



Conference Abstract

# MEDITERATRI project - assessing the trophic ecology of predatory arthropods in Mediterranean agriculture via DNA metabarcoding diet analyses

Lucija Šerić Jelaska<sup>‡</sup>, Barbara Anđelić<sup>‡</sup>, Mišel Jelić<sup>§</sup>, Tomislav Kos<sup>‡</sup>

<sup>‡</sup> Department of Biology, Faculty of Science, University of Zagreb, Zagreb, Croatia  
<sup>§</sup> Varaždin City Museum, Šetalište Josipa Jurja Strossmayera 3, Varaždin, Croatia  
| University of Zadar, Zadar, Croatia

Corresponding author: Lucija Šerić Jelaska ([slucija@zg.biol.pmf.hr](mailto:slucija@zg.biol.pmf.hr))

Received: 06 Aug 2019 | Published: 07 Aug 2019

Citation: Šerić Jelaska L, Anđelić B, Jelić M, Kos T (2019) MEDITERATRI project - assessing the trophic ecology of predatory arthropods in Mediterranean agriculture via DNA metabarcoding diet analyses. ARPHA Conference Abstracts 2: e38865. <https://doi.org/10.3897/aca.2.e38865>

## Abstract

A type of management and the use of pesticides in arable land may negatively affect a range of soil biota and thus their food webs important for ecosystem functioning. By analysing trophic interactions we could reveal the extent of potential benefits that certain organisms can provide in biocontrol and maintaining healthy ecosystems. To evaluate the role of predatory arthropods within olive orchards and vineyards under Integrated Pest Management (IPM) and Ecological Pest Management (EPM) we collected carabid beetles together with other dominant predatory arthropods in the field (e.g. ladybugs, antlions, spiders, centipedes) and subdued the individuals to molecular gut content analyses using NGS. DNA metabarcoding diet analysis approach allowed detecting a wide variety of taxa from gut contents of the predators. In addition, using ICP-MS and LC-MS/MS we quantified Cu, pesticides and its residues in soil and animals representing different trophic guilds. Since concentrations of some toxic compounds detected in carabids body were negatively correlated with those in the soil, we aim to identify a potential vector for possible transfer of toxicants to general predators via predation. The results contribute to the risk assessment of proliferation of detected chemical compounds including copper in the ecosystem and to the knowledge on the overall field sustainability of predatory invertebrates to maximize

their role in pest control. The study was conducted under the project activity of HRZZ – Mediteratri.

## **Keywords**

agroecology, BOLD, carabids, centipredes, diversity, predator-prey, spiders

## **Presenting author**

Lucija Šerić Jelaska

## **Presented at**

19thECM oral

## **Acknowledgements**

This work has been supported by Croatian Science Foundation under the project UIP-2017-05-1046 and the Department of Biology, University of Zagreb, Faculty of Science.

## **Funding program**

Instalation grant UIP-2017-05-1046

## **Grant title**

MEDITERATRI - Neonicotinoids and Copper in the Mediterranean Agriculture – their effects on non-target invertebrates through trophic interactions

## **Hosting institution**

University of Zagreb, Faculty of Science, Department of Biology

## **Conflicts of interest**

I declare no conflits of interest.