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EFFECT OF *Abutilon Indicum* ON CARBON TETRACHLORIDE INDUCED HEPATIC DAMAGE IN ALBINO RATS

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ABSTRACT

Ethanolic extract of *Abutilon indicum* (Malvaceae) was screened for its hepatoprotective potential, using carbon tetra chloride induced hepatic damage model in rats. A dose of 400 mg / kg body weight was employed in the study. The effect was assessed by monitoring the serum levels of the following enzymes, like serum glutamate-oxaloacetate transaminase (SGOT), serum glutamate pyruvate transaminase (SGPT), serum alkaline phosphatase (SALP). *Abutilon indicum* significantly reduced serum levels of SGOT, SGPT, and SALP comparable with Liv-52 as a reference standard.

Key words: *Abutilon indicum; Liv-52; Ethanolic extract: Carbon tetrachloride*

INTRODUCTION:

Abutilon indicum (Linn.) of family Malvaceae, known as Atibala in Sanskrit, is found throughout tropical and sub-tropical regions in India. The various parts of plant possess medicinal properties. Infusion of root has diuretic potential, and also finds use in the treatment of gonorrhea, haematuria[1]. The plant has immuno-modulatory effect, and protective effect in jaundice. The plant has analgesic activity[2], and reported to contain sesquiterpene lactone and gallic acid[2–6]. The present study is an attempt to validate the hepatoprotective activity of *Abutilon indicum*.

Materials and Methods:

The plants were collected from local area of Hubli-Dharwad and identified by Dr. G.R.Hegde, Professor and Head of Dept. of Botany, Karnataka University Dharwad, Karnataka.

The shade-dried plant, pulverized and reduced to 60-mesh powder was subjected to extraction with 95% ethanol. The ethanolic extract was concentrated in rotary flash evaporator and dried over sodium sulphate under vacuum. The dried ethanolic extract was suspended in distilled water using 1% Tween-80, and this extract was used for the pharmacological screening.

Experimental Animals:

The Swiss albino mice (25-30g) and Wister albino Rats (180-210g) of either sex were used in the study. They were procured from experimental animal house. IISc, Bangalore, maintained under standard husbandry conditions. The animals were given standardized laboratory feed and water *ad libitum*.

Acute Toxicity Study:

Acute toxicity studies were carried out as per Up and Down method[7]. Hepatoprotective activity was evaluated using a dose of 400 mg/kg body weight p.o.

Assessment Of Hepatoprotective Activity[8, 9,10]

Wister albino rats were randomly divided into four groups of six rats each.

Group 1- served as normal control, olive oil (2 ml/kg, s.c.)

Group 2- was given a dose of CCl_4 (0.75 ml/ kg body weight) i.p., olive oil (2 ml/kg, s.c.)

Group 3- was treated with ethanolic extract of *Abutilon indicum* (400 mg/kg body weight) orally, olive oil (2 ml/kg, s.c.)

Group 4- was treated with Liv-52 orally, which served as reference standard (1 ml/kg body weight) olive oil (2 ml/kg, s.c.)

The ethanolic extract of *Abutilon indicum* (400 mg/kg body weight p.o) was given for 10 days, Liv-52 (1 ml/kg body weight) for 10 days, CCl_4 (0.7 ml/kg body weight) was given to group 2^{nd}, 3^{rd} and 4^{th} on 3^{rd}, 6^{th} and 10^{th} day by i.p. route.

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On the 10th day rats were sacrificed by cervical dislocation and blood was collected from the carotid artery, Serum was separated and used for the estimation of various biochemical parameters like SGOT, SGPT and SALP, Liver was processed immediately after removal for histological investigation[7]. (Figure 1-4)

Fig1 : Hepatic Image of Normal Rat

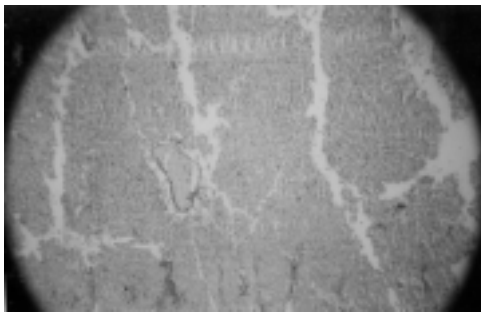

Fig2 : Hepatic Image CCl_4 Induced Hepatic damage

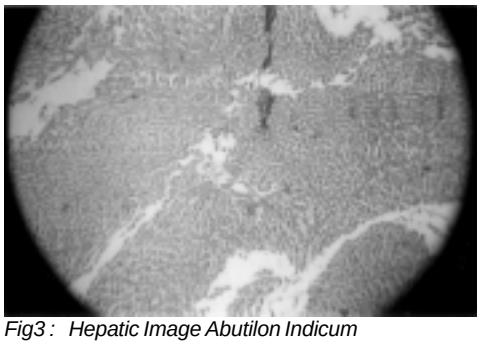

Fig3 : Hepatic Image Abutilon Indicum Treated Rat Liver

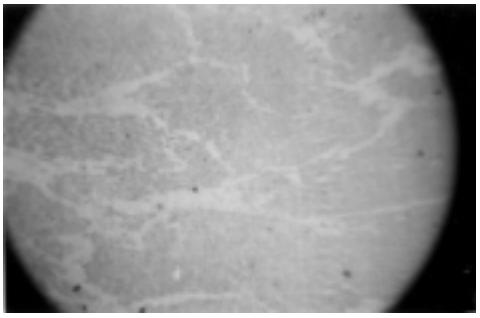

Fig4 : Liv-52 Treated Rat Liver

Statistical Analysis

Results of biochemical estimation were reported as mean ± S.D for each parameter. Each parameter was analysed by employing one way analysis of variance (ANOVA). Table 1.

Table No. 1: Showing various enzyme levels in different groups

Group	SGOT	SGPT	SALP
Normal	389.5±22.48	57.27±3.88	198.25±11.05
CCl_4 control	702.25±7.31	264.5±23.6	495.5±89.9
Ethanolic extract	498.9±12.65***	102.7±5.85*	284.7±25.7**
Liv-52	412.8±116***	89.76±5.87**	211.5±16.8**

The 'p' values are reported as mean ±SEM***, p<0.001, **p<0.01, *p<0.05

Results and Discussion:

Hepatotoxicity developed by CCl_4 was associated with elevated serum levels of SGOT, SGPT and SALP which is due to damage of hepatic parenchymal cells.

The ethanolic extract of Abutilon indicum showed marked decrease in serum levels of SGOT, SGPT and SALP. The effect was comparable to Liv-52 treated group. *Abutilon indicum* showed significant hepatoprotective activity.

Liver of rats treated with the *Abutilon indicum* showed signs of protection against CCl_4 injury to some extent but it was not comparable with standard Liv-52.

Reference:

1. Kirtikar KR and Basu BD, Indian medicinal plants; International book distributors; Dehradum: 1995, Vol-1, p 314.
2. Kalyani GA et al. Indian Drug; 1984; 22 (2): 69.
3. Seetharam YN et al. Fitoterapia; 2002; 73: 156.
4. Sharma PU and Ahmed ZA, Photochemistry: 1989; 28(12): 3525.
5. Sharma PV et al. Indian drugs; 1989; 26 (7): 335.
6. Rosha S et al. MAPA; April 2003; 25: 901.
7. Gosh MN, *Fundamentals of experimental Pharmacology*; Scientific book agency; *Calcutta* 1987: p187.
8. De S et al. Fitoterapia: 1996; Vol 67(2): 106.
9. Ko KM, Yick KP, Chiu TW, Fitoterapia: 1993; 64: 539.
10. Taranalli AD, Cheeramkuzhy T, Pharm Biol; 2000; 38: 51.
11. Harsh Mohan, Text book Of Pathology; 3rd edn; Jaypee Brothers Medical Publishers Pvt Ltd; 1998:p686.