



Hrvatsko biološko društvo
SOCIETAS BIOLOGORUM CROATICA
Croatian Biological Society

14. HRVATSKI BIOLOŠKI KONGRES
s međunarodnim sudjelovanjem

14th CROATIAN BIOLOGICAL CONGRESS
with International Participation

Pula, 12 - 16. 10. 2022.



14. *Hrvatski
biološki kongres*
Pula 12.-16.10. 2022.

ZBORNIK SAŽETAKA
BOOK OF ABSTRACTS



14th *Croatian Biological
Congress*
Pula, October 12 -16, 2022



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Zagreb, 2022.

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LOCOMOTOR ACTIVITY AND RELATED MORPHOLOGICAL TRAITS IN THREE MILLIPEDE SPECIES (DIPLOPODA: JULIDA)

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Millipedes (class Diplopoda) represent common members of soil fauna in many ecosystems. They are usually cylindrical or flattened, also characterized by two sets of legs per segment. The relationship between locomotion and morphology has been thoroughly investigated in many arthropods. However, in millipedes, previous studies were mostly based on the influence of different environmental factors on their locomotor activity. The aim of the present study was to analyze the relationship between locomotor activity and morphological variability of body features (body length, body mass), walking legs, and antennae in three European julids, *Pachyiulus hungaricus* (Karsch, 1881), *Megaphyllum unilineatum* (C. L. Koch, 1838) and *M. bosniense* (Verhoeff, 1897). Locomotor activity was videotaped by a web-camera during 15-minute periods and analyzed by ANY-maze software. Antennae and legs were photographed, and their size and shape were estimated using geometric morphometric approach afterwards. Obtained results point out that the evident difference in measured morphological traits among analyzed millipede species significantly determinates their locomotor activity. Moreover, the relationship between locomotor activity and morphological traits is both species-specific and sex-specific.

Keywords: millipedes, locomotor activity, morphological variability

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TESTING MORPHOLOGICAL INTEGRATION OF THE FORCIPULAR APPARATUS IN CENTIPEDE *Lithobius melanops* NEWPORT, 1845 (CHILOPODA: LITHOBIOMORPHA: LITHOBIIDAE)

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Morphological integration and modularity have been studied in many animal species because of their evolutionary significance. The presence of modules, which have high level of integration within themselves, but low level of integration between themselves (modularity), may influence animal development, function and adaptive value. In centipedes (Chilopoda), the forcipular apparatus represents an interesting trait for the investigation of morphological integration, because of its crucial role in feeding and defense. The forcipules represent poisonous parts, which are important for prey catching. Their shape and size may influence the adaptive value. The aim of our study was to test if the forcipular coxosternite is a modul in centipede *Lithobius melanops* Newport, 1845, by using geometric morphometrics. The program TpsDig was used to digitize landmarks on each morphological structure, whereas modularity hypothesis was tested by using MorphoJ program. Results of Procrustes ANOVA have indicated the presence of fluctuating asymmetry. A priori defined hypothesis was not accepted, suggesting that the forcipular