

Original Paper

Protective effect of liqued extract of *Aloe vera* on serum creatine kinase activity in male rats exposed to acute and chronic immobilization stress

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Abstract

Background and Objective: Immobilization stress has a variety of effects on the enzymes activity. This study was conducted to determine the protective effect of *Aloe vera* extract on the serum level of creatine kinase enzyme in male rates exposed to acute and chronic immobilization stress.

Materials and Methods: This experimental study was conducted on 45 male Wistar rats weighing approximately 200±30g. Animals were randomly allocated into 9 groups of 5 rats: control, normal saline, chronically immobilized, acutely immobilized, chronically immobilized normal saline, acutely immobilized normal saline, *Aloe vera* extract (600mg/kg/daily), acutely immobilized *Aloe vera* (600g/kg/daily) and chronically immobilized *Aloe vera* groups (600g/kg/daily). *Aloe vera* extract with a dose of 600mg/kg/BW was administered by gavage feeding before applying stress. For chronic immobilization, animals were put under immobilization stress for 2 hrs a day for 3 weeks and for acute immobilization animals were put under immobilization for 8hrs a day for one week. At the end of the experiments, blood samples were collected using cardiac puncture method and serum level of creatine kinase enzyme (units/L) was measured by spectrophotometry. Data were analyzed using SPSS-19, one-way ANOVA and Tukey post-hoc tests.

Results: Serum level of creatine kinase enzyme represented a statistical significant increase in rats exposed to acute (2368.20±104.96 units/L) and chronic immobilization (2177.80±234.75 units/L) compared with control group (1240.40±706.40 units/L) (P<0.001). The enzyme alteration level was not significant in *Aloe vera* (1619.80±171.41 units/L), acutely immobilized *Aloe vera* extract (1619.00±206.03 units/L) and chronically immobilized *Aloe vera* extract (1448.00±106.07 units/L).

Conclusion: This study showed that gavage of *Aloe vera* extract (600mg/kg/daily) in rats can prevent the elevation of creatine kinase enzyme activity resulted by immobilization stress.

Keywords: Creatine kinase, Immobilization stress, *Aloe vera*, Rat

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