

# THE INFLUENCE OF N,N'-(ETHANE-1,2-DIYIL)BIS(QUINOLINE-2-CARBOXAMIDE) ON GLUCOSE BLOOD LEVEL IN NORMOGLYCAEMIC RATS

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The search of effective and safe drugs for the treatment of diabetes mellitus (DM) is topical problem. One of the ways of this problem solution is using of N,N'-(ethane-1,2-diyil)bis(quinoline-2-carboxamide), a compound containing the fragments of the chemical structure of imidazoline receptors type I<sub>2</sub> blocker – (2-(4,5-dihydroimidazol-2-yl) quinoline hydrochloride). N,N'-(ethane-1,2-diyil)bis(quinoline-2-carboxamide) is known as antitumor agent in a dose of 1.5 mg/kg intraperitoneally (i.p.).

On the model of alloxan-induced DM in rats in our previous experiments was shown the pronounced hypoglycemic effect of N,N'-(ethane-1,2-diyil)bis(quinoline-2-carboxamide) in intraperitoneal (1.5 mg/kg) and intragastrical administration at wide dose diapason (7.92-31.67 mg/kg). This compound reduced the level of glucose in the blood by 57.2% and by 27.3-63.1%, respectively, with nonlinear relationship "dose-effect". LD<sub>50</sub> of N,N'-(ethane-1,2-diyil)bis(quinoline-2-carboxamide) is 10.005 mg/g i.p. and 633,45 mg/kg intragastrically (i.g.). ED<sub>50</sub> is 11.64 mg/kg, the therapeutic index is 54.42, indicating a sufficient level of the substance safety.

The purpose of research is to determine the N,N'-(ethane-1,2-diyil)bis(quinoline-2-carboxamide) influence on blood glucose level during normoglycaemia.

**Materials and Methods.** Hypoglycaemic effect was investigated on the white random-bred male rats with the body weight equal to 0.20±0.02 kg. Plasma glucose content was determined by glucose oxidase method in the blood samples which were taken from the vessels of tip of the tail before and 90 min after drug administration. N,N'-(ethane-1,2-diyil)bis(quinoline-2-carboxamide) was administered as an aqueous suspension, stabilized by polysorbate 80 at a dose of 1.5 mg/kg i.p. and 7.92 mg/kg (1/80 LD<sub>50</sub>), 15.84 mg/kg (1/40 LD<sub>50</sub>) i.g.

**The Results.** In normoglycemic rats N,N'-(ethane-1,2-diyil)bis(quinoline-2-carboxamide) in a dose of 1.5 mg/kg i.p. the hypoglycaemic effect is moderate (blood glucose decrease by 16.2% vs 57,2% in DM model). After intragastrical administration in a dose of 7.92 mg/kg there was no hypoglycaemic action (blood glucose decrease by 3%), in a dose of 15.84 mg/kg it was more marked (by 24,9% vs 63,1% in DM model).

**Conclusion.** The hypoglycemic effect of N,N'-(ethane-1,2-diyil)bis(quinoline-2-carboxamide) in normoglycaemic animals is significantly less than in diabetic ones.