



PHARMACOLOGICAL AND PHYTOCHEMICAL EVALUATION OF EXTRACT OF ABUTILON INDICUM

* Ashwinkumar Budhanale, Sushant Kokane, Ritesh Chavan, Sakshi Bhosale,

Department of Chemistry,

Appasaheb birnale college of pharmacy, sangli 416416, Maharashtra, India.

ABSTRACT:

This study has been undertaken to perform the phytochemical screening of *Abutilon indicum*. and investigate the Anti-TB activity & Anti-HIV activity *Abutilon indicum*. The main aim of phytochemical screening is to confirm the presence of alkaloids, flavonoids, tannins, fatty oil, hexose sugar, mucilage test, carbohydrate test, reducing sugar test, monosaccharied test, ami no acid test, cardiac glycoside, saponin glycoside and for investigation of Anti-TB & HIV activity of powder sample of leaves of *Abutilon indicum*.

KEY WORDS : Abutilon Indicum, Traditional Use, Phytochemical Evaluation, Pharmacological Activity.

I. INTRODUCTION:

Abutilon Indicum (Indian abutilon, Indian mallow) *Abutilon Indicum* is a species of herb, undershrub, or shrub with simple prickly or stellate hairs. Its leaves are simple or lobed, with a base cordate and margins crenate-dentate. The inflorescence is usually axillary or terminal, with solitary or aggregated lax panicles or corymbose racemes. The flowers are bisexual, pedicel slender, jointed in the upper half, and have a large, yellow, white, or orange corolla. The majority of the time, stamens are smaller than petals and feature basifixed or clustered anthers. With 5–20 locar ovules and a branching style, the ovary is superior. The schizocarp fruit has 5–40 mericarps and is ovoid–subglobular, campamilate, apexbinate, or acuminate when mature. There are many, glabrous, smooth, or briefly pubescent seeds.

ABUTILON INDICUM :

Synonyms	: Balika, Bhuribala, Rishagadha, Kankatika.
Scientific Name	: <i>Abutilon Indicum</i>
Higher classification	: Indian mallow
Family	: Malvaceae
Kingdom	: Plantae
Order	: Malvales

COMMON NAME :

Marathi : Mudra

Hindi : Kanghi

English : Indian Mallow, Country Mallow

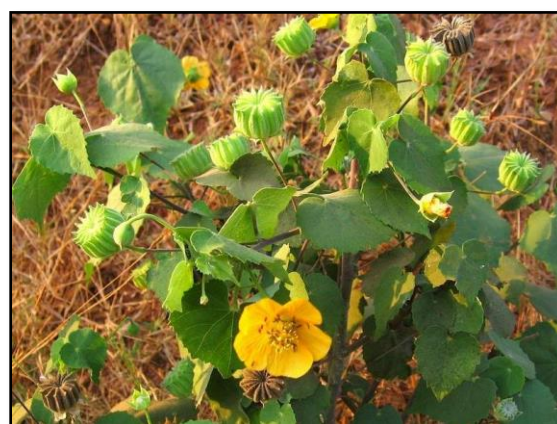


Fig no.1. Abutilon Indicum

TRADITIONAL USES :

Abutilon indicum is used as a laxative, astringent, anti-inflammatory, anthelmintic, analgesic, and digestive. can cure bladder infections, gonorrhoea, headaches, ulcers, and leprosy. The whole plant is uprooted, dried and is powdered. In ancient days, maidens were made to consume a spoonful of this powder with honey, once in a day, for six months until the day of marriage for safe and quick pregnancy. The plant is commonly used in Siddha medicines. The whole plant of *Abutilon indicum* used for medicinal purpose by Tamils. The flowers are used to increase semen in men.

II. MATERIAL:

- 1. Plant leave:** Collection of plant leave of *Abutilon indicum*. Then wash the leave with water for two to three times. Keep it for shade drying until the leave become completely dry. Make the powder of dried leave in grinder and use the powder for further process.
- 2. Chemicals:** Water, Hexane, Methanol, Sudan red, Acetic acid, phloroglucinol reagent, Concentrated hydrochloric acid, Ammonium hydroxide, 5% ferric chloride, Dilute iodine, Lead acetate, Hagar reagent, Dragendorff's reagent, Wagner's reagent, etc.
- 3. Instrument:** Soxhlet apparatus, Condenser, Heating mantle, Round bottom flask, Oven, Beakers, Test tube, Strier, Measuring cylinder, Weighing balance, Microscope, Funnel, etc.

III. EXTRACTION METHOD:

First of all assemble the soxhlet apparatus then water source should be kept in proper flow which is attached to condenser. Weigh three powder of leaves and pore the powder into the Muslin cloth. Muslin cloth kept in Soxhlet apparatus. Utilising a funnel, add the methanol that has been measured into the Soxhlet. Complete the Methanol cycle through the Syphon tube. Refill the soxhlet with methanol until the syphon bulb is full. Save the Soxhlet for one day to allow for saturation. Next day, 'Switch On' the Heating mantle by maintaining the temperature at 60°C. Continue the Soxhlet for extraction of powder for 5-6 hrs. After complete use the extraction for further process by evaporating the extract.

IV. PHYTOCHEMICAL SCREENING:

Alcoholic extract were used for phytochemical screening. Hager's test, Dragendorff's test, Wagner's test are generally used for Alkaloids screening. Lead acetate test, Alkali test are used for Flavonoids. Ferric chloride (5%), Lead acetate test, Dilute iodine test are used for identification of tannins. Filter Paper test used for detection of presence of fatty oil. Tollen's phloroglucinol test, Seliwanoff's test used for Hexose sugar. Swelling test for mucilage screening. Molisch's test for carbohydrate test. Benedict's test, Fehling's test used for to test reducing sugar. Barfoed's test for Monosaccharide. Ninhydrin test for Amino acid test (Cardenoloids) is used for cardiac glycoside.

Test for phytochemical screening was performed at Appasaheb birnale college of sangli, India. The procedure for above test taken from the book of Khandelwal & Khabadi authors.

V. PHARMACOLOGICAL SCREENING:**ANTI-TB :**

Compounds' ability to inhibit *M. tuberculosis* using the microplate Alamar Blue test (MABA). This has a good correlation with both the proportional and BACTEC radiometric methods, employs thermally stable reagent, and is non-toxic. To reduce the amount of medium that evaporates from the wells during incubation, add 200 μ l of sterile deionized water to the sterile 96-well plate's outer border. After serial compound dilution, 100 μ l of Middlebrook 7H9 broth was added to the plate. The final drug levels examined ranged from 100 to 0.2 μ g/ml. Plates were parafilm-sealed and incubated at 37°C for five days. After that, add 25 μ l of a freshly made 1:1 mixture of Almar Blue reagent and 10% tween 80 to the plate, and let it there for 24 hours to incubate. Pink was scored as growth, and blue was interpreted as no bacterial growth in the well.

ANTI-HIV :

In 500 μ l of the reaction mixture, 50 μ g of pepsin, 800 μ g of haemoglobin, and extracts of AS E and AS Aq were added. After 20 minutes of 37°C incubation, 700 μ l of 5% TCA were added to the mixture to terminate the reaction. Following a 5-minute 14000 g centrifugation, the supernatant was removed. At 280 nm, optical density (OD) was measured spectrophotometrically. For the sample as well as the positive and negative controls, separate blanks were employed. Following the aforesaid technique, enzyme and substrate were used as a negative control, while pepstatin, a well-known inhibitor of HIV-protease, was used as a positive control. Since each sample was taken in triplicate, the assay's outcomes are repeatable. proportion of inhibition

$$\% \text{ Inhibition} = \frac{\text{OD of negative control} - \text{OD of sample}}{\text{OD of negative control}} \times 100$$

VI. RESULT:

Phytochemical Test	Alcoholic extract result
ALKALOIDS	+
FLAVONOIDS	+
TANNINS	+
FATTY OIL	+
HEXOSE SUGAR	+
MUCILAGE TEST	+
CARBOHYDRATE TEST	+
REDUCING SUGAR TEST	+
MONOSACCHARIED TEST	+
AMINO ACID TEST	+
CARDIAC GLYCOSIDE	+
SAPNONIN GLYCOSIDE	+

ANTI-TB TEST:

Sl. No.	Sample	100 µg/ml	50 µg/ml	25 µg/ml	12.5 µg/ml	6.25 µg/ml	3.12 µg/ml	1.6 µg/ml	0.8 µg/ml
01	<i>Abutilon indicum</i>	S	S	S	S	R	R	R	R

**ANTI-HIV TEST:**

Sr. no.	Compound	Concentration	Reading			Mean	% inhibition
			1	2	3		
1	Control		0.098	0.099	0.098	0.098	
2	Pepstatin (std)	100 µg/ml	0.007	0.006	0.005	0.006	93.87
3	Sample - <i>Abutilon indicum</i>	1mg/ml	0.059	0.059	0.058	0.058	40.81

The sample show is shown in the above table. Using the pepsin enzyme, effective anti-HIV properties were assessed..

VII. DISCUSSION:

Anti-TB : *Abutilon indicum* for showing Anti-TB activity which is compared with standard strain, which is Mycobacteria TB (vaccins strain, H37 RV strain) ATCC No-27294. All the sample of *Abutilon indicum* were used to carry out In-Vitro Anti-TB activity. By using micro plate Alamar Blue assay. The drug conc. tested was 100 to 0.2 ug/ml. A blue color in well represent no bacterial growth, while pink color shows growth.

Anti-HIV : *Abutilon indicum* at 1 mg/ml shows Anti-HIV activity when compared with Pepstatin as a standard drug. Sample of *Abutilon indicum* shows low % of inhibition than standard Pepstatin.

Thus, we were concluded that, our sample of alcoholic extract of powdered leaves of *Abutilon indicum* shows good anti-TB and Anti-HIV activity.

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