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Potential toxicity of cyanogenic glycoside amygdalin and bitter apricot seed in rabbits-Health status evaluation

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Abstract

Amygdalin is one of the most studied secondary metabolites of *Prunus* genus. It is a cyanogenic glycoside which was initially obtained from the bitter almonds seeds and is a major component of the seeds of plants, such as apricots, almonds, peaches, apples and other rosaceous plants. The views of scientists on the use of amygdalin have been contradictory for many years, partly because toxicokinetics and metabolism of amygdalin still have not been adequately explored. The present in vivo study was designed to reveal whether pure amygdalin intramuscularly injected or apricot seeds oral consumption induce changes in overall health status of rabbit as a biological model. A total of 60 adult rabbits were randomly divided into five groups. The control group received no amygdalin while the two experimental groups E1 and E2 received a daily intramuscular injection of amygdalin at doses 0.6 and 3.0 mg/kg bw. The experimental groups E3 and E4 were fed crushed bitter apricot seeds (*Prunus armeniaca* L.), at doses 60 and 300 mg/kg bw, mixed with commercial feed for rabbits. Blood collection was carried out after 14 days. Biochemical, haematological and antioxidant enzymes activity analysis were performed and statistically evaluated. A short-term amygdalin administration had negligible impact on biochemical parameters-mainly level of urea, bilirubin, cholesterol. Haematological profile of rabbits was influenced very slightly-non-significant platelet count and platelet percentage increase, erythrocytes count and haemoglobin decrease. SOD activity of rabbits decreased significantly ($p > 0.05$) after apricot seeds consumption (102.3 U/ml) in comparison to control (117.4 U/ml). Differences might be connected to diverse metabolism by different administration routes and at the same time by the presence of other substances in apricot seeds (phytosterols, polyphenols, fatty acids). However, a short-term consumption had only slight effect on health status of rabbits and at recommended doses did not represent risk for their health.

Keywords: amygdalin; antioxidant enzymes; apricot seeds; biochemistry; haematology; health.

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