

# Toxicity Studies of *Abutilon indicum* seeds in female albino rats

\*Dr. Naveen Chandra Khanduri, \*\*Dr. S. P. Singh

\*Department of Zoology, Govt. P.G. College Agastyamuni, Rudraprayag, Uttarakhand

\*\* DBS PG College Dehradun, Uttarakhand

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**Abstract:** The toxicity studies of *Abutilon indicum* seeds, there were not any specific toxic manifestation up-to 72 hours in acute toxicity study with seeds and no mortality was recorded at any doses. In sub acute 100 and 125 mg/kg were not toxic as mortality percentage was nil at almost all the doses.

**Keywords:** toxicity studies, *Abutilon indicum* seeds, female albino rats.

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## 1. INTRODUCTION

Many indigenous plants preparation have been prescribed by Ayurvedic Physicians in India from time immemorial for the prevention of conception. But it is necessary to check the toxicity level of plants as well as other side effects. Some of these plants might have been included among folklore medicine as a result of trial and error observations, while for others there may be no reasonable basis. In the present study one indigenous plant namely *Abutilon indicum* (seeds) have been selected for the toxicity study properly in female albino rats.

## 2. MATERIAL AND METHODS

To observe the toxicity studies three groups of rats each with nine rats weighing between 100 to 200 grams were made. Control group that is 1<sup>st</sup> group given the vehicle (10 mg gum acacia powder dissolve in distilled water). Other two groups IInd and IIIrd were given orally the doses of plant extract.

### Acute Toxicity:

To observe the toxicity in *Abutilon indicum* seeds rats were divided into three groups each containing a definite number of rats. Control group i.e first group were given the normal diet. Other two groups were given plants extracts once orally 150 mg and 300 mg/kg body weight doses respectively. The mortality if any was recorded. The animals were observed for convulsion, excitement and drowsiness and other effects up-to 72 hours.

### Sub acute Toxicity

The experiment was done as above to ascertain sub acute toxicity. The only difference was that the lower doses i.e. 100 and 125 mg/kg body weight were given respectively for a period of 30 days. Initial and final body weights were recorded. Mortality if any was recorded. Further study on sub acute toxicity i.e. effects on histopathology of various organs such as liver and kidney were conducted.

### Preparation of slides

After killing the animals under chloroform anesthesia, the ovary and uterus were taken out, adherent tissues were separated and tissues were fixed in Bouins solution for 24 hrs. The washing of tissues was done under running water for removing the Bouins fluid. After usual dehydration, tissues were passed to Xylene and finally to pure wax for embedding. Lastly paraffin blocks were prepared. With the help of rotator microtome, sections of 5 $\mu$  and 6 $\mu$  thickness were cut.

A thin layer of egg albumin applied on clear glass slides. Egg albumin worked as an adhesive. Flattening was done and mounted sections were allowed to dry. Then staining of tissues was done. Ehrichs Haemotoxylin and Eosin were used for staining and slides were mounted with cover slips using DPX mounting so that permanent slides prepared.

### 3. RESULTS

#### Observation on acute toxicity

During experimental period no mortality and behavioral changes were seen in the rats of controlled group, which were administered with 10% gum acacia powder at 1 ml dose as vehicle. Mortality and acute toxic symptoms such as convulsions, excitement, drowsiness and other effects were not noticed up to 72 hours.

#### Toxicity in Crude Powder

The doses 150 to 300 mg/kg crude powder of *Abutilon indicum* did not show any effects on body weight, mortality and behavioral changes.

#### Toxicity in Hot Water

When hot water extract of *Abutilon indicum* was administered at the doses 150 and 300 mg/kg, no change in the body weight, mortality and behavioral changes were noticed.

#### Alcoholic extract

Alcoholic extract of *Abutilon indicum* was administered at the doses 150 mg/kg and 300 mg/kg body weight and observed for 72 hours, did not show any changes in the body weight, mortality and behavior.

### 2. Observation on Sub acute toxicity

#### Toxicity in Crude Powder

The doses 100 and 125 mg/kg of crude powder of *Abutilon indicum* did not show any effects on the mortality and behavioral changes. Body weight increased up to 30 days of administration. (Table. 1)

#### Toxicity in Hot Water extract

After the administration of *Abutilon indicum* for 30 days at the doses level of 100 mg/kg and 125 mg/kg, no toxic symptoms were observed. An increase in the body weight was noticed. (Table: 2)

#### Histopathology of Liver

T.S of the liver treated with different doses i.e. 100 mg/kg and 125 mg/kg did not show any histological changes in the treated rats as compared to the control group of rats.

#### Histopathology of kidney

The kidney of rats treated with different doses i.e. 100 and 125 mg/kg body weight of crude powder, hot water extract and alcoholic extract of *Abutilon indicum* did not cause any alteration in the histology as compared to the control.

**Table-1: Mortality and behavioral changes in acute toxicity with the administration of *Abutilon indicum* in female rats for 72 hours. (9 rats were included in each group)**

Name of the treatment	Dose mg/kg	Mortality	Behavioral changes		
			Excitement	Drowsiness	Water and food intake
Control	Vehicle	Nil	Nil	Nil	Normal
Crude Powder	150	Nil	Nil	Nil	Normal
	300	Nil	Nil	Nil	Normal
Hot Water Extract	150	Nil	Nil	Nil	Normal
	300	Nil	Nil	Nil	Normal
Alcoholic Extract	150	Nil	Nil	Nil	Normal
	300	Nil	Nil	Nil	Normal

++ Drowsiness

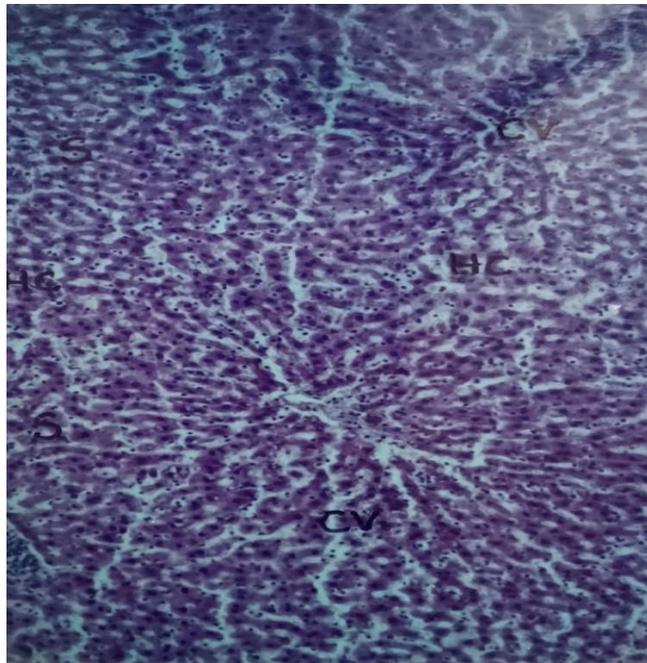
++++ Excess food and water intake

**Table-2: Body weight changes due to sub acute toxicity with the administration of *Abutilon indicum* I female rats for 30 days (9 rats were included in each group) Values are mean  $\pm$  S.E**

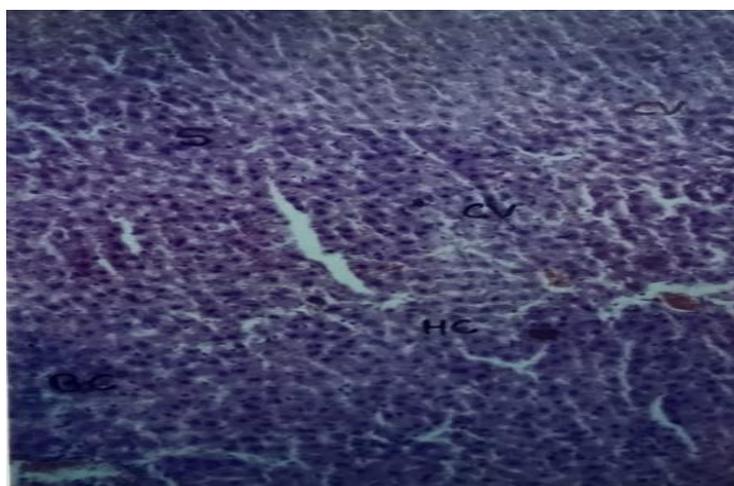
Name of the treatment	Dose mg/kg	Initial body weight (gm)	Interval of the days		
			10 days	20 days	30 days
Control	Vehicle	125 $\pm$ 1.0	127 $\pm$ 1.2	130 $\pm$ 1.01	132 $\pm$ 1.7
Crude Powder	100	125 $\pm$ 1.04	125 $\pm$ 1.28	126 $\pm$ 2.0	130 $\pm$ 1.09
	125	127 $\pm$ 1.10	125 $\pm$ 2.01	126 $\pm$ 2.0	133 $\pm$ 2.50
Hot Water Extract	100	120 $\pm$ 1.08	122 $\pm$ 1.12	124 $\pm$ 1.28	127 $\pm$ 1.50
	125	122 $\pm$ 1.30	124 $\pm$ 1.60	125 $\pm$ 1.31	128 $\pm$ 1.70
Alcoholic Extract	100	125 $\pm$ 1.17	126 $\pm$ 1.07	128 $\pm$ 1.20	130 $\pm$ 1.30
	125	128 $\pm$ 1.21	130 $\pm$ 1.08	132 $\pm$ 1.23	133 $\pm$ 1.27

\*P&lt;0.05

Explanation of Figures : T.S of the liver of control female albino rats vehicle treated shows normal histological features, large number of polygonal lobules, rounded nuclei present in each hepatic cells boundaries are clear. X200

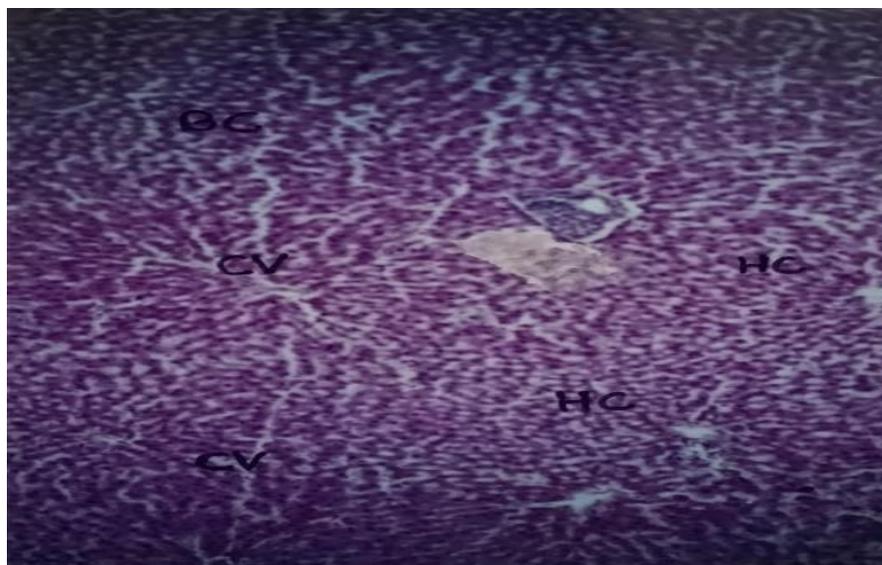
**Figure No .01****Figure No - 02**

T.S of the liver of rat treated with hot water extract of *Abutilon indicum* at 125 mg/kg for 30 days shows no toxic symptoms.



**Figure No - 03**

T.S of the liver treated with alcoholic extract of *Abutilon indicum* at 125 mg/kg for 30 days did not show any histological changes in the treated rats as compared to the control group of rats.



#### 4. DISCUSSION

In the present study when *Abutilon indicum* seeds administered as crude, hot water extract and alcoholic extract there was not any specific toxic manifestation upto 72 hours in acute study, no mortality was recorded at any doses. In the sub acute toxicity study both doses of *Abutilon indicum* seeds i.e. 100 and 125 mg/kg body weight were not toxic as mortality percentage was nil at almost all the doses. Administration of *Abutilon indicum* at sub acute caused increases in the body weight when compared to the control and initial weight.

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