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Pharmacognostical Study and Standardization of root of Atibala (*Abutilon indicum* Linn.)

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Abstract
Abutilon indicum is known as Atibala in Sanskrit belonging to family Malvaceae. It is an important medicinal plant. Literally, Ati means very and Bala means powerful, referring to the properties of this plant as very powerful medicinal plant. It has property like Balya, Brinhana, Rasayana, Ojovardhaka, Vayasthapana etc and used in Daurblya, Krishata, Klaibya-sukra dosa, Vata vikara etc. The present study provides botanical, physico-chemical, Powder microscopy and preliminary phytochemical details, which helpful in laying down standardization and pharmacopoeial parameters. Powder microscopy of the root showed Calcium oxalate, Pitted vessels, Trachied and Starch grain. Preliminary phytochemical study of hydroalcoholic extract of root showed the presence of carbohydrate, protien, steroid, glycoside, alkaloid and tannin.

Keywords: Atibala, *Abutilon indicum*, pharmacognostical study, standardization

Introduction
Atibala is a suffrutescent, erect, miutely, tomentose, woody, grey, velvetly, shrubby plant. Leaves usually cordate and long petioled, dentate, rarely slightly lobed. Flowers solitary or rarely racemose paniculate or umbellate, on axillary peduncles which are jointed near the top, yellow or orange; involucral bracteoles 0.Calyx of 5 valvate sepals, united below into a short tube. Corolla 5 imbricate petals, adnate below to the staminal tube. Stamens numerous free above, carpels pointed or mucronate. Carpels with thin tomentum and scattered tufts of stiff hairs, both eventually deciduous; seeds minutely furrowed glabrous. Ripe carpels ultimately separating from the short central axis, dehiscent 1-5 seeded, usually acute and mucronate. Seed reniform, blackish to brown in colour. Flowering and fruiting time: Plant flowers in rainy season and fruiting in winters. It is Madhura in rasa, Laghu, Snigdha, Picchila in guna, Seeta in virya and Madhura in vipaka. Atibala is mentioned in Balya mahakashaya and Brinhaniya mahakashaya in sutra sthana of Caraka Samhita.

Vernacular name
Beng - Petari
Eng - Country mallow, Indian mallow
Guj - Khapat, Kanski, Dabli
Hindi - Kanghi, Kakahi
Kan - Tutti, Mudragida
Mal - Dabi, Vellul, Uram
Mar - Mudra, Petari
Tam - Tutti, Paniara Hutti
Tel - Tutturubenda

Taxonomical classification
Kingdom: Plantae
Class: Dicotyledons
Subclass: Polypetalae
Series: Thalamiflorae
Order: Malvales
Family: Malvaceae
Genus: *Abutilon*
Species: *indicum*

Fig 1: Photograph of Fruit with Leaf and Root of Atibala

Material and methods

Atibala (*Abutilon indicum* (Linn).Sw) Linn.) has been identified by Prof.V.K. Joshi, Department of Dravyaguna, B.H.U. The root of Atibala was collected from the Ayurvedic Dravyaguna garden, B.H.U. Root was pulverized in the mechanical grinder to a moderate fine powder to carry out powder microscopic studies and other study and was stored in a well closed airtight vessel for further analysis.

Observations

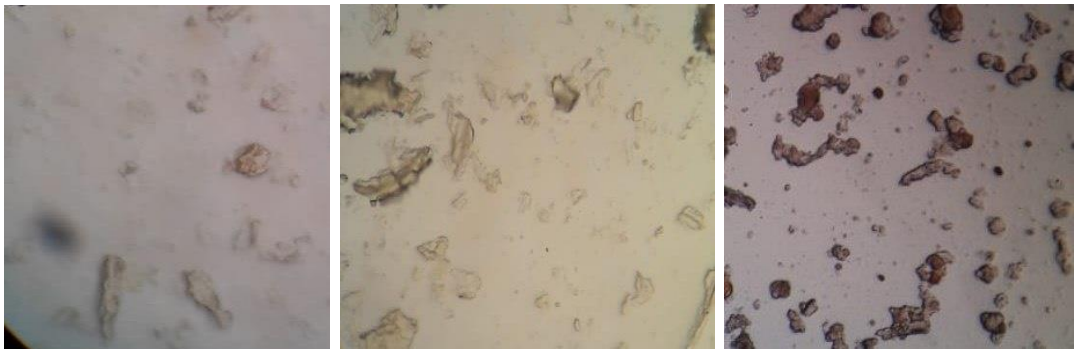
Physio-chemical analysis of root

Table 1: Physio-chemical analysis of root of Atibala

S. N.	Parameters	Observation of seeds
1. 1	Nature	Coarse powder
2. 2	Colour	Light brown
3. 3	Odour	Characteristic
4. 4	Taste	Sweetish
5. 5	Texture	Rough & fibrous
6.	Foreign matter	0.5 %
7.	Moisture content	6.2 % w/w
8.	Total ash	4.5 % w/w
9.	Acid insoluble ash	8.12 % w/w
10.	Water soluble ash	1.2 % w/w
11.	Extractive value	5.6 % w/w

Powder Microscopy

5 gm powder of drugs of *Atibala* was boiled separately with chloral hydrate solution in small quantity. Cleaved powder was removed in four separate watch glasses and first one stained with one drop of phloroglucinol and dilute. Hcl second one stained with sudan red, third one stained with ruthenium red and fourth treated with dilute Hcl. Then all four put on slides and the slides were observed under microscope at low power.



Pitted vessel & Trachied | Calcium oxalate crystal | Starch grain

Preliminary phytochemical test

Table 2: Preliminary phytochemical test of Root of Atibala

Phytoconstituents	
Carbohydrates	+
Proteins	+
Amino Acids	-
Glycosides	+
Flavonoids	-
Alkaloids	+
Tannins	+
Steroid	+

(+) – Present, (-) – Absent

Discussion and conclusion

Medicinal plant is very important source for pharmaceutical market, however herbal medicine suffer from lack of standardization, so it is necessary to standardize herbal drug for ensure quality, safety, efficacy by using modern technique. The present study provides botanical, physico-chemical, powder microscopy and preliminary phytochemical details of root of Atibala (*Abutilon indicum* (Linn).Sw). Physio-chemical parameters of root are tabulated above. Powder microscopy showed Calcium oxalate, Pitted vessels, Trachied and Starch grain. Preliminary phytochemical study of hydroalcoholic extract of root showed the presence of carbohydrate, protien, steroid, glycoside, alkaloid and tannin. This review will definitely help for the researchers as well as practitioners in future.

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