

Pharmacognostic Evaluation of *Tubiflora Acaulis*

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ABSTRACT

The plant *Tubiflora acaulis* is widely used in ayurvedic system of medicine as astringent, analgesic, insecticidal and also useful in diarrhea. Naturalized throughout the hot and moist parts of India. But this plant is not yet explore, it is important to identify plant material for its collection. Hence we have selected it for pharmacognostic analysis which will support further studies on the plant. In this first leaf are subjected to microscopic and macroscopic evaluation after which physical parameters were evaluated on whole plant.

KEYWORD: *Tubiflora acaulis*, pharmacognostic, physical parameters

INTRODUCTION

It is a perennial herb with a short creeping sometimes branched rootstock; apical part of root stock (where leaves attached) with long (up to 3 mm) hairs. Leaves in a basal rosette, sub-sessile; lamina elliptic to obovate, apex sub-acute to broadly rounded, base attenuate. Spikes 2–10 cm long, branched or unbranched; peduncle 6–20 cm long; sterile bracts imbricate, ovate, 4.5–7 mm long, acuminate, glabrous but for the finely ciliate margin. Corolla white, when fully developed with tube 5–7 mm long and lobes 2–3 mm long; cleistogamous flowers not seen in East African material, but common in southern Africa.¹

Tubiflora acaulis is well known plant used all over the world in folk medicine for various purposes. In Rajasthan whole plant is used in Abscess of mammary glands, boils, burns, colic, diarrhoea, rickets, throat compliments, and tonsillitis. Decoction of root is mixed in equal amount in local liquor and one cup of this mixture is taken daily for 3–4 days in the morning for easy expulsion of guinea-worm. Half tea spoon root extract is given to children once a day for two days in Asthma.² The plant is used in aravali hills as insecticidal and wormicidal.³ In Rajasthan Leaf powder with water is used for Kidney Stone.⁴ Half tea spoon of root extract is used in asthma and migraine.⁵

Beside of various use of plant it is not yet well explored as there are only few literature on that

plant. The methanol extract contain two pyrazole alkaloids withasomine (120 mg) and 4'-hydroxywithasomine (30 mg).⁶ and 4H-1-Benzopyran-4-one,3-((6-O-(6-deoxy-beta-Lmannofuranosyl)-beta-O-galactofuranosyl)oxy)-7-(((6-deoxy-beta-mannopyranosyl)oxy)-5-hydroxy-2-(4-hydroxyphenyl), having molecular formula C₂₇H₃₀O₁₅ and molecular weight is 595.518 g/mol.⁷

MATERIALS AND METHODS

Collection of plant material

The plant *Tubiflora acaulis* was collected from Satpuda hills near Akkalkuwa, Dist: Nandurbar, Maharashtra, India, in June 2010, cleaned and dried at room temperature in shade and away from direct sunlight. The plant authenticated by T. Chakraborty, Deputy Director Botanical Survey of India, Koregaon Road Pune, by comparing morphological features and a sample voucher specimen of plant was deposited for future reference (Voucher specimen number QMAKP1).

Preparation of extract

The plant *Tubiflora acaulis* was collected from Satpuda hills near Akkalkuwa, Dist: Nandurbar, Maharashtra, India, in September 2011, cleaned and dried at room temperature in shade and away from direct sunlight. The dried aerial part was coarsely powdered in grinder. Large difference in particle size of crude drug results in long extraction time as the coarse particles increases the extraction time and fine may form bed, so the powdered material was sieved through 60-

120 mesh to remove fine and the powder was subjected for further study.

Macroscopic evaluation

Different parameters were studied in macroscopic evaluation of *Tubiflora acaulis*, which are color, odor, size and shape.

Microscopic evaluation

Thin transverse section of middle part of fresh root was taken, stained with phloroglucinol-HCL, concentrated H₂SO₄, and iodine solution and observed under 10X and 45X. The transverse sections were studied. The microscopic powder characteristics of the leaf of *Tubiflora acaulis* were performed.⁸

Evaluation of Physical parameter

In Physical parameter foreign organic matter, loss on drying, ash value, Total ash, sulphated ash, acid -insoluble ash were determined.⁹

Determination of Extractive value

Different extractive values like alcohol soluble extractive, water soluble extractive values were performed by standard method.⁹

Preliminary Phytochemical analysis

The extracts were then subjected to preliminary phytochemical screening to detect the presence of various phytoconstituent.⁸

RESULTS AND DISCUSSION

The leaf has **Dark Green** in colour, odorless, bitter in test, varying in size. While roots having **Dark Brown** in colour, odorless, bitter in test, varying in size. The transverse section shows Vascular bundles, Epidermis, Palisade cells etc. Powder characteristics shows calcium oxalate crystals, fiber, xylem vessels, cork cells etc. Evaluation of physical parameter shows significant results while water soluble extractive value is more than other. In Preliminary phytochemical petroleum ether extract contain steroids, the chloroform extract contain steroids and alkaloids, the methanolic extract contain Steroids, Saponins, Alkaloids, Glycosides, Flavonoids, Tannins, Carbohydrates, Proteins and aqueous extract contain Saponins, Glycosides, Flavonoids, Tannins, Carbohydrates, Amino acids.

Table 1- Morphology of *Tubiflora acaulis* Kuntze

Morphological Characteristics	Observation	
	Leaf	Root
Color	Dark Green	Dark Brown
Odor	Odorless	Odorless
Taste	Bitter	Bitter
Size	Varying in size	Varying in size

Table 2- Physical Parameter of *Tubiflora acaulis* Kuntze

Sr. No.	Parameters	Values(%w/w)
1	Foreign inorganic matter	0.1
2	loss on drying	11.0
3	Total ash	11.8
4	Water-soluble ash	4.5
5	Acid insoluble ash	2.7
6	Sulphated ash	17.0

Table 3 Extractive Values of the *Tubiflora acaulis* Kuntze

Sr.No.	Extractive	Color	Extractive value (%w/w)
04	Petroleum Ether	Dark brown	5.0
03	Chloroform	Brown	6.48
02	Alcohol soluble	Yellowish green	8.28
01	Water soluble	Yellowish	12.56



Fig 1 Morphology of *Tubiflora acaulis* Kuntze

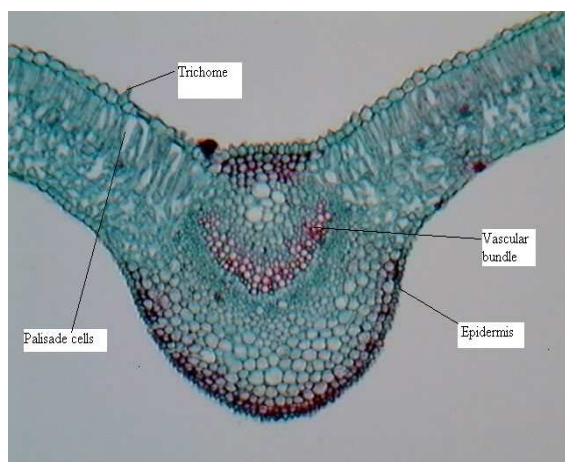


Fig 2 Transverse section of *Tubiflora acaulis* Kuntze

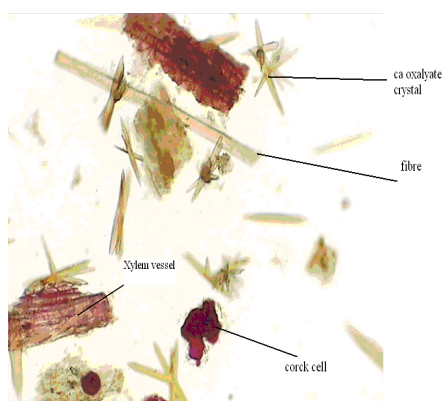


Fig 3 Powder characteristic of *Tubiflora acaulis* Kuntze

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