EFFECT OF HYBRID ANTIOXIDANT FROM ICHFAN'S GROUP ON THE KINETIC PARAMETERS OF CHOLINESTERASES

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"Ichfan" - an analogue of acetylcholine (ACh), in which the ester bond is formed by the "classical" phenolic antioxidant (AO) fenozan; nitrogen atom binds alkyl radical C\textsubscript{10}H\textsubscript{21}. As a "hybrid" ichfan can exhibit anticholinesterase (antiChE) and AO properties. Alkyl "tail" contributes to penetration through the BBB and stabilizes the microviscosity of cell membranes. The aim of this paper was a detailed in vitro investigation of the antiChE action of the drug, previously found as a result of its administration into mice in vivo.

Membrane bound erythrocytic acetylcholinesterase (AChE) and soluble butyrylcholinesterase (BuChE) from horse serum (both purchased from Sigma) were used. ChE activity was determined by the colorimetric Ellman's method with acetylthiocholine as a substrate.

With respect to the membrane AChE of human erythrocytes ichfan manifested itself as a reversible mixed type inhibitor, increasing Km and decreasing Vmax. The absence of rectification in the Dixon's coordinates indicated the presence of an additional binding site for the inhibitor. Ichfan reduced the inhibition constant of AChE reaction at high substrate concentrations.

As with AD the amount of BuChE in the brain significantly increases, it is important for AD treatment to inhibit this enzyme also.

Ichfan occurred a competitive inhibitor of BuChE. The degree of inhibition of AChE and BuChE was the same order of magnitude. The dependence of the reaction rate in the presence of ichfan on its concentration was not linear in the Dixon's coordinates, indicating an additional binding site as it was also in the case of AChE.