

Diversity of earthworms (Oligochaeta: Lumbricidae) in Sofia Plain, Bulgaria

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Abstract. A rich earthworm material from 47 different localities in Sofia Plain has been elaborated. During the investigations between the years 2010 and 2013, thirteen earthworm species and subspecies were collected altogether, belonging to seven genera. Among them, three new records are reported. *Aporrectodea longa* (Ude, 1885), *Eisenia lucens* (Waga, 1857) and *Octodrilus transpadanus* (Rosa, 1884) proved to be new to the earthworm fauna of Sofia plain.

Key words: Earthworms, Bulgaria, Sofia Plain, new records.

Introduction

Sofia Plain is situated in central west part of the country. This valley is the biggest from Subbalkan Plains with land area of 1200 sq. km. Sofia basin has oval-shape with about 24 km wide and 96 km long. Sofia Plain bordering Mala and Sofiiska Mountains to the northeast, which are part of Stara Planina Mountain, the Viskyar, Lyulin, Vitosha and Lozen Mountains to the southwest, the Vakarel Mountain to the southeast and the low Slivnitsa Heights to the northwest. Diversity of Lumbricidae species in Sofia Plain remained unexplored. Its earthworm fauna hasn't been studied so far, there are only sporadic data from this region. Plisko (1963) presented data from a few localities and recently Stojanović *et al.* (2012) explored 2 localities from this area. So, the aim of this paper is to present comprehensive information about distribution, diversity and zoogeographical position of earthworms in Sofia Plain.

Material and methods

The study was carried out during 2010-2013 all over on the territory of Sofia Plain. Earthworms were collected from various habitats: meadows, parks, urban biotopes, riverbanks, lake surrounding, forests (deciduous, mixed and coniferous), agricultural, uncultivated and eroded lands. Earthworms were collected by the diluted formaldehyde method complemented with digging 0.5X0.5m quadrates, hand sorting and searching under stones and the bark of fallen logs. The specimens were killed in 70% ethanol, fixed in 4% formalin solution and in 96% ethanol, then transferred into 75% ethanol and deposited in the private earthworm collection of Hristo Valchovski (PCHV). Identification of species was done in accordance to Mršić (1991). Each species is accompanied with a selected synonymy list referring to the original description of the species.

Results

Class Oligochaeta Family Lumbricidae

Genus *Allolobophora* Eisen, 1874

Allolobophora chlorotica chlorotica (Savigny, 1826)

Enterion chloroticum Savigny, 1826: 182.

Allolobophora chlorotica: Omodeo 1956a: 333; Mihailova 1966: 190;

Szedzerjesi, Csuzdi 2012 :29.

Allolobophora chlorotica chlorotica: Csuzdi, Zicsi 2003: 50; Valchovski 2012:87.

Material examined: PCHV/37, 3 adult ex., alongside Kriva River in west of Dragovishtica Village, in mud sediments, 574 m a.s.l., 42°51'00"N 23°12'42"E, 16.VI.2013; PCHV/39, 1 adult ex., Blato River in east of Opicvet Village, 549 m a.s.l., 42°51'52"N 23°06'30"E, 16.VI.2013; PCHV/32, 6 adult ex., beside Matica River on the road between Grigorevo Village and Elin Pelin, marsh land on south riverbank, 553m a.s.l., 42°40'52"N, 23°36'03"E 8.VI.2013; PCHV/27, 1 adult ex., Iskar River near Kokaliane Village on west river bank, 604m a.s.l., 42°35'13"N 23°25'29"E, 11.V.2013; PCHV/21, 1 subadult ex., Sofia, park Borisova gradina in secondary oak forest, 554m a.s.l., 42°41'09"N 23°20'08"E, 23.IV.2013, H. Valchovski leg.

Genus *Aporrectodea* Örley, 1885

Aporrectodea caliginosa caliginosa (Savigny, 1826)

Enterion caliginosum Savigny, 1826: 180.

Aporrectodea caliginosa: Misirlioğlu 2004: 3; Csuzdi, Pavliček 2005: 88;

Csuzdi et al. 2006: 4, Szedzerjesi, Csuzdi 2012: 29, Valchovski 2012: 88.

Allolobophora caliginosa f. typica: Mihailova 1966: 187.

Material examined: PCHV/18, 1 adult ex., Sofia, West park, oak forest, 571m a.s.l., 42°40'42"N 23°17'40"E, 25.IV.2013; 1 adult ex., Sofia, West park, meadow, 575m a.s.l., 42°40'50"N 23°17'58"E, 25.IV.2013; PCHV/19, 2 adult ex., Sofia, North park, secondary pine forest, 536m a.s.l., 42°44'32"N 23°17'54"E, 25.IV.2013; 1 adult ex., Sofia, North park, mixed chestnut and oak forest, 532 m a.s.l., 42°44'30"N 23°18'17"E, 25.IV.2013; PCHV/25, 2 adult ex., Sofia, South park, mixed forest, 591 m a.s.l., 42°39'49"N 23°18'24"E, 23.IV.2013; PCHV/26, 1 adult ex., Sofia, South park, meadow, 573 m a.s.l., 42°39'23"N 23°18'22"E, 23.IV.2013, leg; PCHV/21, 1 adult ex., Sofia, park Borisova gradina, oak forest, 554 m a.s.l., 42°41'09"N 23°20'08"E, 23.IV.2013; PCHV/24, 1 adult ex., Sofia, park Borisova gradina, meadow, 547 m a.s.l., 42°41'18"N 23°20'22"E, 23.IV.2013; PCHV/20, 1 adult ex., Sofia, district Republika, uncultivated land, 556m a.s.l., 42°43'55"N 23°14'07"E, 28.III.2011; PCHV/8, 1 adult ex., Negovan Village, wheat field, 517m a.s.l., 42°44'29"N 23°24'09"E, 1.X.2011r; PCHV/10, 2 adult ex., Negovan Village, roadside lime forest, 515 m a.s.l., 42°44'33"N 23°24'12"E, 18.IV.2013; PCHV/7, 1 adult ex., Bojurischte town, wheat field, 557 m a.s.l., 42°44'50"N 23°13'07"E, 11.VI.2011; PCHV/1, 1 adult ex., Bojurischte town, poplar forest, 557 m a.s.l., 42°44'53"N 23°13'04"E, 1.X.2011; PCHV/12, 1 adult ex., Sofia, district Suhodol, corn field, 740 m a.s.l., 42°40'41"N 23°12'16"E, 21.V.2012; PCHV/11, 4 adult ex., Sofia, district Suhodol, meadow, 744 m a.s.l., 42°40'42"N 23°12'14"E, 21.V.2012; PCHV/5, 1 adult ex., Sofia, district Suhodol, slightly eroded meadow, 730 m a.s.l., 42°40'40"N 23°12'24"E, 21.V.2012; PCHV/9, 1 adult ex., Sofia, district Suhodol, severely eroded meadow, 718 m a.s.l., 42°40'38"N 23°12'22"E, 21.V.2012; PCHV/28, 1 adult ex., Pancharevo Dam, marsh meadow, 602m a.s.l., 42°18'13"N 23°25'25"E, 11.V.2013; PCHV/30, 1 adult ex., torrent in deciduous forest roadside west of Novi Han Village, 603 m a.s.l., 42°36'34"N 23°34'20"E, 8.VI.2013; PCHV/33, 1 adult ex., Sofia, Vrania district, alongside of Iskar River, 558 m a.s.l., 42°38'41"N 23°25'16"E, 8.VI.2013; PCHV/34, 2 adult

ex., roadside between Kostinbrod and Dragovishtica Village, cornfield, 615 m a.s.l., 42°51'07"N 23°11'57"E, 16.VI.2013; PCHV/35, 1 adult ex., roadside in east of Bogovci Village, cornfield, 585 m a.s.l., 42°52'23"N 23°08'31"E, 16.VI.2013; PCHV/36, 1 adult ex., roadside in west of Bogovci Village, uncultivated land, 544 m a.s.l., 42°52'01"N 23°07'06"E, 16.VI.2013; PCHV/37, 3 adult ex., beside Kriva River in west of Dragovishtica Village, 574 m a.s.l., 42°51'00"N 23°12'42"E, 16.VI.2013; PCHV/39, 2 adult ex., beside Blato River in east of Opicvet Village, 549 m a.s.l., 42°51'52"N 23°06'30"E, 16.VI.2013, H. Valchovski leg.

***Aporrectodea caliginosa trapezoides* (Dugès, 1828)**

Lumbricus trapezoides Dugès, 1828: 289.

Dendrobaena samarigera var. *graeca* Černosvitov 1938: 191.

Allolobophora caliginosa f. *trapezoides*: Mihailova 1966: 187; Plisko 1973: 108.

Allolobophora caliginosa trapezoides: Zicsi 1982: 440; Valchovski 2012: 88.

Material examined: PCHV/18, 3 adult ex., West park, Sofia, oak forest, 571m a.s.l., 42°40'42"N 23°17'40"E, 25.IV.2013; 3 adult ex., West park, Sofia, meadow, 575m a.s.l., 42°40'50"N 23°17'58"E, 25.IV.2013; 1 adult ex., West park, Sofia, chestnut forest, 558 m a.s.l., 42°44'32"N 23°17'54"E, 25.IV.2013; 1 adult ex., West park, Sofia, meadow, 573 m a.s.l., 42°44'38"N 23°17'39"E, 25.IV.2013; PCHV/25, 3 adult ex., South park, Sofia, secondary mixed forest, 591 m a.s.l., 42°39'49"N 23°18'24"E, 23.IV.2013; 1 adult ex., South park, Sofia, secondary fir-tree forest, 587 m a.s.l., 42°40'03"N 23°18'27"E, 23.IV.2013; PCHV/26, 2 adult ex., South park, Sofia, meadow 591 m a.s.l., 42°39'46"N 23°18'27"E, 23.IV.2013; 1 adult ex., South park, Sofia, meadow, 573 m a.s.l., 42°39'23"N 23°18'22"E, 23.IV.2013; PCHV/22, 2 adult ex., Borisova gradina park, Sofia, secondary pine forest, 574 m a.s.l., 42°40'59"N 23°20'39"E, 23.IV.2013; PCHV/23, 1 adult ex., Borisova gradina park, Sofia, oak forest, 556 m a.s.l., 42°41'07"N 23°20'38"E, 23.IV.2013; PCHV/28, 1 adult ex., Pancharevo Dam, marsh meadow, 602m a.s.l., 42°18'13"N 23°25'25"E, 11.V.2013; PCHV/37, 6 adult ex., beside Kriva River in west of Dragovishtica Village, 574 m a.s.l., 42°51'00"N 23°12'42"E, 16.VI.2013; PCHV/39, 1 adult ex., beside Blato River in east of Opicvet Village, 549 m a.s.l., 42°51'52"N 23°06'30"E, 16.VI.2013, H. Valchovski leg.

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

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

Allolobophora jassyensis f. *orientalis*: Omodeo 1956a: 333.

Aporrectodea jassyensis: Csuzdi, Zicsi 2003: 87; Valchovski 2012: 89; Stojanović *et al.* 2012: 9.

Material examined: PCHV/31, 1 adult ex., Lesnovska River south of Elin Pelin town, marsh land beside riverbank, 542 m a.s.l., 42°39'40"N 23°35'31"E, 8. VI. 2013, H. Valchovski leg.

***Aporrectodea longa* (Ude, 1885)**

Allolobophora longa Ude, 1885: 136.

Allolobophora f. *longa*: Mihailova 1966: 190.

Aporrectodea longa: Valchovski 2012: 90.

Material examined: PCHV/37, 1 adult ex., beside Kriva River in west of Dragovishtica Village, 574 m a.s.l., 42°51'00"N 23°12'42"E, 16.VI.2013; PCHV/31, 2 adult ex., Lesnovska River south of Elin Pelin town, marsh land beside riverbank, 542 m a.s.l., 42°39'40"N 23°35'31"E, 8.VI.2013; PCHV/28, 4 adult ex., Pancharevo Dam, marsh meadow, 602m a.s.l., 42°18'13"N 23°25'25"E, 11.V.2013, H. Valchovski leg.

***Aporrectodea rosea rosea* (Savigny, 1826)**

Enterion roseum Savigny, 1826: 182.

Allolobophora rosea f. *typica*: Pop 1943: 15.

Allobophora prashadi: Mihailova 1964:167.

Eisenia rosea var. *typica*: Mihailova 1966: 185.

Eisenia rosea var. *macedonica* (Rosa): Mihailova 1966: 186.

Aporrectodea rosea: Csuzdi, Zicsi 2003: 92; Valchovski 2012: 90.

Material examined: PCHV/2, 3 adult ex., Chelopechene Village, uncultivated land, 534m a.s.l., 42°44'24"N 23°28'07"E, 1.X.2011; PCHV/3, 2 adult ex., Chelopechene Village, wheat field, 534m a.s.l., 42°44'22"N 23°28'11"E, 11.VI.2011; PCHV/3, 1 adult ex., Chelopechene Village, maize-field, 534m a.s.l., 42°44'22"N 23°28'11"E, 12.X.2012; PCHV/1, 5 adult ex., Bojurischte town, poplar forest, 557 m a.s.l., 42°44'53"N 23°13'04"E, 12.X.2012; PCHV/7, 2 adult ex., Bojurischte town, wheat field, 557m a.s.l., 42°44'50"N 23°13'07"E, 11.VI.2011; PCHV/20, 1 adult ex., Sofia, district Republika, uncultivated land, 556m a.s.l., 42°43'55"N 23°14'07"E, 28.III.2011; PCHV/12, 1 adult ex., Sofia, district Suhodol, corn field, 740 m a.s.l., 42°40'41"N 23°12'16"E, 21.V.2012; PCHV/11, 2 adult ex., Sofia, district Suhodol, meadow, 744 m a.s.l., 42°40'42"N 23°12'14"E, 21.V.2012; PCHV/5, 1 adult ex., Sofia, district Suhodol, slightly eroded meadow, 730 m a.s.l., 42°40'40"N 23°12'24"E, 21.V.2012; PCHV/17, 4 adult ex., Boben Village, uncultivated land, 613 m a.s.l., 42°47'47"N 23°07'21"E, 12.III.2013; PCHV/16, 5 adult ex., Herakovo Village, secondary pine forest, 694 m a.s.l., 42°47'11"N 23°06'07"E, 12.III.2013; PCHV/15, 3 adult ex., district Trebich, Sofia, secondary mixed forest, 518 m a.s.l., 42°46'39"N 23°18'29"E, 12.III.2013; PCHV/18, 2 adult ex., West park, Sofia, oak forest, 571m a.s.l., 42°40'42"N 23°17'40"E, 25.IV.2013; 1 adult ex., West park, Sofia, meadow, 575m a.s.l., 42°40'50"N 23°17'58"E, 25.IV.2013; 1 adult ex., West park, Sofia, chestnut forest, 558 m a.s.l., 42°44'32"N 23°17'54"E, 25.IV.2013; 1 adult ex., West park, Sofia, meadow, 573 m a.s.l., 42°44'38"N 23°17'39"E, 25.IV.2013; PCHV/19, 2 adult ex., Sofia, North park, secondary pine forest, 536m a.s.l., 42°44'32"N 23°17'54"E, 25.IV.2013; 1 adult ex., Sofia, North park, meadow, 539 m a.s.l., 42°44'28"N 23°18'09"E, 25.IV.2013; 1 adult ex., Loven park, Sofia, secondary mixed forest, 603 m a.s.l., 42°40'04"N 23°20'03"E, 18.VI.2010; 1 adult ex., Loven park, Sofia, oak forest, 599 m a.s.l., 42°39'55"N 23°20'01"E, 18.VI.2010; PCHV/21 3 adult ex., Sofia, park Borisova gradina, oak forest, 554 m a.s.l., 42°41'09"N 23°20'08"E, 23.IV.2013; PCHV/22, 1 adult ex., Sofia, park Borisova gradina, secondary pine forest, 574 m a.s.l., 42°40'59"N 23°20'39"E, 23.IV.2013; PCHV/23, 1 adult ex., Sofia, park Borisova gradina, oak forest, 556 m a.s.l., 42°41'07"N 23°20'38"E, 23.IV.2013; PCHV/24, 2 adult ex., Sofia, park Borisova gradina, meadow, 547 m a.s.l., 42°41'18"N 23°20'22"E, 23.IV.2013; PCHV/30, 1 adult ex., torrent in deciduous forest roadside west of Novi Han Village, 603 m a.s.l., 42°36'34"N 23°34'20"E, 8.VI.2013, H. Valchovski leg.

Genus Eisenia Malm, 1877

***Eisenia fetida* (Savigny, 1826)**

Enterion fetidum Savigny, 1826: 182.

Eisenia foetida: Mihailova 1966: 184; Perel 1979: 217.

Eisenia fetida: Csuzdi, Zicsi 2003: 143, Szederjesi, Csuzdi 2012: 35.

Material examined: 12 adult ex., Bojurischte town, an experimental agricultural station, dunghill, 556 m a.s.l., 42°44'52"N 23°13'11"E, 7.V.2011, H. Valchovski leg.

***Eisenia lucens* (Waga, 1857)**

Lumbricus lucens Waga, 1857: 161–227.

Eisenia submontana (Vejdovský): Černosvitov 1934: 71; Mihailova 1966: 184.

Eisenia lucens: Zicsi 1982: 432; Valchovski 2012: 94; Szederjesi 2013: 80.

Material examined: PCHV/38, 3 adult ex., Opicvet Village, meadow under the bark of fallen logs, 550 m a.s.l., 42°51'53"N 23°06'29"E, 16.VI.2013, H. Valchovski leg.

Genus Eiseniella Michaelsen, 1900***Eiseniella tetraedra tetraedra* (Savigny, 1826)**

Enterion tetraedrum Savigny, 1826: 184.

Eiseniella tetraedra tetraedra: Zicsi, Czusdi 1986: 120;

Eiseniella tetraedra f. *typica*: Mihailova 1966: 182.

Eiseniella tetraedra: Csuzdi, Zicsi 2003: 153, Szederjesi, Csuzdi 2012: 37, Valchovski 2012: 95, Szederjesi 2013: 80.

Material examined: PCHV/31, 1 adult ex., Lesnovska River south of Elin Pelin town, marsh land beside riverbank, 542 m a.s.l., 42°39'40"N 23°35'31"E, 8.VI.2013; PCHV/32, 1 adult ex., beside Matica River on the road between Grigorevo Village and Elin Pelin, marsh land on south riverbank, 553m a.s.l., 42°40'52"N 23°36'03"E, 8.VI.2013; PCHV/15, 4 adult ex., Carna Bara River, ring-road of Sofia, 515m a.s.l., 42°46'38"N 23°18'24"E, 12.III.2013, H. Valchovski leg.

Genus Lumbricus Linnaeus, 1758***Lumbricus rubellus* Hoffmeister, 1843**

Lumbricus rubellus Hoffmeister, 1843: 187; Mihailova 1966: 194; Perel 1979: 212; Zicsi, Csuzdi 1986: 120; Valchovski 2012: 96.

Material examined: PCHV/27, 2 adult ex., Iskar River near Kokaliane Village on west river bank, 604m a.s.l., 42°35'13"N 23°25'29"E, 11.V.2013, H. Valchovski leg.

***Lumbricus terrestris* Linnaeus, 1758**

Lumbricus terrestris Linnaeus, 1758: 647; Zicsi, Csuzdi 1986: 120, Valchovski 2012: 96,

Lumbricus herculeus: Bouché 1972: 352.

Material examined: PCHV/1, 5 adult ex., Bojurischte town, poplar forest, 557 m a.s.l., 42°44'53"N 23°13'04"E, 12.X.2012; PCHV/7 1 adult ex., Bojurischte town, wheat field, 557m a.s.l., 42°44'50"N 23°13'07"E, 11.VI.2011; PCHV/2, 2 adult ex., Chelopechene Village, uncultivated land, 534m a.s.l., 42°44'24"N 23°28'07"E, 1.X.2011; PCHV/3, 2 adult ex., Chelopechene Village, maize-field, 534m a.s.l., 42°44'22"N 23°28'11"E, 12.X.2012; PCHV/8, 2 adult ex., Negovan Village, wheat field, 517m a.s.l., 42°44'29"N 23°24'09"E, 1.X.2011; PCHV/10, 3 adult ex., Negovan Village, roadside lime forest, 515 m a.s.l., 42°44'33"N 23°24'12"E, 18.IV.2013; PCHV/20, 1 adult ex., Sofia, district Republika, uncultivated land, 556m a.s.l., 42°43'55"N 23°14'07"E, 28.III.2011; PCHV/12, 1 adult ex., Sofia, district Suhodol, corn field, 740 m a.s.l., 42°40'41"N 23°12'16"E, 21.V.2012; PCHV/11, 1 adult ex., Sofia, district Suhodol, meadow, 744 m a.s.l., 42°40'42"N 23°12'14"E, 21.V.2012; PCHV/5, 1 adult ex., Sofia, district Suhodol, slightly eroded meadow, 730 m a.s.l., 42°40'40"N 23°12'24"E, 21.V.2012; PCHV/9, 1 subadult ex., Sofia, district Suhodol, severely eroded meadow, 718 m a.s.l., 42°40'38"N 23°12'22"E, 21.V.2012; PCHV/17, 1 adult ex., Boben Village, uncultivated land, 613 m a.s.l., 42°47'47"N 23°07'21"E, 12.III.2013; PCHV/16, 1 adult ex., Herakovo Village, secondary pine forest, 694 m a.s.l., 42°47'11"N 23°06'07"E, 12.III.2013; PCHV/15, 5 adult ex., district Trebich, Sofia, secondary mixed forest, 518 m a.s.l., 42°46'39"N 23°18'29"E, 12.III.2013; PCHV/18, 1 adult ex., West park, Sofia, meadow, 575m a.s.l., 42°40'50"N 23°17'58"E, 25.IV.2013; 1 adult ex., West park, Sofia, meadow, 573 m a.s.l., 42°44'38"N 23°17'39"E, 25.IV.2013; PCHV/19, 2 adult ex., Sofia, North park, secondary pine forest, 536m a.s.l., 42°44'32"N 23°17'54"E, 25.IV.2013; 1 adult ex., Sofia, North park, mixed chestnut and oak forest, 532 m a.s.l., 42°44'30"N 23°18'17"E, 25.IV.2013; 1 adult ex., Sofia, North park, meadow, 539 m a.s.l., 42°44'28"N 23°18'09"E, 25.IV.2013; 1 adult ex., Loven park, Sofia, oak forest, 599 m a.s.l., 42°39'55"N 23°20'01"E, 18.VI. 2010; 1 adult ex., Loven park, Sofia, secondary pine forest, 598 m a.s.l., 42°39'50"N 23°20'03"E, 18.VI.2010; PCHV/14, 2 adult ex., near Dragalevska River, 597 m a.s.l., 42° 39' 47"N 23° 19' 48"E, 1.X.2011; PCHV/21, 2 adult ex., Sofia, park Borisova gradina, oak forest,

554 m a.s.l., 42°41'09"N 23°20'08"E, 23.IV.2013; PCHV/22, 1 adult ex., Sofia, park Borisova gradina, secondary pine forest, 574 m a.s.l., 42°40'59"N 23°20'39"E, 23.IV.2013; PCHV/24, 3 adult ex., Sofia, park Borisova gradina, meadow, 547 m a.s.l., 42°41'18"N 23°20'22"E, 23.IV.2013.; PCHV/30, 1 adult ex., torrent in deciduous forest roadside west of Novi Han Village, 603 m a.s.l., 42°36'34"N 23°34'20"E, 8.VI.2013; PCHV/33, 1 adult ex., Sofia, Vrania district, alongside of Iskar River, 558 m a.s.l., 42°38'41"N 23°25'16"E, 8.VI.2013; PCHV/37, 1 adult ex., alongside Kriva River west of Dragovishtica Village, in mud sediments, 574 m a.s.l., 42°51'00"N 23°12'42"E, 16.VI.2013; PCHV/39, 2 adult ex., Blato River in east of Opicvet Village, 549 m a.s.l., 42°51'52"N 23°06'30"E, 16.VI.2013, H. Valchovski leg.

Genus *Octodrilus* Omodeo, 1956

Octodrilus transpadanus (Rosa, 1884)

Allolobophora transpadana Rosa, 1884: 45.

Octolasion rectum: Černosvitov 1934: 76.

Octolasion (*Octodrilus*) *transpadanum*: Zicsi 1973: 226; Šapkarev 1978: 75.

Octodrilus transpadanus: Omodeo, Rota 1989: 183; Misirlioğlu 2002: 18; Csuzdi *et al.* 2006: 24; Valchovski 2012: 97; Szederjesi 2013: 81.

Material examined: PCHV/30, 1 adult ex., torrent in deciduous forest roadside west of Novi Han Village, 603 m a.s.l., 42°36'34"N 23°34'20"E, 8.VI.2013, H. Valchovski leg.

Genus *Octolasion* Örley, 1885

Octolasion lacteum (Örley, 1881)

Lumbricus terrestris var. *lacteum* Örley, 1881: 584.

Octolasion lacteum: Černosvitov 1932: 534; Mihailova 1966: 193; Šapkarev 1978: 72; Zicsi 1982: 431,.

Octolasion lacteum: Valchovski 2012: 98, Szederjesi 2013: 81.

Material examined: PCHV/1, 6 adult ex., Bojurischte town, poplar forest, 557 m a.s.l., 42°44'53"N 23°13'04"E, 12.X.2012; PCHV/15, 2 adult ex., district Trebich, Sofia, secondary mixed forest, 518 m a.s.l., 42°46'39"N 23°18'29"E, 12.III.2013; PCHV/26, 2 adult ex., South park, Sofia, meadow 591 m a.s.l., 42°39'46"N 23°18'27"E, 23.IV.2013, H. Valchovski leg.

Discussion

Thirteen species and subspecies of earthworms are recorded from Sofia Plain, which represents 26% of earthworm diversity in the country. *Lumbricus terrestris* appears to be the most common species in the studied area (29 localities = 59.1%). *Aporrectodea caliginosa* and *Aporrectodea rosea* are wide spread species (25 localities = 51%). They have wide ecological valences and occurring in various habitats. Subspecies *Aporrectodea caliginosa trapezoides* was less numerous (13 localities = 26.5%), abundant found in urban parks. *Allolobophora chlorotica* (5 localities = 10.2%) is rare species, mainly found in floodplains close to river banks. *Octolasion lacteum* are known only from three localities (6.12%) in secondary deciduous forests or nearby. *Aporrectodea longa* has been found in three localities (6.12%). This species is abundant in soils bordering rivers. *Eiseniella tetraedra* (6.12% of localities) is a limicolous species and has been found in running water of three rivers. *Aporrectodea jassyensis* (found in marsh meadow), *Eisenia fetida* (found in dunghill), *Eisenia lucens* (found under bark of rotten logs), *Lumbricus rubellus* (found in highly organic places) and *Octodrilus transpadanus* (found in woodland) occurred only in one locality (2.04%). *Aporrectodea jassyensis* and *Lumbricus rubellus* are wide spread in southern parts of the country (particularly Thracian valley) in Sofia Plain they are rare species. The possible reasons can be that *Aporrectodea jassyensis* prefers warmer habitats and clay soils. *Lumbricus rubellus* is typically forest species, due to deforestation in Sofia plain it is not abundant.

According to zoogeographical distribution, the lumbricid fauna of Sofia Plain is dominated by peregrine species (10 taxa = 76.9%). Altogether, Trans-Aegean, Central European and Palearctic earthworms are less numerous (3 taxa = 24.1%). It must be noted that the percentage of peregrine species in the explored area is extremely high. It is result of afforestation, intensive agriculture practices and large-scale chemical industry in Sofia Plain, which especially affect autochthonous earthworms. Contrary to this peregrine species are more resistant to disturbance and replace them. Endogeic species – *Allolobophora chlorotica*, *Aporrectodea caliginosa*, *Ap. caliginosa trapezoides*, *Ap. jassyensis*, *Ap. rosea*, *Octodrilus transpadanus* and *Octolasion lacteum* (7 taxa = 53.8%) in Sofia Plain are dominant faunal component. Epigeic lumbricids – *Eisenia fetida*, *E. lucens*, *Eiseniella tetraedra tetraedra* (amphibiotic) and *Lumbricus rubellus* take part with (4 taxa = 30.7%) and only 2 taxa = 16.4% belong to anecic ecological group – *Aporrectodea longa* and *Lumbricus terrestris*. The presence of *Dendrodrilus rubidus*, *Dendrobaena octaedra* and *Dendrobaena byblica* in isolated localities from Sofia Plain, according to my opinion is expected.

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