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Under the auspices of

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EFFECT OF STATIC MAGNETIC FIELD ON FRACTAL COMPLEXITY OF SPONTANEOUS NEURONAL ACTIVITY IN SNAIL

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Numerous studies have dealt with the effects of magnetic fields on the nervous system. In the present work we tested effect of 2.7 mT magnetic field on spontaneous Br neuron activity in subesophageal ganglia of garden snail *Helix pomatia* by Higuchi fractal dimension as a nonlinear measure of signal complexity in time domain. Fractal analysis was performed by estimating fractal dimension (FD) of bioelectric signals from Br neurons using Higuchi's algorithm. We used principal components analysis as a method of factor extraction in factor analysis of empirical distribution of FD. Shape of the empirical distribution of FD pointed out on bimodal pattern in complexity of spontaneous Br neuron activity. The factor analysis showed that there are two principal factors in empirical distribution of fractal dimension: F_1 and F_2. The differences between factors F_1 and F_2 in different experimental conditions (control, under magnetic field (MF) and after exposure to the magnetic field (AMF)) were tested by Kolmogorov-Smirnov Test. The analysis showed that there is no difference between F_1 factors in control vs. MF condition, and in control vs. AMF condition. However, significant difference was found between F_2 factors in control vs. MF condition, and in control vs. AMF condition. Factor analysis also showed there is no difference between F_2 factors in MF vs. AMF condition. Generally, results indicated that irreversible changes in complexity of Br neuron activity occurred after exposure to magnetic field compared to the control conditions.