



# IJRASET

International Journal For Research in  
Applied Science and Engineering Technology



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# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

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**Volume: 8      Issue: IV      Month of publication: April 2020**

**DOI: <http://doi.org/10.22214/ijraset.2020.4076>**

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# Review on Undirkani: Ipomea Reniformis: Uses, Research, Pharmacology

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**Abstract:** Traditional medicine forms an integral part of health care system in many countries. According to WHO statistics, about 25 % of the preserved human medicine are derived from plants, either their direct part is useful or their secondary metabolites are of prime importance. 80 % people still depend upon traditional system of medicine.

*Akhuparni* is mentioned among several plants mentioned in Oushadhi Sukta in Rigveda which is one of the document on medicinal plants. Antioxidant properties of Hexane (IA), ethyl acetate (IB), Methanol (IC) and (25%) aqueous methanol (ID) extracts were studied by DPPH(1,1-Diphenyl-2-Picrylhydrozyl) radical scavenging activity method. Methanol extract exhibited constriction of the coronary vessels in rabbit heart. It also had spasmolytic action on Guinea pig ileum, & hypotensive effect on influenced by atrophine sulphate in cats.

**Keywords:** Ankhuparni, pharmacological action, no Effects, Remedies, Caffeic.

## I. INTRODUCTION

Herbal medicines can be defined as those products derived from any part of plant for the therapeutic use. The practice of traditional medicines is based on hundreds of years of belief and observation, which exist before the development of the modern medicine. In some countries traditional medicine remains as an integral part of the formal health system and exist on an equal footing with current therapy. The global demand for herbal medicine is not only large, but also growing. Approximately one-third of the top-selling drugs in the world are natural products or their derivatives often with ethno pharmacological background. The practice of traditional medicines is based on hundreds of years of belief and observation, which exist before the development of the modern medicine. The knowledge of traditional medicine put the light on the discovery of new and potent medicine. Traditional medicine plays an important role in the health care of India. Scientifically sound data are lacking for many medicinal plants in India. *Ipomea reniformis* is a perennial plant having therapeutic and potential use. It is widely distributed all over the India in damp places. It is hidden from the eyes of the researchers and botanist. Literature of plant showed different pharmacological activity in animal study like antihypertensive, arthritis, analgesic, anti-inflammatory, antidiabetic, anticancer activity.

### A. *Ipomea Reniformis*

- 1) Hindi Name: Musakani, Chuhakanni
- 2) Bengali Name: Indurakani
- 3) Gujarati Name: Undarakani
- 4) Kannada Name: Ilikivi gida
- 5) Marathi Name: Undirkani
- 6) Malayalam Name: Elichhevi
- 7) Tamil Name: Elikatu keerayi
- 8) Telugu Name: Ellika jemudu
- 9) Urdu Name: Chukakani
- 10) Botanical Name: Merremia emarginata/ Ipomea reniformis, Ipomoea reniformis
- 11) Family: Convolvulaceae

### B. Taxonomical Classification

- 1) Kingdom: Plantae - Plants
- 2) Subkingdom: Tracheobionta - Vascular plants
- 3) Superdivision: Spermatophyta - Seed plants
- 4) Division: Magnoliophyta - Flowering plants

- 5) *Class:* Magnoliopsida - Dicotyledons
- 6) *Order:* Solanales
- 7) *Family:* Convolvulaceae - Morning-glory family
- 8) *Genus:* Ipomoea
- 9) *Species:* Reniformis

Parts used for medicinal purpose

Whole plant(Flower, Fruit, Leaves, Root tuber, Stem.)

#### C. Geographical Distribution

It is seen in Asian tropical regions India, Nepal, Srilanka etc. Its also seen in Africa, Myanmar, Thailand, Indonesia & Australia.

#### D. Description

Akhuparni is a small plant found all over India in damp, moist regions. Root grows from each nodule of the plant spreading quickly on the ground. The leaves are kidney shaped and resemble the ear of the rat, hence the name Akhuparni. The flowers are small and are seen in the month of September to December. The seeds are smooth, drak brown to black in color.

#### E. Cultivation

- 1) From herbaceous stem cuttings.
- 2) *From Seed:* Sow indoors before last frost.
- 3) *From Seed:* Germinate in a damp paper towel.
- 4) *From Seed:* Germinate in vitro in gelatin, agar or other medium.

## II. MORPHOLOGY

These are perennial herbs, prostrate, axial part, sparsely hirtellous & glabrescent, stem rooting at nodes becoming tuberculate. petiole 0.2-3.7cm leaf blade reniform to broadly ovate 0.5 to 3.5 x 0.6-3.5mm, glabrous or sparsely appressed pilose, base cordate, margin entire or coarsely crenate, apex obtuse broadly rounded or slightly emarginated. Inflorescences sub sessile. 1(3) flowered, bracts unequal ovate to linear pubercent apex acute pedicel 2-4mm. Sepals obovate to circular to subquadrate, margin long ciliate. Outer 2 sepals 2.5mm, apex obtuse hoodlike & distinctly mucronate. Inner 3 sepals 3-6mm deeply emarginated corolla yellow tubular campanulate 5-9mm mid petaline bands distinctly 5 veined purplish tinged outside. Inside pubescent basally limb slightly 5 lobed. Ovary glabrous. capsule enclosed by perisistent calyx, brown black with globular 5-6mm longitudinally. Grooved glabrous, apiculate, seeds are grayish brown.



### III. PHARMACOLOGY

#### A. Antioxidant Activity

Babu A. V. et al studied biological activities of different solvent extracts. Hexane, ethyl acetate, methanol and aqueous methanol extracts of *I. reniformis* were examined for antioxidant activity.

Antioxidant property of the extracts were studied by DPPH (1,1-Diphenyl-2- Picrylhydrozyl) radical scavenging activity method and superoxide radical scavenging activity method.

Anti- cancer activity: The present study was designed to evaluate the invitro anticancer activity of *Merremia emarginata* Burm.F. The different solvent fraction of whole plant *Merremia emarginata* Burm.F was subjected for MTT assay.

Anti- inflammatory action: Ethanolic extract of whole plant of (EME)(100, 200 and 400 mg/kg p.o) was studied for its anti-inflammatory activity using carrageenan induced rat paw edema animal model, anti -arthritis activity using complete freund's adjuvant model and analgesic activity at the same dose level using Hot plate analgesia in mice.

The Percentage inhibition with indomethacin and EME in the carrageenan induced paw edema at the dose level 400mg/kg were 82% and 74% at the end of 5hr.

The results indicate that treatment of adjuvant induced arthritic rats with EME improves ESR, Hb value and also restores body weight. Significant ( $P<0.05$ ) inhibitory effect was observed with EME on FCA induced paw edema throughout the study. In radiant tail flick method, the extract at the dose 400mg/kg showed reaction time  $5.9 \pm 0.52$  ( $P<0.05$ ). The ethanolic extract possesses anti-inflammatory, anti- arthritis and analgesic activity.

#### B. Chemical Constituents

- 1) Caffeic
- 2) P-Coumaric
- 3) Ferulic Acid
- 4) Sinapic Acid
- 5) Esters from seeds
- 6) Volatile Oils

Uses, Indications

#### C. Uses of Akhuparni

One should consume decoction of Aakhuparni mixed with sugar in a dose of 30- 40 ml to treat case of fever caused by worms.

The juice of the leaf of *Merremia emarginata* is given in a dose of 10-15 ml to control diabetes.

To treat rhinitis, Aakhuparni juice and Bhringaraja juice are mixed and used as nasal drops.

In snake bite cases the juice of the leaves is given for drinking and the paste is used for application at the site.

To treat earache, the drops of the leaf of *Merremia emarginata* is added with sesame oil and installed as ear drops.

The powder of the seeds is mixed with water and made into paste which is applied over the scalp to treat headache.

The decoction of the whole plant of Akhuparni is given in a dose of 40-50 ml to treat cough and asthma.

To treat distention of bladder, the paste of the plant is applied over the bladder region.

The paste of the plant of *Merremia emarginata* is applied over the area affected with skin diseases.

Interaction with medicines, supplements Can this be used while taking Homeopathic medicine?

Yes. This product does not react with homeopathic medicine.

Can this medicine be continued while taking supplements like multivitamin tablets, Omega 3 fatty acids etc?

Yes. Generally, this product goes well with most of the dietary supplements. However, if you are taking more than one product per day, please consult your doctor for an opinion.

With western medicines

Seek your doctor's advice if you are taking this product along with other western (allopathic / modern) medicines. Some Ayurvedic herbs can interact with modern medicine.

If both Ayurvedic and allopathic medicines are advised together, then it is best to take Allopathic medicine first, wait for 30 minutes and then take the Ayurvedic medicine.

*D. General Use*

- 1) Treat Fever
- 2) Control Diabetes
- 3) Treat rhinitis
- 4) In case of snake bite
- 5) For ear ache
- 6) Treat headache
- 7) To treat cough and asthma
- 8) For treating urinary tract infections
- 9) For skin diseases.

*E. Adverse Effects*

No adverse effect is reported after the use of Akhuparni.

*F. Adultrants*

Centella asiatica

#### IV. CONCLUSION

By knowing all the guna karma of Akhuparni we can come to conclusion that it is a good medicine for krimi. It is also a good Rasayana drug. It held an important place among valuable drugs of Ayurveda due to its action on the body in curing various diseases.

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