

***ECHINOPS ECHINATUS* ROXB. (USTRAKANTAKA): BRIDGING TRADITIONAL KNOWLEDGE AND MODERN THERAPEUTICS—A INTEGRATIVE REVIEW**

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ABSTRACT

Echinops echinatus, that has been extensively utilized in traditional systems of medicine, including Ayurveda and various folk practices. *E. echinatus* is a xerophytic herbaceous plant that is commonly known as “Utkatira.” Its root, leaves, fruit, seeds and bark are the most commonly used parts have been employed for the management of a wide range of ailments, particularly sexual debility, urinary disorders, hepatic diseases, and gynecological conditions. Bioactive phytoconstituents, including flavonoids such as apigenin and apigenin-7-*O*-glucoside, the phenolic compound echinacin, and the alkaloid echinopsine. By integrating classical knowledge with contemporary scientific findings, this review aims to provide a consolidated resource that highlights the therapeutic relevance of *Ustrakantaka* and identifies its potential for future

pharmacological research and clinical applications.

KEYWORDS: *Utkatara*, *Echinops echinatus*, root, fruit, xerophyte.

INTRODUCTION

Pharmacology is the science of drugs. It encompasses all aspects of knowledge about drugs, but most importantly those that are relevant to effective and safe use for medicinal purposes.^[1] It consists of detailed study of drugs particularly their action on living organisms, organs, or tissues. The action may be beneficial or harmful.^[2] The science which deals with

Guna, Karma of dravyas is called *Dravyagunashastra*^[3] the back bone of Ayurveda treatment. Pharmacy includes collection, identification, purification, isolation, synthesis, standardization and quality control of medicinal substances.^[4] It is found that, a single genus has different species. Field visit is a most important part of *Dravyaguna* subject. Researchers and practitioners have been facing confusion regarding the selection and identification of the appropriate species due to botanical variation. According to data published recently in the World Health Organization (WHO) health bulletin, traditional medicines are the mainstay of primary healthcare delivery and their demand is increasing throughout the world, especially in rural populations.^[5] The genus *Echinops* encompasses about 130 species of flowering plants. Among the lesser-explored medicinal plants of Ayurvedic and traditional medicine, *Echinops echinatus* Roxb., popularly known as *Ustrakantaka* or *Ustrakandi* or *Ushnakantak* has attracted increasing scientific interest because of its broad therapeutic potential. The generic name *Echinops* is derived from the Greek word *echinos*, meaning "hedgehog" or "sea urchin," referring to the characteristic spiny morphology of the plant, while the species name *echinatus* denotes its prickly nature. It is an annual xerophytic herb adapted to arid and semi-arid environments.^[6]

According to Ayurvedic principles, its **root** possesses **Katu-Tikta Rasa, Katu Vipaka, and Ushna Virya**, and is considered effective in alleviating **Vata and Kapha** dosha, while its **seeds** are **Madhur Rasa Madhur vipak and sheet virya** having **vrishya and santarpan** effect.^[7] Classical Ayurvedic texts describe *Ustrakantaka* in the management of conditions such as *Jwara* (fever), *Ashmari* (urolithiasis), and *Masurika* (eruptive disorders). The phytochemical constituents, such as echinacin, echinaticin, echinopsine, apigenin-7-O-glucoside, taraxasterol acetate, and lupeol attributed to therapeutic properties.^[8]

Ustrakantaka continues to hold an important place in ethnomedicine, where it is traditionally employed by local healers, tribal communities, Siddha practitioners, and folk physicians. Across different regions of India, the plant is widely used as a sexual tonic and is administered both orally and topically for the management of sexual debility, impotence, dyspepsia, chronic cough, hysteria, syphilis, scrofula, ophthalmic disorders, persistent fever, and inflammatory joint conditions. In various texts & *Nighantu*, like *Raj Nighantu*, *Shodhal Nighantu*, and *Nighantu Ratnakar* it is mentioned.^[9]

In this context, the present review comprehensively examines *Ustrakantaka* (*Echinops echinatus* Roxb.), with emphasis on its nomenclature, Ayurvedic and ethnomedicinal

significance, botanical characteristics, geographical distribution, Pharmacognostic features, phytochemical profile, pharmacological properties, and therapeutic applications. By consolidating available evidence, this review aims to highlight the medicinal importance of the plant and its potential for future research and clinical utilization.

MATERIALS

1. Various *Nighantus and Samhitas*

a. *Shodhal Nighantu*

b. *Raj Nighantu*

c. *Nighantu Adarsh*

d. *Nighantu Ratnakar*

are used for comprehensive literature search using both classical Ayurvedic texts and contemporary scientific databases. Ayurvedic references were obtained from authoritative sources. An additional manual search of reference lists and other authentic literature sources was also conducted. *Echinops echinatus*, *Echinops*, *Ustrakantaka*, *Usnakantak*, *Brahmadandi*, *Utkanto*, *globe thistle*, *pharmacognosy*, *ethnomedicinal use*, *folklore*, and *phytochemical* these are the keywords were used for systematically search strategy for

2. PubMed

3. Scopus

4. Web of Science

5. The AYUSHDHARA portal

6. Reviews on Indian Medicinal Plants

7. Ayurvedic Pharmacopoeia of India

8. ScienceDirect

9. National Action for Mechanized Sanitation Ecosystem (NAMASTE) portal

10. The Cochrane Library

REVIEW OF LITERATURE

Drug Review: - It is mentioned in various *Nighantus*.

शोढल नि.-

उत्कटकः कटफलः करभादि एव सः ।

उष्ट्र कटोथ कटालुः श्रुगालशुनकाशनः ॥662॥

तिक्ष्णाग्रो वृत्तगुच्छ मुखदनतरुजापहः ॥ शोढल नि. (लक्ष्मणाकदवगि)

राज निघण्टुः -

उष्ट्रकाण्डी रक्तपुष्पी देया करभाण्डिका ।

रक्ता लोहितापुष्पी च वण्पुष्पी षडाह्या ॥139॥ (करविरादि वर्ग)

Vernacular Names^[11]

- English: Indian globe thistle, Camel's thistle
- Gujarati: *Shuliyo, Utkanto, Utkato*
- Hindi: *Gokhru, Uthkanta, Utakatira*
- Sanskrit: *Kantalu, Kantaphala, Utati, Utkantaka, Karabhadana, Sringalshunkashana*
- Urdu: *Barham dandi, Labh, Untkatara, Jachir*
- Marathi: *Utkatar, Kate-chendu*
- Telugu: *Brahmadandi*
- Kannada: *Brahmadande*
- Gujarati: *Utkanto, Shuliyo*
- Folk - Uunta-Kateraa.

Synonyms in Ayurveda: - The Sanskrit name **Ustrakantaka** literally translates to "the thorny plant browsed by camels," reflecting its characteristic spiny nature and its association with camel grazing. In Ayurvedic literature, the plant is described by numerous synonyms that highlight its distinctive morphological features. These include **Uttakantak** and **Uttkanta**, denoting its profuse thorniness; **Rakta**, **Raktapushpi**, and **Lohitpushpi**, referring to its reddish flowers; **Varnapushpi**, indicating brightly coloured blossoms; **Kantakphala**, describing its spiny fruits; **Kantalu**, emphasizing its abundance of thorns or bristles; **Karmadan**, signifying that the plant pricks the hands upon contact; **Tikshnagra**, referring to its sharply pointed branches; and **Vrittaguccha**, which describes the rounded, clustered arrangement of its flower heads. These synonyms collectively reflect the botanical characteristics that have been recognized and documented in classical Ayurvedic texts.

शोढल नि. - उष्ट्रकाण्डी गुण -

उत्कन्टकः कटुस्तिक्तः कफवातहरो लघु।

तन्मूलपानतः स्त्रीणां शीघ्रप्रसवकारकः ॥ शोढल नि. (लक्ष्मणादि वर्ग)^[10]

निघण्टू रत्नाकरः - उष्ट्रकाण्डी गुण -

उत्कन्टा रुचिदा चोष्णा तिक्ता । मूत्रकृच्छं पित्तवात मेह तृष्णा च हुजम् ॥

विस्फोटक तु नाशयति बीजमस्यास्तु शीतलम् । वृष्य तृप्तिकर चैव मधुर प्रकिर्तितम् ॥ गुणदोषप्रकरणं

राज निघण्टुः - उष्ट्रकाण्डी गुणः -

उष्ट्रकाण्डी तु तिक्तोष्णा रुच्या हृद्रोगहाररणी ।

तद् बीज मधुर शीत वृष्या सन्तर्पणम् ॥140॥ (करविरादि वर्ग)

Raspanchak: - In Shodhal Nighantu, it is cited to possess katu (pungent) and tikta (bitter) rasa (taste), katu vipaka (pungent post digestive effect) and ushna virya (hot potency).and laghu guna. Decoction of the root is given to pregnant women for facilitating delivery.^[12]

Raspanchak:-In Raj Nighantu, Beej properties: - Rasa- Madhur Vipak- Madhur Veerya- Sheet Its beej has Madhur ras and Madhur vipak and sheeta veerya.It pacifies vata. Its beej has Vrishya and Santarpan properties.^[13]

In Nighantu Ratnakar, use of the plant is indicated in cases of mutrakrichha (dysurea), madhumeha (diabetes), trishna (thirst), hridroga (cardiac diseases), ashmari (urolithiasis), and wara (fever). The seeds are recommended in cases of vishphota (blisters on the skin) and klaibyata (sexual disability).^[14] In Nighantu Adarsha it is stated that, Acharya Sushruta had mentioned in Pittaj ashmarihar Yog in Mutrashmari chikitsa in Uttartantra.^[15]

Latin Name: - Echinops echinatus

Family -Compositae; Asteraceae.

Habitat - Throughout India.

Action - Alterative, diuretic, nerve tonic (used in hoarse cough, dyspepsia, scrofula, hysteria.)

Chemical constituents: - Aerial parts of the plant contain alkaloids, echinopsine, echinopsidine and echinozolinone. Taraxasterol acetate, isolated from the plant, is a potent anti-inflammatory constituent; the ethanolic extract of the whole plant is more effective when administered parenterally than orally. Apigenin and its derivatives, echinacin and echinaticin show antifungal activity.^[16] Phytochemistry And Therapeutics (IMPPAT) and research articles and are summarised in Table no.^[17- 23]

S. No.	Chemical compound	Class of compound	Plant part
1.	Echinopsine	Alkaloid	AP, seed, FL, WP
2.	Echinozolinone	Alkaloid	AP, WP

	(3-(2-Hydroxyethyl) quinazolin-4-one)		
3.	7-hydroxyechinozolinone	Alkaloid	FL
4.	Echinopsidine	Alkaloid	AP, WP
5.	Taraxasterol acetate, Taraxasterol	Triterpenoid	AP, WP
6.	Apigenin	Flavonoid	AP, FL, St
7.	Apigenin 7-O-glucoside	Flavonoid glycoside	AP FL,
8.	Echinacin	Phenolic compound	WP, AP
9.	Echinatin (4,4'-dihydroxy-2'-methoxy-chalcone)	Flavanoid	WP
10.	□, □, □--amyrin acetate	Triterpenoid	FL, St
11.	Quercetin, dihydroquercetin-4'-methyl ether	Flavanoid	FL, leaves
12.	Luteolin	Flavanoid	FL
13.	Luteolin-7-glucoside	Flavonoid glycosides	FL
14.	Allophanic acid and □ methyl allophanic acid	aminoacid and peptide	Root
15.	Lupeol and lupeol acetate	Triterpenoid	FL, St,
16.	7-Hydroxyisoflavone	Isoflavone glycoside	WP
17.	Echinoside	Isoflavone glycoside	WP
18.	1-Hentriacontanol/hentriacontane	atty acid/fatty alcohol	FL, WP
19.	Palmitic acid (hexadecanoic acid)	Unsaturated fatty acid	FL, WP
20.	Ethyl palmitate (ethyl hexadecanoate)	Fatty acid ester	St

Distribution: Echinops is mainly available in Afghanistan, Africa, Southeast Asia and the Mediterranean region of the world. In India, it grows extensively in Maharashtra, Gujarat, Rajasthan, Odisha, Karnataka and other dry regions of Andhra Pradesh, up to an altitude of 5,000 feet.^[24]

Botanical Description: - It is an erect, rigid, pubescent, annual herb about 1 m in height. It has short, stout stems with branches widely spreading from the base. The leaves are alternately arranged, sessile, oblong, deeply pinnatifid, 7-12 cm long, and covered with cottony wool beneath; the lobes are triangular, sinuate, and prickly, and the spines are often 2.5 cm long. Flower heads occur in solitary white spherical balls (globose), 3-5 cm across, clustered at the ends of branches. The flowers are surrounded by strong white bristles resembling pappus hairs; the pappus is short, yellowish, and forms a short cylindrical brush above the achene. Petals of the tiny white flowers are 5 mm long. Flowering occurs between December and January.^[25]

Taxonomic Classification.^[26]

Kingdom - Plantae

Phylum - Magnoliophyta

Class - Magnoliopsida

Subclass - Asteridae

Order - Asterales

Family- Asteraceae

Genus – Echinops

Species – Echinatus



Fig No. 1: Plant of Ushnakantak.



Fig. No. 2: Roots of Ushnakantak



Fig No. 3: Flower of Ushnakantak.

Pharmacognostic Characteristics: Pharmacognostic investigations on *Echinops echinatus* Roxb. are relatively limited, with only a few studies describing its diagnostic morphological and anatomical features. Available reports include organoleptic evaluation along with macroscopic and microscopic examination of the root, stem, and leaves. Microscopic analysis of the root has demonstrated a cork region consisting of one to three cell layers, irregularly arranged parenchymatous cells, a cortex composed of approximately 20–30 layers of parenchyma, and distinct single-layered endodermis and pericycle. The vascular bundles are open and endarch, separated by well-developed medullary rays. Anatomical examination of the stem revealed an outer epidermis enclosed by a thick cuticle and bearing uniseriate multicellular trichomes. The cortical region is heterogeneous, comprising both collenchymatous and parenchymatous tissues, followed by a single-layered endodermis, endarch vascular bundles, and a centrally located pith containing numerous sphaeraphides. The transverse section of the leaf exhibits a uniseriate epidermis covered with a cuticle and multicellular trichomes, while the mesophyll is differentiated into palisade and spongy parenchyma. The prominent midrib, characterized by three to five ridges, encloses endarch vascular bundles, providing important anatomical features for the identification and authentication of the plant.^[27-31]

b) **Pharmacological Activities:** - In vitro and In vivo Pharmacological Studies: Experimental investigations have demonstrated a broad spectrum of pharmacological activities of *Echinops echinatus* Roxb. Both in vitro and in vivo studies have reported its anti-inflammatory, antidiabetic, antifertility, antimicrobial, antioxidant, diuretic, analgesic, hepatoprotective, and antiulcer properties. These biological activities support several of its traditional therapeutic claims and are summarized in Table.^[32-46]

S. No.	Pharmacological activity	Study design and model used	Form/type of drug	Results
1.	Anti-inflammatory ^[49]	In-vivo Carrageenin and formaldehyde induce paw oedema and adjuvant induced acute and chronic arthritis in albino rats Groups 6: Control, standard drug Phenylbutazone 50 mg per kg ip, Ether Extract (EE) 4 groups in oral dose of 25, 50, 100, 200 mg per kg	Ethanol extract of complete plant	In all models, the EE exhibited promising anti-inflammatory effects. Ip administration of EE in higher dose (200 mg/kg) shows better activity.

2.	Antidiabetic and Antidyslipidemic ^[50]	In-vivo Alloxan induced (type 1) and fructose fed insulin resistance (type 2) model Glucose-induced hyperglycaemia Animal used- Swiss albino mice and Sprague Dawley albino rats Groups 6 : G1- Control (normal Saline 1 mL/kg) G 2: Positive Control (Alloxan 140 mg/kg+Normal Saline 1 mL/kg) Group 3: Standard Control (Alloxan+Glibenclamide 10 mg/kg) Group 4, 5, 6 : Alloxan+EE extract in dose of 100 mg/kg, 200 mg/kg, 500 mg/kg	Aqueous and methanolic root extract	The extract-treated groups demonstrated a dose-dependent reduction in serum total cholesterol, triglycerides, LDL and enhanced HDL. EE extract in 500 mg/kg showed significant potency in comparison to Glibenclamide.
3.	Antifertility. ^[51,52]	In-vivo Male wistar albino rats Duration of study 8 days Groups- 3 1. Control 2. EE 30 mg/kg bwt - EE 60 mg/kg bwt	Root (Terpenoid fraction of petroleum ether extract)	Serum testosterone and sperm count (epididymal) showed significant reduction in the EE treated group. Testicular histology revealed inhibitory effects on spermatogenesis and seminiferous epithelium development.
4.	Antifertility ^[53]	In-vivo 20 spraguedawley male albino rats Duration of study 60 Days Groups 4: Normal control and 3 Ethanol (EtOH) root extract treated group Oral dose: 50, 100, 200 mg/kg b.w. once daily	Ethanolic root extract	Drug treated group significantly reduce the weight of the reproductive organs, motility and density of sperm.
5.	Antimicrobial ^[54]	In-vitro Bacteria strain used- <i>Escherichia coli</i>, <i>seudomonas aeruginosa</i>, <i>Staphylococcus aureus</i>, <i>Klebsiella pneumoniae</i>	Methanolic extract of root, stem, leaves, flowers	Stem extract doesn't exhibit activity against all bacterial strains. Leaves showed maximum inhibition zone

				against <i>Klebsiella</i> , flowers against <i>S. aureus</i> and root against <i>E. coli</i> , <i>S. aureus</i> , <i>Pseudomonas</i> .
6.	Antifungal ^[55]	In-vitro Fungal strain used- <i>A. tenuissima</i>	Phenolic compounds extracted from the entire plant: echinacin, echinaticin, apigenin and apigenin -7-O-glucoside	All the 4 phenolic compounds show anti-fungal activity against the <i>A. tenuissima</i> and at 150 µg mL ⁻¹ concentration, echinacin is highly effective.
7.	Diuretic ^[56]	In-vivo Lipschitz test model 36 Albino rats either sex 6 groups, 6 animal each G1 control, G2 furosemide 20 mg/kg orally, G3 and G4 MetR extract in oral dose of 250, 500 mg/kg, G5 and G6 Aerial part methanolic extract 250, 500 mg/kg orally	Methanolic extract (root and aerial part)	In comparison to the control, the methanolic extracts of both groups shows considerable enhancement in volume of urine and electrolyte output in both dosage form.
8.	Benign prostatic hyperplasia ^[57]	An in-vitro study in which 5 alpha reductase inhibitory potential of the extracts were assessed by measuring concentration of testosterone	Petroleum ether root extract, Ethanolic extract, Butanolic fraction, acetone soluble and insoluble fraction, water insoluble and soluble fraction	Out of all the extract, the butanolic fraction of the ethanolic extract shows significant inhibition of 5 alpha reductase activity.
9.	Antioxidant ^[58]	In-vitro 3 models used: Superoxide anion scavenging, 2,2-diphenyl 1-picrylhydrazyl (DPPH) free radical scavenging, reducing power Groups 4: Control,	Methanolic extract of root powder	Methanolic root extract in higher dose exhibit significant antioxidant activity in all the 3 models.

		standard drug Metformin HCl- 250 mg/kg, Methanolic root extract in dose of 100 mL/kg and 200 mL/kg		
10.	Anti-irritant ^[59]	In-vivo 8 Male albino rabbits Irritant dermatitis was induced by rubbing the ear with sand paper Dose of extract used: 100 µg/10 mL and 200 µg/10 mL	Methanol (ME), Petroleum Ether (PE), Chloroform Extract (CE) of aerial part	Chloroform extract showed marked wound healing and anti irritant activity. ME showed weak response while PE didn't showed significant anti irritant activity.
11.	Analgesic activity ^[60]	In-vivo Wistar albino rats Hot plate, tail immersion and tail flick model Groups 6 G1: Control, G2: Positive control Pentazocine 30 mg/kg, G3 and G4: Methanolic root extract in 250 and 500 mg/kg, G5 and G6: Methanolic aerial parts extract in 250 and 500 mg/kg	Methanolic extract (aerial parts and roots)	According to the study, there is a noticeable increase in reaction time when methanolic extracts at 250 mg/kg and 500 mg/kg body weight are compared to the control.
12.	Free radical scavenging ^[61]	In-vitro DPPH free radical, superoxide anion radical and nitric oxide radical	Ethanolic Extract Roots (ERE)	Ethanolic extract shows remarkable free radical scavenging activity in all three models.
13.	Hepatoprotective ^[62]	In-vivo 30 Rabbits CCL4 induced hepatotoxicity Study duration 7 days 3 groups Silymarin 100 mg/kg/day and 2 groups of ethanolic extract in oral dose of 500 and 750 mg/kg once daily	Ethanolic extract aerial parts	The ethanolic extract in both the doses produces significant histological hepatoprotective changes in comparison to normal control and standard drug Silymarin.
14.	Antiulcer activity ^[63]	In-vivo Wistar rats Study duration: 7 days Models: Acetic acid induced ulcers and Methylene Blue (MB) induced ulcers Groups 4- G1 control, G2	Ethanolic Extract (EE) wholeplant	At 400 mg/kg, the EE of the whole plant inhibits stomach ulcers, acid concentration, gastric volume and enhances pH

		Omeprazole 20 mg/kg, G3 and G4 MB+EE in dose of 200 and 400 mg/kg		levels.
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Ethnomedicinal and Therapeutic Relevance: According to ethnomedical survey carried out by Kakrani et al., the rural population of Kutch region in Gujarat state, India, uses the suspension of its root bark powder in milk (100g/ 250ml) is used for the treatment of diabetes.⁶ It has been used by the traditional Ayurveda practitioners of Chhattisgarh internally and externally for the treatment of sexual disorders. Its root is used in the hoarse coughs of children. It is removed on Saturday or Sunday without touching it with knife and tied round the neck of children suffering from cough. It forms a Chief ingredient in various alterative and tonic decoctions. Infusion is given in seminal debility, impotence, hysteria etc. Root bark dried in shade, pounded, and strained. Decoction is given in Dyspepsia, scrofula, Syphilis and fevers.^[47]

Echinops echinatus Roxb. (Ustrakantaka) has long been valued in indigenous healthcare systems and continues to be extensively used by tribal populations, traditional healers, local vaidyas, and folk practitioners across different regions of India. Various plant parts, including the leaves, root bark, flowers, seeds, and aerial portions, are traditionally prepared as powders, fresh juices, pastes, decoctions, infusions, or ash for the management of a wide range of systemic disorders. The diverse ethnomedicinal applications of Ustrakantaka documented from different communities are summarized in **Table 3**.^[48-66]

S.No.	Diseases	Locality/System of medicine	Methodology of prescribed uses
1.	Sexual disability ^[18]	Traditional healers of Chhattisgarh	Local application of root bark paste prior to intercourse
2.	Labour pain and to facilitate delivery ^[19,20]	Traditional healers of Chhattisgarh	Oral intake and application of root paste on lower abdomen
		Tribes residing in south Rajasthan	Root kept under scalp hairs of pregnant women
3.	Roundworms ^[21]	Tribal peoples of southern Rajasthan	Powdered leaf or root extract consumed with honey
4.	Leucorrhoea ^[22]	Tribes residing in south Rajasthan	Oral intake of whole plant ash with ghee
5.	Diabetes ^[23,24]	Tribal peoples of Gujarat	Suspension of root bark is consumed with milk

		Tribes of Kerala	Decoction of entire plant or leaves
6.	Skin disease ^[24,25]	Tribal peoples of satpura hill range	Local application of inflorescence spines with cow ghee in Eczema
		People of Kerala	Local application of leaves paste on skin papules
7.	Febrifuge ^[26]	Gond tribe of Bhandara Maharashtra	Oral intake of whole plant decoction
8.	Respiratory problems ^[18,27]	Tribals of Chhattisgarh	Inhalation of leaves and roots fumes in Asthma
		Gond tribe of Bhandara Maharashtra	Oral intake of root extract in whooping cough
9.	Heatstroke ^[28]	Tribes residing in south Rajasthan	Whole plant paste applied on sole and palm
10.	Liver disease, renal colic. ^[29,30]	Indigenous peoples of Cholistan desert and Gond tribe of Bhandara Maharashtra	Use root/whole plant decoction
11.	Scorpion sting. ^[31]	People in Ahmednagar Maharashtra	Oral intake of raw roots
12.	Hair Lice ^[32]		Powdered root mixed with babul gum is applied on root hairs
13.	Gastrointestinal, circulatory, respiratory, nervous and cardiovascular disorders. ^[33]	Indigenous Pashto tribe of Pakistan	Decoction of whole plant is consumed orally
12.	Polyurea ^[34]	People in Nara region of Pakistan	Root decoction for oral consumption
13.	Diarrhoea ^[35]	Tribal of Orissa	Whole plant
14.	Fever, joint pain haemorrhoids and worm infestation ^[36]	Ethiopian traditional medicine	Varied plant parts

Toxicity study: - Acute oral toxicity studies show no mortality recorded with the extracts even at the dose level of 2000 mg/kg body weight.^[67]

CONCLUSION

The documentation of medicinal plants along with their potential uses in the health care system is very important, especially for those plants that have been documented earlier in traditional systems of medicine and have been prescribed for a long time by traditional practitioners. In this review, various phytochemical and pharmacological investigations of one plant have been reported, which account for its hepatoprotective, diuretic, analgesic, antifungal, antioxidant, anti-inflammatory, antibacterial, antipyretic, wound-healing, and other properties. *Ustrakantaka* used in the treatment of common ailments such as hoarse cough, dysuria, seminal debility,

dyspepsia, hysteria, difficult labour, inflammatory diseases, wounds, scrofula, joint pain, fever and as a nervine tonic. The plant is relatively safe, potent, easily accessible and affordable to stakeholders.

Thus, concerted efforts supported by rigorous scientific evidence are necessary to explore, validate, and integrate this underutilized plant into healthcare practices.

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