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# PSILOCIIN MULTIPLE INTAKE RESULTED AND IN CARDIOTOXIC EFFECTS

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## ABSTRACT

**Introduction:** Natural hallucinogenic substances seem to be one of the addict agents most commonly used in European countries. The important source of those psychodysleptics may be a spreading growth of *Psilocybe* genus mushrooms.

**Material and Methods:** To verify a previously published hypothesis on cardiotoxicity of hallucinogens, the experimental study in the form of a three-month test on male Wistar rats was performed. The study groups received intraperitoneally psilocin (PSI) in a dose of 10 µg/kg body weight (b.w.) or beta-phenylethylamine (PEA) in a dose of 1 mg/kg b.w. dissolved in 5% ethanol every second day for 2 and 12 weeks. The control groups received 5% ethanol or 0.9% solution of NaCl for the same time periods. At the end of the experiment, biochemical blood parameters, ECG, and myocardial energetic status were examined, as well as histopathological and electron-microscopic examinations were performed. The decreased serum magnesium concentrations in the PSI-exposed animals were noted.

**Results:** The obtained results showed that the repeated (12 weeks) administration of PSI produces in rats ECG abnormalities in the form of tachycardia, myocardial ischaemia and aberrant intraventricular conduction. It was also stated that long-term exposure to PSI and PEA exerts a crucial effect on the energy heart muscle metabolism, which has been reflected in the complex changes in the myocardial profile of purine concentrations. These abnormalities corresponded with degenerative changes in cardiomyocyte mitochondria observed on histopathological and electron microscopy examinations.

**Conclusions:** The results of the study indicated a cardiotoxic effect of psilocin, manifested by functional and structural changes in cardiomyocytes and coronary arteries.

**Key words:** psilocin, phenylethylamine, hallucinogens, cardiology