



10th Jubilee

RAD

INTERNATIONAL
CONFERENCE
ON RADIATION
IN VARIOUS FIELDS
OF RESEARCH

Summer Edition

July 25-29, 2022
Palmon Bay Hotel
Herceg Novi, Montenegro

**BOOK OF
ABSTRACTS**

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BOOK OF ABSTRACTS

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Antioxidative defense and life history traits of four larval instars of *Lymantria dispar* L. in static magnetic field

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Magnetic fields are all around us: in the Universe, on the Earth, among and within organisms, cells, molecules, and single atoms. Fast technological development and modernization of life, increase the level of artificial magnetic fields, thus affecting every living beings. Hence, exposure of organisms to omnipresent magnetic field could represent important stressogenic factor for them. Magnetic sensitivity is very well documented in insects, but there is little research of the effects of magnetic fields on antioxidative defense during their development. The main purpose of this work was to evaluate the effects of static magnetic field (SMF, 230 mT) on antioxidative defense, as well as life history traits of larval instars (from 1st to 4th) of *Lymantria dispar* L. (Lepidoptera). The activity of superoxide dismutase (SOD), catalase (CAT), glutathione reductase (GR), and glutathione-S transferase (GST) in each larval instar was measured spectrophotometrically. Life history traits (mortality, larval mass and development duration) were monitored daily. Magnetic field increased the activity of SOD, CAT, GR, and GST in all larval instars, but these changes were significant only in older larval instars (3rd and 4th), except CAT. During the larval development, mortality was higher in SMF group than the control. Also, we observed a significant increase in mass of 4th larval instar in magnetic field compared to the control. On the other hand, we did not detect a significant influence of SMF on duration of larval instars. The obtained results demonstrate differences in MF susceptibility of younger and older larval instars of *L. dispar*. In conclusion, the applied magnetic field could be considered as a potential stressor influencing life history traits, as well as examined antioxidative biomarkers.

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