

# ABUTILON INDICUM- AN EXCELLENT PHYTOMEDICINE: A REVIEW

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**Abstract:** Medicinal plants are a boon to human beings to lead a disease free healthy life. They play a major role in maintaining human health. One such medicinal plant is *Abutilon indicum*. It is an erect, woody, shrubby plant and widely distributed in the tropical countries. The whole plant is used to cure many diseases. It is a rare weed plant mostly found in wastelands of tropical region. The whole plant of *Abutilon indicum* has a good deal of various components. The leaves include steroids, saponin, carbohydrates and flavonoids. The root comprises linoleic acid, oleic acid, stearic acid, palmitic acid whereas the seeds embrace all the essential aminoacids with palmitic acid. The elemental role of this plant involves Hypoglycemic, Immunomodulatory, Analgesic, Antimicrobial, Ant diabetic, Antiulcer, Anti arthritic, Anti inflammatory and Larvicidal activity. The leaves of this plant were generally taken orally in order to get relieved from body pain. The present review aims to provide detailed survey of literature on the phytochemical and pharmacological properties of *Abutilon indicum*.

**Key words-** Medicinal plant, Pharmacological studies, Phytochemical studies, Traditional uses.

## I. INTRODUCTION

Population gets increase day by day with updated rate of diseases. The prime way of shielding us from these diseases relies only in medicinal plants. Also traditional medicines derived from medicinal plants are used by about 60% of the world's population (Vaidya, 1997). These medicinal plants pave the best way to get away from a number of diseases (Ankit saini, 2014). One such unique plant is *Abutilon indicum*, which is considered as an endangered species in India. The plant *Abutilon indicum* is constituted as a rare and endangered weed plant with enormous medicinal values. The whole plant has a good deal of various components. The leaves contain steroids, saponin, carbohydrates and flavonoid (Akinpelu, 2006). The roots comprise linoleic acid, oleic acid, stearic acid and palmitic acid whereas the seeds embrace all the essential aminoacids with palmitic acid. With these components the plant *Abutilon indicum* can intercept the diseases which include Gonorrhoea, Hematuria, Bronchitis, Leprosy, Urethritis, Rheumatism, Ulcer, Piles, Dry cough etc.

## II. VERNACULAR NAMES

- COMMON NAME      INDIAN MALLOW
- MARATHI            KANSULI
- SANSKRIT            ATIBALA
- URDU                KANGHI
- ARABIC              DEISHAR
- KANNADA            THUTHIGIDA
- MALAYALAM        PETTAKAPUTTI
- TAMIL                THUTHI

## III. TAXONOMIC DESCRIPTION

Kingdom	Plantae
Subkingdom	Tracheobionta
Division	Magnoliophyta

Class	Magnoliopsida
Subclass	Dilleniidae
Order	Malvales
Family	Malvaceae
Genus	<i>Abutilon</i>
Species	<i>Indicum</i>

#### IV. DESCRIPTION OF THE PLANT

The roots have strong fragrance and are cylindrical in shape, found to be yellow in colour and saltiest in taste. The stem is branched, flattened, soft and flexible in nature, they are about 1-3m long and 0.3-0.9 cm in diameter. The leaves are found to be dorsal ventral and about 2-2.5cm long. The flowers are found to be yellow in colour with beaked fruits.

#### V. TRADITIONAL MEDICINE

The plant *Abutilon indicum* is a rare weed plant mostly found in wastelands of tropical region (Archna Sharma, 2013). The elemental role of this plant involves Hypoglycemic, Immunomodulatory, Analgesic, Antimicrobial, Antidiabetic, Antiulcer, Antiarthritic, Anti-inflammatory and Larvicidal activity (Saini, 2015). The leaves of this plant were generally taken orally in order to get relieved from body pain, ear ache and also used as eye wash and mouth wash (Khadabadi, 2010).

#### VI. MATERIALS AND METHOD

The fresh plants were collected from different locations and they were separated into various parts like leaves, stem, root and seeds. They were subjected for thorough washing in order to remove dust and dirt. Then they were shade dried and powdered by means of mechanical mixer. They were submerged in various solvents such as Ethanol, Methanol, Chloroform, Petroleum ether and Aqueous. Then they were subjected to agitation for 3 consecutive days. The extracts were then filtered, labeled and preserved for future use.

#### VII. PHARMACOLOGICAL ACTIVITY

##### 7.1 ANALGESIC ACTIVITY:

Petroleum ether, chloroform, methanol and aqueous extracts of the whole plant were formulated. Then they were administered at the rate of 400mg/kg of body weight of albino rats. Pentazocin was considered as the standard and the activity was processed by Tail flick method. The methanol and aqueous extract gives better result.

##### 7.2 ANTI INFLAMMATORY ACTIVITY:

Chloroform, aqueous, methanol and ethanol extract of the plant were given at the rate of 400mg/kg of the body weight to a carrageenan induced rats by considering Diclofenac as a standard. Anti-inflammatory activity was similar to that of the analgesic activity, such that methanol and aqueous extracts exhibit greater effect.

##### 7.3 ANTI ARTHRITIC ACTIVITY:

Methanol extract of the whole plant was given at a dosage level of 400mg/kg of body weight to albino rats. Soon after the administration of the extract the volume of the paw (rats) found to be in reduced state and they were monitored weekly.

#### 7.4 HEPATOPROTECTIVE ACTIVITY:

Two extracts of the leaves of *Abutilon indicum* were prepared namely Ethylacetate extract (400mg/kg) and Hydroalcoholic extract (200mg/kg) were administered to a CCl<sub>4</sub> and paracetamol induced rats. In this case ethylacetate extract of the leaves show extreme recovery when compared with hydro alcoholic extract.

#### 7.5 DIURETIC ACTIVITY:

Seed extract of the plant *Abutilon indicum* was provided at the rate of 200-400mg/ kg of the body weight. This results in increase in rate of urine and the components such as sodium and potassium. This activity was found to be almost similar with the aqueous and ethanol extract of the leaves. The results were typically equal when they are treated with the standard drug Furosemide.

#### 7.6 IMMUNOMODULATORY:

Aqueous and ethanol extract of the leaves were given at the rate of 200-400mg/kg of the body weight and they were determined for Haemagglutination antibody value, Neutrophil adhesion value and also for delayed type hypersensitivity. Both the extracts exhibits good effect in both Neutrophil adhesion values and delayed type hypersensitivity mainly due to the components present in the plant.

#### 7.7 ANTI DIABETIC ACTIVITY:

Aqueous extract of the whole plant (0.5-1g/kg) was given to albino rats by oral glucose tolerance method. The glucose level starts to get diminished in about 30 mins.

#### 7.8 ANTICONVULSANT ACTIVITY:

Pentylene tetrazole (PTZ) and Maximum electro shock (MES) were allowed to induce convulsion in rats. Ethanol extract of the leaves was provided to these rats. In case of PTZ induced convulsion, convulsion rate gets increased whereas the tonic seizures get decreased, the exact activity was found to be with the control group. This anti convulsant activity mainly takes place due to the components present in the leaves.

#### 7.9 ANTI DIARRHOEAL ACTIVITY:

The albino rats were treated with castor oil and prostaglandin E<sub>2</sub> which induces diarrhoea in these rats. Methanol and aqueous extract of the leaves were given to these rats with the standard loperamide. Castor oil induced diarrhoea and prostaglandin induced diarrhoea gets reduced.

#### 7.10 WOUND HEALING ACTIVITY:

Various extract of the leaves of the plant were given to albino rats in order to heal the wounds. Petroleum ether extract showed significant healing property with the similar activity of the standard Nitrofurazone ointment.

#### 7.11 ANTI ASTHMA:

Aerial parts of the plant were dried and converted to a powdered consistency. They play a marked role in reducing extreme condition of cold, cough, sneezing, chest tightness and difficulty in breathing.

#### 7.12 ANTI ULCER ACTIVITY:

Pylorus ligated and ethanol induced ulcerated albino rats were treated with methanol extract of the leaves. They were administered at the rate of 250-500mg/kg of the body weight. Rantidine was considered as a standard drug, they showed a considerable reducing activity of acidity formation and the occurrence of ulcer also got limited.

#### 7.13 LARVICIDAL ACTIVITY:

Various extract of the whole plant are considered for monitoring the larvicidal activity. Among all those extracts petroleum extract shows considerable activity only with petroleum extract. This is possible only by means of B-sitosterol which is recognised as a larvicidal compound.

#### 7.14 ANTI MICROBIAL ACTIVITY:

In order to monitor anti microbial activity, all extracts of the plant which include chloroform, ethanol, methanol, aqueous,

petroleum ether extracts were prepared. Organisms which were chosen include *Bacillus subtilis*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* and *E. coli*. They are performed by means of agar disc diffusion method. Of all those extracts petroleum ether showed maximum inhibitory action when compared to ethanol.

### VIII. CONCLUSION

Thus, the plant has a wide range of pharmacological activities. It has been used since centuries as an analgesic, antipyretic and anti-inflammatory, larvicidal, anti-ulcer, anti-asthma, anti-diarrheal (Cherian, 1995) and as an anti-convulsant. Recent research carried out suggested that it has various phytochemicals, and pharmacological activities (Karthiswaran, 2010). Hence, it is proved that is an important source of various types of compounds with diverse chemical structures as well as pharmacological activities. However, very less work has been done on this plant and there is a wide scope for investigation for establishing new therapeutic drugs for various diseases.

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