović et al. (2010)
	Southern Serbia	Mršić (1991)
Slovenia	Snežnik plateau	Mršić (1991)
	Slivnica Mountain	Mršić (1991)
Turkey	Ilgaz Mountain	Zicsi (1973)
	Eastern Thrace	Zicsi (1973); Szederjesi et al. (2014)
	Uludağ Mountain	Zicsi (1973)
	Central Anatolia	Omodeo and Rota (1989); Mısırlıoğlu (2002); Mısırlıoğlu and Szederjesi (2015)
	Black Sea region	Omodeo and Rota (1989, 1991)
	Marmara region	Mısırlıoğlu (2007); Omodeo and Rota (1989)
	Eastern Anatolia	Omodeo and Rota (1989)
	Aegean region	Omodeo and Rota (1989)
	Mediterranean region	Omodeo and Rota (1991); Csuzdi et al. (2007); Mısırlıoğlu and Szederjesi (2015)
	Southeastern Anatolia	Pavliček et al. (2009); Szederjesi et al. (2014)

Aporrectodea jassyensis is highly adaptive and probably semiperegrine species. We found records even for the central parts of Europe and Asia: Germany (Lehmitz et al., 2014), Italy (Paoletti et al., 2013), Poland (Kasprzak, 1989), Afghanistan (Pavliček et al., 2003) and Uzbekistan (Rakhmatullaev et al., 2010).

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