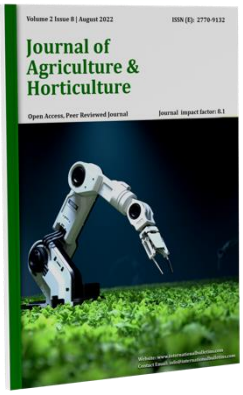

ROLE OF MITOCHONDRIA IN CELL ACTIVITY.

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Abstract. This article is devoted to the importance of mitochondria in the cell.
Key words: mitochondria, liver, matrix, cell.

It is known that mitochondria play a central role in the physiology and pathophysiology of cells, as they are the main ATF-generators of all energetic processes [2]. Phosphorylation reactions control many cellular processes, in particular, they provide energy for the activity of ion channels (ATF-dependent K+ (KATF) channels), Ca2+ channels in the sarcoplasmic reticulum, potential-dependent Ca2+ channels [2] . Mitochondria are also involved in maintaining glucose homeostasis, in insulin secretion of pancreatic □-cells, in modulating the excitation of hypothalamic neurons sensitive to glucose. These organelles act as sensors for oxygen and important substrates and control cellular respiration [1].

As we know, mitochondria are the energy source organelle of the cell. They are often located near the cellular structure that needs ATF or near the source of the cellular "fuel" they need [3]. In active muscle cells, for example, in the cells of the flight muscles of insects, they are arranged in a straight line near the myofibrils. Due to this location, ATF molecules formed in these mitochondria reach the elements of myofibrils [4]. In the inner membrane of mitochondria, there is a respiratory chain, which contains enzymes that ensure the implementation of complex and sequential complex bioenergetic processes. ATF synthesis is carried out in the respiratory chain. In this process, electrons (more precisely, protons) of N2 are transported from the donor to the acceptor (reactive acid) along the respiratory tract. At this time, the kinetic energy generated in the process of oxidation of substrates and electron transport is connected in the form of chemical energy in the chemical bonds of ATF. At the end of the chain, the reactant O2 neutralizes the electrons of N2 and water is formed [5].

Mitochondrial membrane passive transport is assessed by their energy-independent swelling kinetics in different salt solutions (Table 1). Osmotic swelling with electrolytes is important. The entry of anions and cations into the matrix of mitochondria causes an increase in the osmotic pressure inside the organelle, but this does not depend on the diffusion potential. An isoosmotic solution of ammonium nitrate was used to determine the permeability of H+ through the mitochondrial inner membrane. Mitochondrial membrane has good permeability to NO3- and NH3+ ions, but not to NH4+ ions. [Brierley 1974].

Table 1
Incubation media for the study of the passive permeability of the inner membrane of liver mitochondria

Conductivity to be studied	**Basic components of the environment**	**Buffer (rN-7.4)**
Hydrogen	130 mM NH_4NO_3	10 mM tris-NO_3
Sodium	130 mM $NaNO_3$	10 mM tris-NO_3
Potassium	130 mM KNO_3	10 mM tris-NO_3
Magnesium	86 mM $Mg(NO_3)_2$	10 mM tris-NO_3
Calcium	86 mM $Ca(NO_3)_2$	10 mM tris-NO_3

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