

Abstract:

Iron is a biogenic trace element that is vital for all organisms on the planet Earth. This element occurs in biological systems in the form of Fe^{3+} and Fe^{2+} . These two forms are often incorporated in heme structures or iron-sulfur clusters. Proteins containing iron ions have a wide range of functions in organisms. The main functions include the transport of electrons in the respiratory chain (Rieske's proteins, cytochromes), DNA synthesis (ribonucleotide reductase) and the participation in the Krebs' cycle (aconitase, succinate dehydrogenase).

Naegleria gruberi is a nonpathogenic amoeba known for its pathogenic relative *Naegleria fowleri*. This organism causes the primary amoebic meningoencephalitis. An interesting fact about *Naegleria gruberi* genome is that it contains genes for both aerobic and anaerobic metabolisms.

The purpose of my bachelor work was to investigate the effect of availability of iron ions on metabolism in *Naegleria gruberi*. Changes in the activities of enzymes from different metabolic pathways were studied including lactate dehydrogenase, isocitrate dehydrogenase, Fe-hydrogenase, aconitase and fumarase. The most significant changes were observed in the activities of alcohol dehydrogenase and Fe-hydrogenase.

Key words:

Iron, heme, iron-sulfur clusters, availability of iron ions, *Naegleria gruberi*, metabolism