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Study of the dysregulatory effects of ethanol on the organism of house mice under experimental conditions

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Abstract

Alcohol or ethanol is designated C_2H_5OH (ethyl or wine alcohol, methylcarbinol) – ordinary or absolute (waterless), alcohol is a colorless, readily mobile, highly flammable liquid, burning to the taste, lighter than water, with a specific gravity of 0.7947 at 15 °C.

Ethyl alcohol is a powerful narcotic poison for the organism of animals, a class of mammals, causing rapid addiction and disruption of all organ systems. Ethyl alcohol causes pathological changes, reduces the viability of animals, the reproductive function of the organism and leads to its premature death.

A series of experiments was conducted on laboratory white mice (*Mus musculus* L.) which can serve as a model showing the effect of ethanol on the human organism, because house mice belong to the class of mammals and are close to the species *Homo sapiens*.

The research was conducted in 2017-2019 on the basis of the Budget Educational institution of Preschool Education, the Children's Ecological and Biological Center of Omsk. The experimental animals received ethyl alcohol in a consistently increased concentration from 3% to 10%, as an additive to drinking water, for 120 days (the time of individual development of the house mouse organism from the embryonic to the sexually mature state is normal). In total, 2 groups of experimental animals were involved. Each consisted of 15 instances of house mice of adult *Adultus* and semi-adult *Subadultus* age categories.

The animals of the control group were kept in parallel with the experimental animals. The group consisted of 15 instances of a gender and age composition similar to the experimental groups. The behavioral (ethological) characteristics of the subjects were observed. The behavior of the experimental animals was compared with the behavior of the animals of the control group. The results obtained by us supplement those contained in the literature and characterize ethyl alcohol as a narcotic substance. There are implicated in the metabolic processes of the organism, causing persistent drug addiction and depressing effect on most organ systems, at all stages of ontogenesis.

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