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8th International PSU – UNS Bioscience Conference

Towards the SDG Challenges

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BOOK OF ABSTRACTS



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METHOD / DESIGN:

After selecting the most representative locations, body parts that are common to both sexes were measured in all examined populations: a total body length, thorax, abdomen, and cercopod lengths, ratio of total body to thorax length and ratio of total body to the abdomen length. The measurements were performed with the accuracy of 0.1 cm. Data were analyzed using descriptive statistics.

RESULTS:

According to the linear body measurements common for both sexes, results of descriptive statistical analysis showed that two geographical groups of individuals can be distinguished: *Branchipus* populations from the northern habitats (plain landscape of the country), and populations from localities in the southern (hilly part of the country). Morphological parameters that mostly affected differentiation of samples were: abdominal length, the contribution of thorax in total body length, and the contribution of abdomen in total body length.

CONCLUSIONS:

Large branchiopod crustaceans are the flagship animal group for some inland water ecosystems and temporary pools. Results of this study show that two geographical groups of individuals stood out from very different types of habitats, occurring in the northern lands and in the southern hilly and mountainous areas of the country. Present results indicate that linear morphological data obtained by applying the method of discriminate morphological analysis can be an auxiliary method in taxonomic determination of populations and assessment of the regional biodiversity.

T1-P-5 Food choice in *Drosophila melanogaster*: the role of diet type, sex and social environment

Jelena Trajković³², Sofija Pavković-Lučić³², Dragana Miličić³², Tatjana Savić³³

KEYWORDS: nutrition; food choice; fruit fly

INTRODUCTION:

Insect nutrition is a widely researched topic, since diet affects many biological processes, which can be monitored from cellular to behavioral level. As one of the most important environmental factors, food quality and balance in the amount of key nutrients, strongly affect fruit fly *Drosophila melanogaster* fitness. A number of genes involved in multiple sensory pathways and complex physiological systems are consequently included in the regulation of feeding behavior. The fruit fly food-related behavior is primarily influenced by nutritional needs, and may change throughout life. Also, food choice may be determined by sex and the social environment, i.e. by the presence of other individuals.

OBJECTIVES:

The aim of this study was to determine whether there were differences in food choice between *D. melanogaster* strains reared on two different substrates for more than 20 years. For that purpose, five food items were offered. Further, it was examined whether sex and social environment influenced food choice in these two strains.

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METHOD / DESIGN:

D. melanogaster strains used in this experiment were maintained for more than 450 generations on two different substrates, standard cornmeal substrate and substrate modified by adding apple. Transparent plastic boxes, dimensions: 220 × 140 × 90mm, which contained five Petri dishes (r = 30mm) were used for monitoring food choice. Petri dishes were filled with five different substrates: standard cornmeal substrate and substrates that contain tomato, banana, carrot and apple. Flies were starved for 18h before being placed into each box. Virgin females and males, 3 - 5 days old, were separated and tested individually and in groups of five individuals, and foraging flies were sampled every 3 min for 1h. Four-way ANOVA was applied in order to determine difference in time that flies spent on different diets, between individuals and groups, and between sexes.

RESULTS:

Results pointed out significant differences in the time that flies spent by occupying different food items. On the other hand, sex, strain and social environment revealed no significant influence on *D. melanogaster* food choice. However, significant interaction between strain and food choice was observed. In both strains, the preference toward standard cornmeal substrate was noticed. Even more, flies reared on apple substrate spent significantly more time on Petri dish filled with standard cornmeal diet, compared to flies reared on standard substrate.

CONCLUSIONS:

These results indicated that flies chose nutritionally richer food (standard cornmeal substrate, rich in sugar and yeast), especially if they were reared on poor diet (the apple substrate). According to data from our previous surveys, substrates that we offered to flies differ in protein content and in the proportion of protein relative to the total content of organic carbon (C/N ratio), which accurately reflected the protein/carbohydrate ratio. Contrary to standard substrate, apple substrate contained smaller amount of protein and higher C/N ratio. The fact that food choice was not influenced by sex or social environment might suggest the same nutritional requirements for the best available food in both sexes, regardless of whether flies were tested individually or in a group.

T1-P-6 Proline-based deep eutectic solvents as greener alternative for obtaining polyphenol rich extracts of *Satureja Kitaibelii*

Jelena Arsenijević³⁴, Nada Kovačević³⁴, Milica Drobac³⁴, Slavica Ražić³⁵,
Fathi Emhemmed³⁶, Christian Muller³⁶, Christophe Marcic³⁶, Eric Marchioni³⁶

KEYWORDS: DES; cytotoxicity; extraction; caffeic acid oligomers; *Satureja L.*

INTRODUCTION:

Aerial parts of *Satureja kitaibelii* Wierzb. ex Heuff. (Lamiaceae), in Serbia known as Rtanj's tea, are traditionally used to treat various respiratory, urinary and other health disorders. Extracts of this herb exhibit a significant bioactivity as well³⁷. Using deep eutectic solvents (DESs) for extraction of certain phenolic compounds is in line with the principles of green chemistry³⁸.

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³⁷ Gopčević et al., 2019. *Plant Foods Hum Nutr* 74:179.

³⁸ Jakovljević et al., 2020. *Plants* 9(2): 153.