

# Animal welfare, etológia és tartástechnológia



## Animal welfare, ethology and housing systems

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**THE ACTIVITY OF CATALASE AND CONTENT OF REDUCED GLUTATHIONE IN TESTES OF MICE EXPOSED TO ACRYLAMIDE**

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Acrylamide (ACR) monomer is mutagenic and causes disturbances in male reproductive organs. Acrylamide is used in various industries for example polymer industry, cosmetic, paper and textile industries. It is also used in laboratory gels. Most important is the fact that acrylamide was found in food. Daily intake of acrylamide from foodstuff was estimated in the range of 0.3-0.8 mg/kg bw per day. The International Agency for Research on Cancer classifies acrylamide as 2A, which means that acrylamide is a probable human carcinogen. Glutathione is in a constant state of metabolic turnover because is actively synthesized and degraded. Reduced glutathione enters the oxidation and reduction reactions with electrophilic reagents such as xenobiotics, free radicals, toxins, organic hyperoxides. Catalase is an enzyme catalyzing decomposition of H<sub>2</sub>O<sub>2</sub>.

The aim of our work was to investigate concentration of reduced glutathione and activity of catalase in testes of mice exposed to acrylamide. The research was conducted on SWISS mice 8 week old, weight 26 g. Animals were fed with standard diet and grow in 12/12 light/dark photoperiod. The animals were segregated into two experimental and one control group. Animals of experimental groups were injected intraperitoneally with ACR in the dose of 80 mg/kg. Mice from the control group were injected with physiological saline. The measurements were performed 24, hours and 2 weeks after acrylamide injection.

GSH concentration decreased along with the duration the experiment. The activity of catalase also decreased with duration of the experiment. Significant differences in GSH content occurred after two weeks of ACR injections.