

ORIGINAL ARTICLE



Antagonistic effects of *Andrographis paniculata* methalonic extract on chromium-induced membrane damage in male Albino rats

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The occurrence of heavy metals in the environment and their enormous industrial use has led to an increase in the frequency of the human organ toxicity. Among different heavy metals chromium (Cr) is one of the important heavy metal in both terrestrial and aquatic environments. Membrane damage is one of the vital consequences of Cr-induced cytotoxicity. *Andrographis paniculata* Nees, a membrane protectant may be used to reduce the Cr-induced membrane damage in liver and kidney. For the present study, male albino rats of the Wistar strain (80-100 g) were used. Rats were divided into three groups. The animals of two groups were injected $K_2Cr_2O_7$ at a dose of 0.8 mg per 100 g body weight per day for 28 days. One of the Cr treated group serving as the supplemented groups injected methalonic extract of *Andrographis paniculata* at a dose of 500 mg per Kg body weight (ME-AP₅₀₀) daily for 28 days. The animals of the remaining group received only the vehicle (0.9% NaCl), served as control. The body weights of the animals were taken in each day of treatment schedule. Results shows that significant increases in membrane cholesterol level as well as significant decreases in membrane phospholipid level in Cr exposed animals. Alkaline phosphatase (ALP), total ATPase, and Na⁺-K⁺-ATPase activities of plasma membrane were significantly decreased after Cr treatment. Methalonic extract of *Andrographis paniculata* play an ameliorative role on Cr-induced membrane damage. These findings indicate that Cr treatment at the present dose and duration induces structural and functional alterations in the plasma membrane in both the liver and kidney. However, methalonic extract of *Andrographis paniculata* supplementation restored those alterations induced by Cr in plasma membrane of both liver and kidneys.

Key words: Chromium, Liver, Kidney, Plasma membrane, *Andrographis paniculata* Nees



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