

Greek walnut and Pecan effects on the cyclophosphamide induced behavioral disturbances in the experimental model of leukopenia

Gia Kutelia, Mariam Qurasbediani, Elene Tavdishvili, Nino Bedineishvili, Ekaterine Mitaishvili

E-mail: gia.kutelia@ens.tsu.edu.ge

Department of Biology, Faculty of Exact and Natural Science, Iv. Javakhishvili Tbilisi State University, University str.2, 0143 Tbilisi, Georgia

The aim of our research was to assess behavioral disorders in the experimental model of leukopenia (EML) and investigate Greek walnut and Pecan water extract effects on them.

Two month old white mice were used in the experiments. Open field and T-maze tests were carried out for the evaluation of behavioral disturbances in EML-animals. Emotional and anxiety level, defense reactions and learning/memory patterns were measured by these tests. Animals were divided in groups : control group - injected with saline, EML group -mice with single injection of cyclophosphamide. Behavioral experiments were started on the seventh day after injections. Two subgroups were separated in the EML group: first group of animals, which was getting Greek walnut extract and second group, which was getting Pecan extract. Supplementation was performed for 7 days, during the period of time between cyclophosphamide injection and the start of the experiments.

The general conclusion from the open field test data is that leukopenia experimental model induces more changes in the motor activity than in emotional patterns of animals. T-maze test data showed that there are learning and memory deficits in leukopenia experimental model. The Decrease in the number of correct reactions was statistically significant. Observation on the Greek walnut and Pecan effects on cyclophosphamide induced behavior disturbances showed that both of them correct motor dysfunctions caused by cyclophosphamide. Leukopenia induced deficits in memory and learning was corrected by both of them. Greek walnut's extract increased the number of correct reactions statistically significantly. Improvements of the correct reactions were observed by using Pecan's extract, but they were not statistically significant.

The work is supported by the University grant for the Biology Department