

INFLUENCE OF SULPHATE CHLORIDE ZINC AND CADMIUM IONS ON THE ACTIVITY OF 5-AMINOLEAVULINIC ACID DEHYDRATASE IN BLOOD OF EXPERIMENTAL ANIMALS *in vitro*

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Summary. In the present research the influence of zinc ions (Zn^{2+}) on the activity of 5-aminoleavulinic acid dehydratase (5-ALAD) in blood *in vitro* upon impact of cadmium (Cd^{2+}), sulphate (SO_4^{2-}) and chloride (Cl^-) ions was investigated. The obtained curves of the consecutive multidot dependences and Cd^{2+} concentrations causing half-maximal inhibition (IC_{50}^*) showed that Cd^{2+} inhibited the activity of enzyme 5-ALAD *in vitro* in higher extent compared to equimolar concentrations of Zn^{2+} . In comparison to Zn^{2+} the leap of enzymes activity inhibition and IC_{50} occurred under the lower concentrations of Cd^{2+} . Reduced concentrations of SO_4^{2-} and Cl^- increased the 5-ALAD activity penetrating its maximums, while high concentrations of SO_4^{2-} and Cl^- decreased the activity of enzyme, but not inhibited the enzymes activity. The shift of the leap and IC_{50} of the inhibition of 5-ALAD activity under the impact of Cd^{2+} ions inhibited the enzyme later in presence of Zn^{2+} additions and lower compared to natural concentration of Zn^{2+} . Although Zn^{2+} ions are characterized by the low protective activity *in vitro*. The investigations showed that the effects of SO_4^{2-} , Cl^- , Zn^{2+} and Cd^{2+} ions on blood 5-ALAD activity can be predicted, compared and evaluated *in vitro* according to the impulse of the leap of enzyme inhibition (concentration value of the catalytic poison, which cause half-maximal inhibition – IC_{50}).

Key words: sulphate, chloride, zinc, cadmium, blood, 5-aminoleavulinic acid dehydratase, activity, *in vitro*.