

BOOK OF ABSTRACTS

3rd International Conference on Plant Biology (22nd SPSS Meeting)



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Institute for Biological Research "Siniša Stanković", University of Belgrade

Faculty of Biology, University of Belgrade

**3rd International Conference
on Plant Biology
(22nd SPPS Meeting)**



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Effects of tansy essential oil on fitness and digestion process of gypsy moth larvae

ST5-2

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Larvae of gypsy moth (*Lymantria dispar* L.) are major defoliators of deciduous forests and urban environment. The biological means of regulation of moth population density were incorporated along with conventional treatment in the integrative management concept. The effects of tansy (*Tanacetum vulgare* L.) essential oil (EO) to gypsy moths were monitored through the effects of residual contact and digestive toxicity on the mortality and development in the second instar larvae, but also through the growth and feeding indices of the fourth instar larvae. Although EO presence didn't cause residual contact toxicity or significantly affect larval mortality, tested oil notably elongated developmental time by delaying the molting moment and reduced percentage of molted larvae. On the other hand, EO digestion caused significant mortality in the second instar larvae (72% compared to control, at the end of experiment). Digestion of food enriched with tansy oil decreased the efficiency of the diet, and led to reduced mass gain, and therefore induced the delay of the molting moment, or completely stopped molting into the third instar larvae. Besides that, EO reduced the daily mass gain ($0.06 \text{ mg mg}^{-1} \text{ day}^{-1}$ compared to $0.3 \text{ mg mg}^{-1} \text{ day}^{-1}$ in control) and the food consumption rate ($0.61 \text{ mg mg}^{-1} \text{ day}^{-1}$ compared to $1.23 \text{ mg mg}^{-1} \text{ day}^{-1}$ in control) in the fourth instar larvae and caused decrease of the conversion rate of digested food to larvae body mass (10.62% compared to 26.05% in control). Despite that, food assimilation rate to larvae body mass was not significantly decreased, which moderated negative effects of EO digestion as well as reduced food intake.

Keywords: *Tanacetum vulgare* L., essential oil, *Lymantria dispar* L., mortality, toxicity

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Advantages and limitations of phytogetic feed additives

ST5-3

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Phytogetic feed additives (PFA) are a wide range of bioactive plant secondary compounds and metabolites with positive effects on animal health and performance. Lately, PFA have gained a lot of attention in livestock industry because they are considered to be a safe and efficient alternative