

Abstract

Mitochondria are organelles of endosymbiotic origin, known as the energy center of every eukaryotic cell. Main function is the production of adenosin triphosphate (ATP), which is used as an energy source for most metabolic reactions occurring in the cell. Furthermore, mitochondria play significant role in apoptosis and we can find here a number of biochemical pathways such as β -oxidation of fatty acids, synthesis of iron-sulfur clusters, heme, steroids etc.

Most of the mitochondrial metabolic functions have been lost during the adaptation to oxygen-poor environment in some of the parasitic (*Giardia intestinalis*, *Entamoeba histolytica*) or free-living protists (*Sawyeria marylandensis*, *Mastigamoeba balamuthi*). These organisms possess reduced mitochondrial organelles such as hydrogenosome or mitosome. The aim of this thesis is to summarize the information about these reduced mitochondrial organelles of anaerobic protists and to describe their specific metabolism.

Key words: mitochondrion, hydrogenosome, mitosome