THE EFFECTS OF HYPOMAGNETIC CONDITIONS AND REVERSED GEOMAGNETIC FIELD ON THE CALCIUM-DEPENDENT PROTEASES OF INVERTEBRATES AND FISH

N.P. Kantserova[1], V.V. Krylov[2], L.A. Lysenko[1], N.V. Ushakova[2], N.N. Nemova[1]

[1] Institute of Biology of Karelian Research Centre of Russian Academy of Sciences, Petrozavodsk, Russia
[2] Papanin Institute for Biology of Inland Waters, Russian Academy of Sciences, Borok, Russia

Abstract. The effects of hypomagnetic conditions and reversal of the geomagnetic field on intracellular Ca^{2+}-dependent proteases (calpains) of fish and invertebrates were studied *in vivo* and *in vitro*. It was found that the intravital exposure of examined animals to hypomagnetic conditions led to a significant decrease in its calpain activity. The activity of preparations of calcium-dependent proteases was tested in separate experiments. It was shown that preparations of Ca^{2+}-dependent proteases from invertebrates and fish was also inactivated substantially at the effect of hypomagnetic conditions. Ambiguous results obtained in the experiments with the reversed geomagnetic field did not allow us to discuss biological response of calcium-dependent proteases to the reversal of the geomagnetic field.

Keywords: hypomagnetic conditions, reversed geomagnetic field, calcium-dependent proteases, invertebrates, fish.