

KIDNEY STONE TREATMENT MEDICINAL PLANT & THEIR PHYTOCHEMICAL STUDY

P.M. Khadse

Department of Botany, Shri R.L.T. College of Science, Akola, India
pramodkhadse12@gmail.com

ABSTRACT

Plants have been used traditionally in local people for treatment of kidney stone. The plant root extract identified eg serve as major source of active ingredients and products of secondary metabolites eg. Alkaloids and phenolics etc used in curing disease. The phytochemical study of *Abutilon indicum* (L.) was evaluated to ascertain some of the secondary metabolites that exhibit medicinal properties. The results of phytochemical screening of ethanol crude root extract of *Abutilon indicum* (L.) revealed the, presence of alkaloid, tannins, saponins and flavonoids. These metabolites observed by various technique like solvent extraction ultrasonicator, rotavapour, thin layer chromatography column separation and HPTLC technique. plants as medicine is as old as human civilization. People of all ages in both developing and developed countries use plants in an attempt to care various diseases and to get relief from physical sufferings. Natural products are a source for a bioactive compounds and have potential for developing some novel therapeutic agents.

Keywords : secondary metabolites, kidney stone, rotavapour, phytochemical screening, traditional uses.

1) Introduction

Medicinal plants have been used from centuries as remedy for human diseases because they contain the compounds of therapeutic values. The most important bioactive constituents of plants are steroids, terpenoids, carotenoids, flavonoids, alkaloids, tannins and glycosides. Plants in a facet of life have served a valuable starting material for drug development. (Singh V.K. et. al. 2003). *Abutilon indicum* (L.) is a small shrub in the family Malvaceae, native to tropic and subtropical regions and sometime cultivated as an ornamental. It is found in Katepurna forest Dist-Akola. This plant is often used as a medicinal plant and its roots extract used against kidney stone (Matlwaska 2002). In traditional medicine, *A. indicum* various parts of the plant are used as a demulcent, aphrodisiacs, leprosy, ulcers, headaches, gonorrhoea and bladder infection. The root extract is wonderful drugs against the kidney stone (Nishanta2002). The plant is very much used in Siddha medicine. The roots, bark, flowers, leaves and seeds are all used for medicinal purposes by tribals. The flowers are used to increase semen in men (Ramachandran). The present study is to review the overall information on the taxonomical classification, morphology, distribution, traditional uses, phytochemical

constituents and recent scientific investigation of *Abutilon indicum* (L.)

2) Material and Methods

2.1) Plant material : The plant material were collected from the Katepurna forest Dist. Akola region and identified taxonomically by using standard floras. (Cook 1967, Kathikeyan, Kambale & Pradhan, Naik). The fresh leaves of the plants *Abutilon indicum* (L.) were air dried under the shade. The dried leaves of the plant are crushed to obtain powder.

2.2) Preparation of extracts : These powdered samples are then stored in air tight polythene bags protected from sunlight until used. Ethanol extract keep in ultrasonicator for half an hour to mix all chemical constituents in ethanol solvent was subjected to successive extraction in a soxhlet extractor using ethanol and water. The extract were filtered and concentrated under rota vapour at room temperature to obtain extract as solid residues.

2.3) Primary Phytochemical Screening : Chemical test were carried out on the organic solvents & aqueous extract and on the powdered specimens using standard procedure, to identified the constituents as described by Harborne (1973), Edeoga et. al. (2005) and Krishnaiah et. al. (2009).

Test for Alkaloids : To the 2-3 ml of filtrate, 1 ml of dil HCL and 1 lager's reagent was added and shake well. Yellow precipitate was formed showing the presence of alkaloids.

Test for Flavonoids : To the small quantity of extract lead acetate solution was added. Formation of yellow precipitate showed the presence of flavonoids.

Test for Terpenoids : (Salkowski test) The 0.5 gm each of the extract was added 2 ml of Chloroform & 3 ml of conc. H_2SO_4 was added. The solution was shaken well. As a result, chloroform layer turned red.

Test for Tannin : On addition of 5% $FeCl_3$ solution to the extract deep blue black colour appeared.

Test for Saponin : To 1 ml extract 20 ml distilled water has added and shake well in measuring cylinder. Then 1 cm layer of foam was formed.

Test for Steroids : To 2 ml of extract of chloroform & 2 ml of conc. H_2SO_4 was added. The solution was shaken well. As a result, chloroform layer turned red and acid layer showed greenish yellow fluorescence.

2.4) Thin Layer Chromatography (TLC) : TLC analysis was carried out for the plant extracts dissolve d in ethanol and water solvent. For the analysis the silica sheets was used, fresh root extract were analyzed using TLC. The sheets were kept in TLC chamber for one hour, depending on the polarity of the eluted fractions to be analyzed. The sheets were treated with 1% ninhydrin diluted to acetone.

3. Results and discussion.

3.1) Phytochemical investigation :

The phytochemical screening of *Abutilon indicum* (L.) show positive result as the test like Terpenoids, Saponins, Flavonoids, Tannins, Steroids and Alkaloids. This data clear shows that there presence of various phytochemical in *Abutilon indicum* (L.) plant extract.

Table (3.1) Phytochemical screening of extracts of *Abutilon indicum* (L.)

Sr.No.	Test perform	Ethanollic extract	Aqueous extract
1	Terpanoids	+	+
2	Saponins	-	+
3	Flavonoids	-	+
4	Tannins	-	+
5	Steroids	+	-
6	Alkloids	+	+

3.2 Quantitative spectrophotometric analysis : The total phenolic, flavonoids, alkaloid and steroids and content of plant aqueous extract were determine spectrophotometrically using the tannic acid quercetin standard calibration curve, respectively, as per Ranjana Singh at al (2015). Both standared curve showed linearity with R_2 value 0.851 and 0.827. The total phenolic and flavonoids content was found as per following table 3.2.

Table -3.2 : Total phenolic, flavonoids, alkaloids & steroids contain in *Abutilon indicum* (L.)

Sr.No.	Plant name	Phenolic (ug/ml)	Flavonoids (ug/ml)	Alkaloids (ug/ml)	Steroids (ug/ml)
1	<i>Abutilon indicum</i> (L.)	12.24	25.57	4.26	7.16

3.3 TLC Purificatioin of the extract : The TLC of ethanollic extract of *Abutilon indicum* (L.) plant of their RF value. It is evident that there are many components that are responsible for the antioxidant activity. Hence, further investigation are required to isolate, purify and characterized those compounds which are responsible for the antioxidant activity used in medicinal application.

Table 3.3 TLC purification and partition *Abutilon indicum* (L.)

Sr.No	Plant name	No. Of Bands	RF Value	Spraying reagents	Colour of bands appeared	Phytochemical detected
1.	<i>Abutilon indicum</i> (L.)	3	0.29	5% Ferric chloride	Dark grey	Flavonoid
			0.53	$FeCl_3$	Intense red	Phenol
			0.17	Vanillin-phosphomolibdic acid reagent	Dark blue	Terpenoids

Conclusion

In the present investigation, *Abutilon indicum* (L.) medicinal plant species used to treat kidney stone were reported. The uses of these plant to treat various illness major leprosy by the communities. Now a day conservation of

traditional knowledge is necessary related to modernization of the region and lack of interest in traditional patrician, in transferring it to next generation. Further advance spectroscopic studies are required for the structural elucidation and identification of compounds.

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