

Biological interactions and traits of metabolism in two sympatric lacertids

Anamarija Žagar^{1,2*}, Urban Dajčman³, Rodrigo Megía-Palma^{2,4}

¹*Department of Organisms and Ecosystems Research, National Institute of Biology, Večna pot 111, 1000 Ljubljana, Slovenia*

²*CIBIO Research Centre in Biodiversity and Genetic Resources, InBIO, Universidade do Porto, Campus de Vairão, Rua Padre Armando Quintas, N° 7, 4485-661 Vairão, Vila do Conde, Portugal*

³*Biotechnical Faculty of the University of Ljubljana, Jamnikarjeva 101, 1000 Ljubljana, Slovenia*

⁴*Universidad de Alcalá, Department of Biomedicine and Biotechnology, Parasitology Area, School of Pharmacy, 28805, Alcalá de Henares, Spain*

*Corresponding author: A. Žagar (anamarija.zagar@nib.si)

We analyzed the relationship between biological interactions, namely competition and parasite-host interaction, and traits of metabolism in two competing lacertid lizards. We obtained samples from allotopic and syntopic populations of *Podarcis muralis* and *Iberolacerta horvathi* from Southern Slovenia and in a single season. The phenotypic parameters of lizards analyzed were (i) potential metabolic activity (PMA) as a proxy of the metabolic performance capacity, (ii) total haemoglobin concentration (Hb) as a proxy of limiting factor for metabolic capacity, and (iii) the antioxidative capacity, using the catalase activity (CAT) as a measure of enzymatic potential for buffering oxidative stress. CAT is related to both the metabolic rate and the availability of hemo group. Results showed that there was no evident effect of competition (syntopy) on the phenotypic expression of metabolic (PMA) or antioxidative capacity (CAT). *P. muralis* lizards had higher Hb measured under syntopy. We did not find any significant relationship between haemoparasite intensity and the metabolic traits investigated (PMA, CAT or Hb). This study provides foundational information for future exploration of the effects of competition on metabolic traits of lizards.

