

## ANALYSIS OF LINESHAPE OF BLACK *Drosophila melanogaster* EPR SPECTRA

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Melanin polymers are strongly paramagnetic (Buszman *et al.*, 1995, *Pol. J. Med. Phys. Engin.*, 1, 121; Matuszczyk *et al.*, 2004, *Chem. Phys. Lett.*, 394, 366; Pilawa *et al.*, 2004, *Physica Medica*, v. XX, Suppl. 1, 111). o-Semiquinone free radicals ( $S = 1/2$ ) which fulfill the Curie law ( $I = C/T$ ) predominate in melanin biopolymers, but paramagnetic centers with higher spins  $S = 1$  were also found. Electron paramagnetic resonance studies at different temperatures indicate existence of thermally excited multiplet states in melanin (Pilawa *et al.*, 2004). An X-band EPR spectra of *Drosophila melanogaster* were measured by us at room temperature earlier (Buszman *et al.*, 1995). The aim of this work was to characterize changes of lineshape of *Drosophila melanogaster* EPR spectra with microwave power and the measuring temperature. We attempted to confirm complex character of paramagnetic centers system in the sample. EPR measurements were done by the use of a BRUKER spectrometer and they were analysed with WINEPR program. Strains of black *Drosophila melanogaster* containing paramagnetic melanin biopolymer were tested. Paramagnetic centers of melanin are mainly responsible for EPR signal of *Drosophila melanogaster*. Asymmetrical EPR lines were measured for the studied samples. It was observed that asymmetry strongly depend on microwave power and the measuring temperature. Correlations between asymmetry parameters and physical conditions of measurements of the resonance absorption curves were drawn.