ᲡᲐᲥᲐᲠᲗᲕᲔᲚᲝᲡ ᲛᲔᲪᲜᲘᲔᲠᲔᲑᲐᲗᲐ ᲔᲠᲝᲕᲜᲣᲚᲘ ᲐᲙᲐᲓᲔᲛᲘᲘᲡ ᲛᲝᲐᲛᲑᲔ, ტ. 4, №3, 2010
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Ecology

Influence of Electromagnetic Field on Locomotor- and Emotion-Motivated Behavior in Animals in "Open Field". Stimulatory Action of the Preparation *Seratonus*

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ABSTRACT. Herbal preparation *seratonus* regulates attitude to risk in animals, relieves emotional state, activates metabolism of those biologically active substances, which determine both changes in behavioral actions and rats' high tolerance to stressors. *© 2010 Bull. Georg. Natl. Acad. Sci.*

***Key words**: vegetable composition, Wistar rats, open field.*

Each change in living conditions affects psycho-physiological processes occurring in living organisms and their anatomy [1-3]. Not all the changes are desirable for the development and preservation of life on the earth. Therefore one's attention is given to the study of the effect of electromagnetic radiation caused by human activity on living organisms [4-9]. At the same time levelling of unwanted processes by various biologically active substances becomes necessary, in particular, vegetable compositions. For this purpose we use herbal preparation *seratonus*. Ascertainment of the influence of industrial frequency electromagnetic field on living organisms and their nervous system (NS) is particularly relevant, because neurochemical and physiological correlates of changes caused by EMF are not always clear. All this creates a need for new researches. Taking into consideration all the above-said we decided to investigate the behavior of Wistar rats under the influence of communication frequency EMF in "open field" (OF) and stimulation effect of the composition *seratonus* on their motivated emotional behaviour.

Material and Methods. An open field is a round chamber with diameter 120 cm divided into 42 equal sectors. While conducting experiments the open field was brightly illuminated with a light source (200 W) located 1m above the chamber. Duration of each observation session lasted for 180 sec. Results of observation were processed by a computer equipped with a special program.

To assess locomotor activity of animals we detected the following parameters: time spent to go out of the central zone; the number of crosses from one square to another; average rate of translocation, the number of translocation cycles and the time spent on translocation. Oriental-exploratory activity was estimated with rearing and an average time spent for one rearing. Emotional activity of rats was estimated by the number of urination and faeces (droppings); stereotyped activity – by the number of grooming cycles, total time spent on groomings, etc.; amount of immobility cycles, average time for one cycle, etc. were observed as well.

Experiments were performed on Wistar rats. The animals were divided into control (A and C) and experimental (B and D) groups. They were given food and water at standard conditions (barley, maize, sunflower seeds, cabbage, carrot, polyvitamins "Undevit", bread and milk).

reflexes are intensified, urination and boluses are significantly increased (see Table). If we observe these data, we can see that behaviour of animals of D group fed with *seratonus* and that of B group are almost the same. This fact can point to decrease of the stress state, which mainly characterizes animals being affected by electromagnetic field. Time spent on translocation is 38.5% for control C group, and 45.8% for experimental D group fed with *seratonus*. Immobility time is increased too and equals 12.1 sec for control and 16.8 sec for experimental group. Specific time of immobility out of the total time of experiment is also increased – it equals 30.2% for control and 50.9% for experimental rats. Retard action processes are evident but they are not significantly different for the rats of D group.

Hence one can conclude that herbal preparation *seratonus* controls the attitude to risk in animals, relieves emotional state, activates metabolism of those biologically active substances which determine both changes in behavioral acts and rats' high tolerance to stressors.

ეკოლოგია

ელექტრომაგნიტური ველის ზემოქმედება ცხოველების მოძრაობით და ემოციურ-მოტივაციურ ქცევაზე "ღია ველში". მცენარეული პრეპარატ სერატონუსის მასტიმულირებელი მოქმედება

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მცენარეული პრეპარატი სერატონუსი არეგულირებს ცხოველებში საფრთხისადმი დამოკიდებულებას; ხსნის ემოციურ მდგომარეობას, ააქტივებს იმ ბიოლოგიურად აქტიურ ნივთიერებათა მეტაბოლიზმს, რომლებიც განსაზღვრავენ როგორც ქცევითი აქტების ცვლილებებს, ასევე ვირთაგვების მაღალ შემგუებლობას სტრესორების მიმართ.

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