

Доклад за отчисляване на докторант

Виктор Сендеров (@vsenderov)

Българска Академия на Науките/ Пенсофт, София, България

Научен ръководител: Проф. Л. Пенев

Научен консултант: доц. Кирил Симов

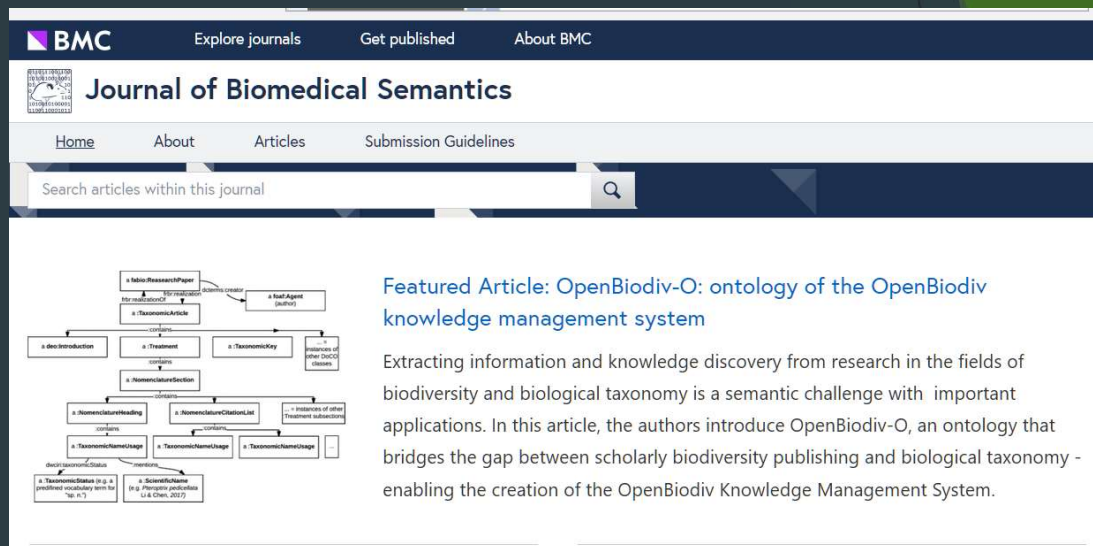
Финансиране посредством Мария-Склодовска Кюри Но. 642241

Дисертационен труд

- ▶ Проучване, разработка и приложение на дигитални научни публикации от ново поколение, които да реализират основните принципи на
- ▶ **Open Biodiversity Knowledge Management System**
(Отворената система за управление на знанията за биологичното разнообразие)

Научни постижения през 2017 г.

OpenBiodiv-O: онтология моделираща публикуването на таксономични статии за целите на съхранението на информация за биоразнообразието в семантични бази данни ([Senderov et al. 2018](#)).



The screenshot shows the BMC Journal of Biomedical Semantics website. The header includes the BMC logo and navigation links: 'Explore journals', 'Get published', and 'About BMC'. Below the header, the journal title 'Journal of Biomedical Semantics' is displayed, along with navigation links for 'Home', 'About', 'Articles', and 'Submission Guidelines'. A search bar is present with the text 'Search articles within this journal'. The main content area features a featured article titled 'OpenBiodiv-O: ontology of the OpenBiodiv knowledge management system'. To the left of the article title is a diagram illustrating the ontology structure, showing relationships between various classes and instances. The article text describes the challenge of extracting information and knowledge discovery from research in biodiversity and biological taxonomy, and introduces OpenBiodiv-O as an ontology that bridges the gap between scholarly biodiversity publishing and biological taxonomy, enabling the creation of the OpenBiodiv Knowledge Management System.

Featured Article: OpenBiodiv-O: ontology of the OpenBiodiv knowledge management system

Extracting information and knowledge discovery from research in the fields of biodiversity and biological taxonomy is a semantic challenge with important applications. In this article, the authors introduce OpenBiodiv-O, an ontology that bridges the gap between scholarly biodiversity publishing and biological taxonomy - enabling the creation of the OpenBiodiv Knowledge Management System.

Senderov, Viktor, Kiril Simov, Nico Franz, Pavel Stoev, Terry Catapano, Donat Agosti, Guido Sautter, Robert A. Morris, and Lyubomir Penev. 2018. "OpenBiodiv-O: Ontology of the OpenBiodiv Knowledge Management System." *Journal of Biomedical Semantics* 9 (1): 5.

Harmonia manillana (Mulsant), a new addition to Indian Coccinellidae, with changes in synonymy

J. Poorani, Roger G Booth

Abstract

Background

Taxon treatment

Harmonia manillana (Mulsant, 1866)

Nomenclature

Caria manillana Mulsant 1866: 170 (Type locality: 'Manilla', Philippines; Lectotype, UCCC).-Bielawski 1962: 197.-Gordon 1987: 14 (lectotype designation).

Leis atrocincta Mulsant 1866: 175 (Type locality: 'Manilla', MNHUB).-Crotch 1874: 120 (as var. *atrocincta*).-Coutanceau 2008: 7.

Neda paulinae Mulsant 1866: 203 (Type material: ?MNHUB).-Crotch 1874: 120 (as *Caria paulinae*).-Bielawski 1962: 197.-Iablokoff-Khnzorian 1982: 486.-Gordon 1987: 14.-Coutanceau 2008: 7.

Leis dunlopi Crotch 1874: 121 (Type locality: "India"; Lectotype, UCCC).-Iablokoff-Khnzorian 1982: 486.-Gordon 1987: 14 (lectotype designation).-Coutanceau 2008: 7. **New Synonym.**

Leis cerasicolor Crotch 1874: 121 (Holotype, UCCC).-Iablokoff-Khnzorian 1982: 486.-Gordon 1987: 14.-Coutanceau 2008: 7.

Leis aterrima Crotch 1874: 121 (Holotype, UCCC).-Iablokoff-Khnzorian 1982: 486.-Gordon 1987: 14.-Coutanceau 2008: 7.

Leis papuensis Crotch 1874: 121 (Lectotype, UCCC).-Iablokoff-Khnzorian 1982: 486.-Gordon 1987: 14 (lectotype designation).-Coutanceau 2008: 7.

Leis papuensis var. *suffusa* Crotch 1874: 121 (Lectotype, UCCC).-Korschefsky 1932: 275.-Gordon 1987: 14 (lectotype designation). **Syn. nov.**

Material

a. scientificName: *Harmonia manillana* (Mulsant); taxonomicStatus: accepted; kingdom: Animalia; phylum: Arthropoda; class: Insecta; order: Coleoptera; family: Coccinellidae; continent: Asia; country: India; stateProvince: Arunachal Pradesh; municipality: Pasighat; locality: Pasighat College of Horticulture & Forestry; verbatimLocality: College of Horticulture & Forestry; samplingProtocol: Yellow pan trap; eventDate: 2014-11-11/17; year: 2014; month: November; individualCount: 1; sex: Male; lifeStage: Adult; preparations: Male genitalia; identifiedBy: J Poorani; institutionID: ICAR-NBAIR; institutionCode: NBAIR

a *fabio:JournalArticle* instance

a *doco:Title* instance

:*TaxonomicNameUsage* instance 1

a :*Treatment* instance

:*TaxonomicNameUsage* instance 4

A :*TaxonomicConceptLabel* instance:
Harmonia manillana (Mulsant) sec.
10.3897/BDJ.4.e8030

a :*TaxonomicConcept* instance

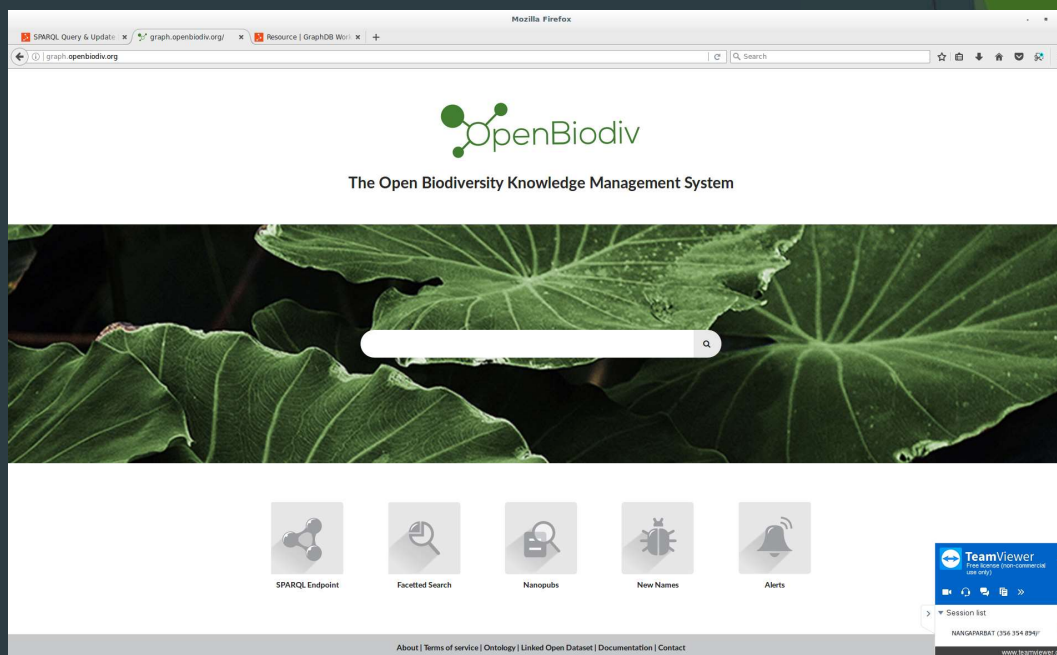
a *dsw:Occurrence* instance

a *dsw:Organism* instance

a *dsw:Identification* instance

Научни постижения през 2017 г.

- Уеб-платформа
(<http://openbiodiv.net>)
- База от свързани отворени данни
(<http://graph.openbiodiv.net>)





The Open Biodiversity Knowledge Management System

Lyubomir Penev



Person info

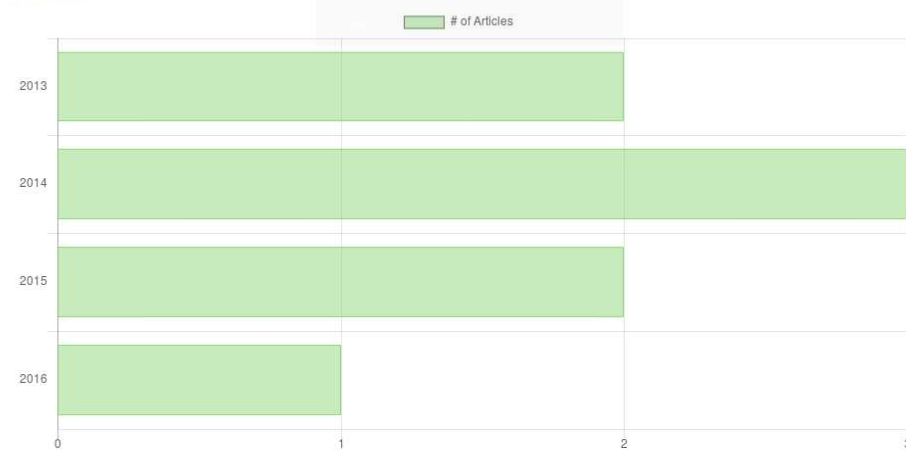
Address bar: <http://openbiodiv.net/dfca8ded-3244-4112-a2eb-ab027834721c>

Name: Lyubomir Penev

Affiliations:

- Institute for Biodiversity and Ecosystem Research, Sofia, Bulgaria
- Institute of Biodiversity & Ecosystem Research - Bulgarian Academy of Sciences and Pensoft Publishers, Sofia, Bulgaria
- Institute of Biodiversity & Ecosystem Research, Bulgarian Academy of Sciences and Pensoft Publishers, Sofia, Bulgaria
- Pensoft Publishers, Sofia, Bulgaria
- Pensoft, Sofia, Bulgaria

Articles



Научни публикации в издания с импакт фактор - публикувани

- ▶ Emmanuel Arriaga-Varela, Matthias Seidel, Albert Deler-Hernández, **Viktor Senderov**, Martin Fikáček. A review of the Cercyon Leach (Coleoptera, Hydrophilidae, Sphaeridiinae) of the Greater Antilles. ZooKeys, 681, Pensoft Publishers, 2017, ISSN:1313-2970, 1313-2989, DOI:10.3897/zookeys.681.12522, 39-93. ISI IF:1.031
- ▶ **Viktor Senderov**, Kiril Simov, Nico Franz, Pavel Stoev, Terry Catapano, Donat Agosti, Guido Sautter, Robert A. Morris, Lyubomir Penev. OpenBiodiv-O: ontology of the OpenBiodiv knowledge management system. OpenBiodiv-O: ontology of the OpenBiodiv knowledge management system, 9, 1, Springer, 2018, ISSN:2041-1480, DOI:10.1186/s13326-017-0174-5, ISI IF:2.413

Научни публикации - публикувани

- ▶ **Lyubomir Penev**, Daniel Mietchen, Vishwas Chavan, Gregor Hagedorn, Vincent Smith, David Shotton, Eamonn O Tuama, **Viktor Senderov**, Teodor Georgiev, Pavel Stoev, Quentin Groom, David Remsen, Scott Edmunds. Strategies and guidelines for scholarly publishing of biodiversity data. Research Ideas and Outcomes, 3, Pensoft Publishers, 2017, ISSN:2367-7163, DOI:e12431, e12431
- ▶ **Lyubomir Penev**, Teodor Georgiev, Peter Geshev, Seyhan Demirov, **Viktor Senderov**, Ilyana Kuzmova, Iva Kostadinova, Slavena Peneva, Pavel Stoev. ARPHA-BioDiv: A Toolbox for Scholarly Publication and Dissemination of Biodiversity Data Based on the ARPHA Publishing Platform. Research Ideas and Outcomes, 3, Pensoft Publishers, 2017, ISSN:2367-7163, DOI:10.3897/rio.3.e13088, e13088

Цитати

☐ The Open Biodiversity Knowledge Management System in Scholarly Publishing

V Senderov, L Penev

Research Ideas and Outcomes 2, e7757

10

2016

Позовавания

	Всички	От 2013
Позовавания	29	29
h-индекс	3	3
i10-индекс	1	1



Ordynets A, Savchenko A, Akulov A, Yurchenko E, Malysheva V, Kõljalg U, Vlasák J, Larsson K, Langer E (2017) Aphyllophoroid fungi in insular woodlands of eastern Ukraine. Biodiversity Data Journal 5: e22426.

<https://doi.org/10.3897/BDJ.5.e22426>, @2017

2. Burt T, Mengual X (2017) Origin and diversification of hoverflies: a revision of the genera Asarkina and Allobaccha - A BIG4 Consortium PhD project. Research Ideas and Outcomes 3: e19860.

<https://doi.org/10.3897/rio.3.e19860>, @2017

3. Nico M Franz, Beckett W Sterner; To increase trust, change the social design behind aggregated biodiversity data, Database, Volume 2018, 1 January 2018, bax100,

<https://doi.org/10.1093/database/bax100>, @2018

Научни прояви

- ▶ Обучение BIG4 по Мария-Склодовска Кюри в Природо-научен музей Виена, Австрия, в периода 8 - 13 май 2017 г. и организиран от д-р Несрин Акари. "Морфология на безгръбначните животни: 3D изображения и нови похвати в биосистематиката"
- ▶ Участие (без доклад, но в следствие с публикувана статия) в Европейската конференция по семантични технологии (ESWC 2017) в Порторож, Словения, от 28 май 2017 до 1 юни 2017 г.
- ▶ Участие с доклад на Европейската конференция на биосистематиките (BioSyst.eu 2017) от 15 - 18 август 2017 г. в Гьотеборг, Швеция.
- ▶ Обучение в обучение BIG4 по Мария-Склодовска Кюри в Ла Палма, Испания, в периода 30 октомври - 3 ноември 2017 г. и организиран от проф. Никлас Вальберг. "Историческа биогеография и диверсификационни анализи"
- ▶ Академичен обмен в Кралския природо-научен музей в Стокхолм в лаборатория по биоинформатика на проф. Фредрик Ронкуист от сеп. - дек. 2017 г.

Изпълнение на учебната програма

ОЦЕНКА НА ПОДГОТОВКАТА (Задължителен минимум 250 кредита)	Събрани кредити
ОБЩ БРОЙ КРЕДИТИ	1126 т. (1118 т.)
I Изпълнение на образователната програма (Задължителен минимум от 130 точки)	190 т.
II. Аprobация на изпълнението на научната програма. (Задължителен минимум от 40 точки)	456 т. (448 т.)
III Публикации на научни резултати по темата на дисертацията (Задължителен минимум от две публикации и 80 точки)	480 т.

Какво още?

- ▶ Работа по текста на дисертацията
- ▶ Още една публикация върху софтуерния пакет, с който беше извършено извличането на данните (RDF4R)
- ▶ Евентуално за пост-док: работа върху интегриране на методи от машинното самообучение

What About Machine Learning?

- ▶ Create Vector Representations of Taxonomic Names
 - ▶ GLOVE
 - ▶ Word2Vec
- ▶ Create Vector Representations of Images of Taxa
 - ▶ Inception-v3
 - ▶ ResNet
 - ▶ VGG16 - expected to work good but it is heavy
 - ▶ DenseNet - fast, worth trying
- ▶ Create Topic Models of Treatments
 - ▶ Mallet

Etymology

The species is named after Ongot, the type locality.

Diagnosis

Stemmiulus ongot sp. n. is characterized by the first six pairs of male legs being densely setose, the lateral projection of the subterminal lobe of the gonopodal angiocoxites relatively short (Fig. 1H, I), the apical parts of the angiocoxite densely setose (Fig. 1H, I) and, especially, by the peculiar second pair of male legs (Fig. 1E–G), the telopodites of which are 2-segmented, the proximal segment being expanded apicolaterally and bearing a lateral fringe of setae.

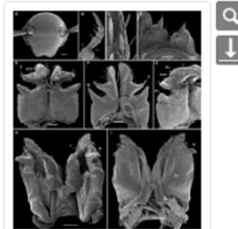


Figure 1. [doi](#)

Stemmiulus ongot Nzoko Fiemapong & VandenSpiegel, sp. n. ♂ paratype (SEM). A head front view B first leg-pair (one); C detail of the spatulate setae on the first leg-pair D leg-pairs 9 (paragonopods) oral view E, F, G leg-pair two, caudal, oral and latero-caudal views, respectively H, I leg-pair 8 (gonopods) caudal and oral views, respectively. Abbreviations: ac: apicolateral cluster of elongated setae, An: angiocoxite, amc: apicomедial cluster of setae, bc: basal cluster of setae, cp: conical projection, Co: colpocoxite, f: flagella, lf: lateral fringe of setae, lp: subterminal process, vmc: ventromedial cluster of setae, Scale bars 200 µm (A, H, I), 100 µm (B, D–G), 10 µm (C).

Description

Holotype: adult male, ca 15 mm in length, 1.7 mm in maximum diameter, body with 43 rings. Head and



Благодаря Ви!

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 642241. Responsibility for the information and views set out in this report lies entirely with the authors.