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Short Communication

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Hepatoprotective activity of bark of *Balanites aegyptiaca* Linn.

B. Jaiprakash*, Aland, Rajkumar, R. V. Karadi, R. V. Savadi, V. L. Hukkeri.

Department of Pharmacognosy, K.L.E.S' College of Pharmacy, Hubli, Karnataka. India,

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Abstract

Objective: To study the hepatoprotective effect of bark of *Balanites aegyptiaca* (Linn). Materials and methods: Effect of alcohol extract of *B. aegyptiaca* bark (300mg/kg P.O.) was tested against CCl_4 induced liver damage in rats. Results and conclusions: The extract was effective in preventing damage which was evident by parameters such as SGPT, SGOT, SALP and total bilirubin.

Key words: *Balanites aegyptiaca*, ethanolic extract, hepatoprotective activity.

1. Introduction

Living in the world of inadequately controlled environmental pollution and use of potent drugs has made the liver, which is the key organ of metabolism and excretion, get exposed to a variety of xenobiotics and therapeutic agents. Thus the disorders associated with this organ are numerous and varied. [1]

Balanites aegyptiaca (Linn) family: Simaroubaceae, Syn. *Balanites roxburghii* is a small spiny tree distributed from Africa to Burma [2]. The fruit is used as digestive, anthelmintic, analgesic, antidysenteric, to treat ulcers, skin diseases and snakebite. Bark is used as a purgative [3, 4]. The stem-bark of *Balanites aegyptiaca* is used in Sudanese folk medicine to treat jaundice [5].

In the present work an attempt is made to assess the hepatoprotective activity of the bark of *Balanites aegyptiaca*, since it is not reported.

2. Materials and Methods

2.1. Plant material

The plant material bark of *Balanites aegyptiaca* (Linn), collected during the month of April-May, from local area of Hubli, Karnataka, authenticated by Dr. G.R.Hegde, Professor and Head Department of Botany, Karnataka University Dharwad.

* Corresponding author

Table 1
Levels of various enzymes and total Bilirubin in different groups

Parameter	Control	CCl_4	Bark extract
SGPT IU / l	60.51 ± 2.083	346.96 ± 6.435	291.91 ± 7.453**
SGOT IU / l	52.53 ± 5.920	506.78 ± 7.169	419.8 ± 4.236***
ALP IU / l	100.05 ± 1.125	379.98 ± 48.786	302.71 ± 6.022***
Total Bilirubin mg/dl	0.74 ± 0.024	11.745 ± 0.989	5.97 ± 0.169***

a reported as mean ± S.E.; ** p < 0.01 ; ***p< 0.001

2.2 Preparation of Extract

The shade dried bark was pulverised to coarse powder with a grinder and this plant material was extracted with ethanol(95%) by soxhlet extraction, concentrated and dried over sodium sulphite (yield 8.75%).

2.3 Animals

Healthy Wistar albino male rats weighing 150 to 180 g, housed in standard conditions of temperature, humidity and light were employed. They were fed with standard rodent diet with water *ad libitum.*

2.4 Pharmacological screening

The study was performed by inducing the hepatotoxicity with carbon tetrachloride (CCl_4) [6]. The results were compared with Liv-52 [7]. The animals were divided into four groups of six each. The grouping was done as described below.

Group I: Normal control group

Group II: Intoxicated control group and received CCl4 at a dose of 0.7ml / kg body weight.

Group III:.Test group and received bark extract at a dose of 300mg/kg body weight.

The extract was given daily for 10 days by oral route and CCl_4 given on 3rd, 6th and 10th day by i.p. route. After one hour of last dose of CCl_4 injection, the animals were sacrificed by cervical dislocation and blood was collected by cardiac puncturing. The Serum was separated by centrifugation and assayed for various biochemical parameters like Serum Glutamate Pyruvate Transaminase (SGPT), Serum Glutamate Oxaloacetate Transaminase (SGOT), Serum Alkaline Phosphatase (SALP) and total bilirubin using standard procedures.

2.5 Statistical Analysis

The mean value±SEM calculated for each parameter. Present reduction in biochemical parameters by the test sample against the hepatotoxin was analysed by considering the differences in biochemical parameters between the hepatotoxin treated and control group as 100% level of reduction for determination of significant intergroup differences, each parameter analysed separately by employing Student's *t* - test for unpaired data.

3. Results and discussions

Table 1 summarizes the hepatoprotective activity of bark of *Balanites aegyptiaca.* The bark extract of *Balanites aegyptiaca* reduced the elevated levels of various enzymes like SGOT, SALP and total bilirubin significantly ($p<0.001$) and SGPT moderately significant ($p<0.01$). The present study shows that the ethanolic extract possesses hepatoprotective activity, as evidenced by the biochemical paramters. The present study offers some preliminary evidence for the traditional use of this plant in liver dissorder.

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