

NEUROBIOLOGICAL BASIS OF ADAPTABILITY: NEUROTRANSMITTER AND BEHAVIORAL PROFILE OF TWO SPECIES OF LIZARD, THE ITALIAN WALL LIZARD, *PODARCIS SICULUS* AND THE DALMATIAN WALL LIZARD, *PODARCIS MELISELLENSIS*

Blazevic SA, Glogoški M, Gajsek T, Burić D, Josić P, Lisičić D
Biology Division, Faculty of Science, University of Zagreb, Zagreb, Croatia

The Italian wall lizard, *Podarcis siculus* and the Dalmatian wall lizard, *Podarcis melisellensis* are two lizards from the family of *Lacertidae*. When these two species share the same habitat, *P. siculus* outcompetes *P. melisellensis* as a dominant competitor, usually leading to the extinction of *P. melisellensis*. We investigated the behavior of these two species of lizards, *Podarcis siculus* and *Podarcis melisellensis* in a new environment. In order to do so, we observed the habituation period in the open field test and 8-arm radial maze. Habituation is an extremely simple form of learning, in which an animal, after a period of exposure to a stimulus, stops responding. We had 28 specimens of each species, 14 females and 14 males. Each experiment lasted between 15 and 23 minutes. Parameters of interest were: latency time, time spent in the central vs. marginal area and returning into the hiding place. We tested for behavioral differences between the species and sexes. After behavioral testing, the animals were sacrificed and levels of monoamines (5HT, DA, NA) in the brain were analyzed with HPLC. *P. melisellensis* showed bolder behavior, spending more time in open spaces, while *P. siculus* was more agile and found food quicker and in general learned faster than *P. melisellensis*. Consistent with literature, females were bolder than males. Specific traits correlated with neurotransmitter levels. Each species adapted in a different way to the same environment. We propose these two species of lizards as a good model for understanding the neurobiological basis of adaptive behavior, warranting further research.