

INTEGRATING TRADITIONAL KNOWLEDGE INTO COMMUNITY HEALTHCARE: HOMOEOPATHIC INSIGHTS ON ACHYRANTHES ASPERA

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ABSTRACT

Background: Nature has been a source of medicinal agents for thousands of years and since the beginning of mankind. Medicinal plant is an integral part of human life to combat the sufferings from the dawn of civilization. It is estimated that more than 80,000 of total plant species have been identified and used as medicinal plants around the world. Over the past twenty years, interest in medicinal plants has grown enormously from the use of herbal products as natural cosmetics and for self-medication by the general public to the scientific investigations of plants for their biological effects in human beings. Therefore, people are encouraging indigenous production and processing of these medicinal plants to use in different cultures and religion for the treatment of various diseases. The demand for plant-based medicines, health products, pharmaceuticals, food supplement, cosmetics etc. are increasing in both developing and developed countries, due to the growing recognition that the natural products are non-toxic, have less side effects and easily available at affordable

prices. Nowadays, there is a revival of interest with herbal-based medicine due to the increasing realization of the health hazards associated with the indiscriminate use of modern medicine and the herbal drug industries is now very fast-growing sector in the international market. There is great demand for herbal medicine in the developed as well as developing

countries like India, because of their wide biological activities, higher safety of margin than the synthetic drugs and lesser costs.

KEYWORDS: *Achyranthes aspera*, anti-microbial, anti-diabetic, Homoeopathic medicine.

INTRODUCTION

Achyranthes aspera is one of the plants used for medicinal purposes. It belongs to family Amaranthaceae. It is an erect, annual herb, distributed in hilly districts of India. In Tamil Nadu it is commonly seen in southern districts like Kanyakumari, Tirunelveli etc. The plant is used in indigenous system of medicine as emenagogue, antiarthritic, antifertility, laxative, ecbolic, abentifacient, anti-helminthic, aphrodisiac, antiviral, anti-plasmodic, antihypertensive, anti-coagulant, diuretic and anti-tumor. It is also useful to treat cough, renal dropsy, fistula, scrofula, skin rash, nasal, infection, chronic malaria, impotence, fever, asthma, piles and snake bites.



Uses: The plants are used as strong purgative, resolvent, demulcent, diuretic, digestive, antidote for scorpion sting, astringent used in renal dropsy and piles. Its powder is used in cough as expectorant, blood purifier, in malarial fever and in toothache. Widely used as anti-inflammatory, for rheumatic problems, bladder stone, pneumonia and for contraceptive action as pungent and for skin eruption. Root is used in pyorrhoea. It is used as laxative to improve appetite and also in treatment of heart diseases.

Review of literature: Learning of herbs and plants utilizing from age to age for a long time as a major aspect of conventional time. These herbs and plants are utilized for drug on account of effortlessly accessible and cheap. *Achyranthes aspera* is an imperative restorative

plant. The present research demonstrates refreshed data, edification for pharmacological exercises and against bacterial properties¹. In the field of clinical microbiology, the Nature has been a great wellspring of phyto-chemical operators. Phyto-chemicals contain an extensive variety of segments that is successful for bacterial sicknesses for instance urinary tract contaminations. The utilization of plant extricate for therapeutic medicines is revering incredible prominence since 1990s. These phyto-chemical drugs are valuable when individual's abuse of conventional anti-infection agents that reason tranquilize protection. *Achyranthes aspera* is a typical plant found all through India. This survey is engaged of union on the wide pharmacological exercises of *Achyranthes aspera* L. Prior to the presentation of current prescriptions, home grown cures was utilized for the treatment of maladies. It is evaluated that 80% of the total populace dwelling in the tremendous rustic regions of the creating and immature nations as yet depending principally on restorative plants.

Plant Introduction

Biological name: *Achyranthusaspera* Linn.

Synonyms: *Centrostachysindica* (L.) standl *Stachyarpagophora aspera* maza.

Family: *Amaranthaceae*.

Vernacular Names

Tamil - Shiru-kadaladi, Nayuruvi

Latin - *Achyranthes aspera*

Telugu - Uttaraene

Punjabi - Kutri

Malayalam-Kadaladi

Ayurvedic - chirchita, Apaamaarga, Shikhari

Unani - Chirchitaa

Persian - Khare-vazhun

French - *Achyranth a feuillesrudes*, gendarme, collant,

Spanish - Mosotillo, rabode chango rabo de gato, rabo de raton

Arbain - Atkumah

Sanskrit - Aghata

Hindi - Latjira, Chirchira

Gujarati – Safad Aghedo

Taxonomy

Kingdom – Plantae

Subkingdom - Tracheobionta

Super Division - Spermatophyta

Division - Mangoliophyta

Class - Mangoliopsida

Subclass - Caryophyllidae

Order - Caryophyllales

Family - Amaranthaceae

Genus - Achyranthes

Species – Aspera

Geographical Source

Found at many places like, on roadsides, waste places and field boundaries as a weed throughout India up to the altitude 2100m, in Southern Andaman Islands 8, 10. Plant is widespread in countries like Tropical Asia, Ceylon, America, Australia and Africa. Especially in Tamil Nadu it is commonly seen in Kanyakumari district the areas are Athencode, Sooriyacode, Arumanai, Attoor.

Habitat

Elevations about 2000m (open dry places).

Range

East Asia: Himalayas-Australia.

Morphology

Achyranthes aspera L. (Latjeera) is procumbent or an erect. The herb is annual/ perennial about 1m- 2m in height, generally, woody-base. Stems are ribbed, angular sometimes branched from the base, light purple in colour⁸. Branches are absolutely quadrangular or terete, pubescent, striate⁹. The leaves are thick 3.8cm - 6.3cm × 22.5cm - 4.5cm^{8, 9}, obovate-rounded or ovate-elliptic⁸. They are finely and softly pubescent on both sides, entire, petiolate, petiole 6 – 20 mm long⁹. The flowers are greenish-white colour. These are numerous axillary and terminal spikes about 75cm long. Seeds are truncate at apex, sub-cylindric, rounded at base and reddish brown colour.

Part Used

Generally Leaves, stem, seeds, root are used. i.e, whole plant.

Chemical Constituents

Achyranthes aspera consists of tri-terpenoid saponins possess Ecdysterone which is an insect-moulting hormone, oleanolic acid as aglycone. The long-chain of alcohols are also found in plant 21. Other chemical constituents are also present in plant for example betaine, achyranthine, hextriacontane, pentatriacontane, tritriacontane, 6-pentatriacontanone 21.

Ethnomedical Uses

It is used in treatment of pneumonia, cough, cold, bronchitis.

It is also used as an antimicrobial agent.

Side Effects

It may cause vomiting when given in high dose.

It is not suitable for using in pregnant ladies.

For men, who is undergoing infertility treatment should better avoid long term usage of apamarga.



Antibacterial Activity: The medicinal properties and pharmacological actions of *Achyranthes aspera* is well used in traditional medicine. Medicinal parts represent a rich source of antimicrobial agents. The plant known to contain various active principles of the therapeutic value and to possess biological activity against a number of diseases. All the extract of *Achyranthes aspera* inhibited almost all the test organism at concentrations of 25µl, 50µl, 75µl and 100 µl, it shows very high activity towards *Staphylococcus aureus*, *Escherichia coli* and *Bacillus subtilis* species at the concentration of 100 µl and the aqueous extracts

Achyranthes aspera shows very less activity towards *Staphylococcus aureus*, *Escherichia coli* and *Pseudomonas aeruginosa*.

LEAVES: Leaf induced apoptosis breast cancer cell through p 53 pathways i.e leaf is used to treat cancer, particularly breast and cervix cancer. Apart from this leaves are also used for the treatment of syphilitic sores, bowel complaint, pile, stomachache, skin eruption, early stages of diarrhea, dysentery, antiperiodic, Gonorrhoea, asthma, cure strained back, mitigate pain from bite of wasps and also recommended in several Women's diseases.

ROOT: Roots or its different extracts are used as astringents to wounds, in abdominal tumor and stomach pain, pneumonia, stomachic, menstrual disorders, antifertility, mild astringent, cough, ascites and anasarca, bleeding in delivery, nephrolithiasis and prevented urolithiasis induced with ethylene glycol and reduced the growth of calcium oxalate stones, Spermatotoxicity, snake bites, tooth brush, ophthalmia and opacities of the cornea, spermicidal activity in human and rat sperm, sperm immobilization, sperm viability, acrosome status, 5' - nucleotidase activity and nuclear chromatin decondensation, post coital antifertility and estrogenicity, anti-inflammatory activity, antilithiatic activity or effective antiurolithiatic agent, infantile diarrhea and cold, anti-fertility drug, induce labor pains and inhibited the growth of *Bacillus cereus* and *Staphylococcus aureus* bacterial strains. Pharmacognostic, preliminary phyto-chemical and pharmacological studies showed its anti-cancer, anti-diabetic, anti-inflammatory, anti-spasmodic, anti-bacterial, diuretic and antileprotic activities.

Seed: *Achyranthes aspera* is well documented for the presence of phytoactive constituents. Reduction in rate of lipid peroxidation and enhancement in free radical scavenging activity of the herbal seed powder is due to presence of phytoactive constituent. Seeds are rich in protein, and used in night blindness and cutaneous diseases, antipyretic activity, expectorants, hepatoprotective potency or treatment of Jaundice and antioxidant activity. Ethanol and chloroform extracts of seeds of *Achyranthes aspera* shows mild to moderate antibiotic activity against *B. subtilis*, *E. coli* and *P. aeruginosa*. Achyranthine, a water-soluble alkaloid isolated from *Achyranthes aspera*, decreased blood pressure and heart rate, dilated blood vessels, it also possess antipyretic activity and anti-inflammatory activity. Oleanolic acid present in *A. aspera*, *A. bidentata* extract can promote neuronal growth, protect hippocampal neurons against toxicity, and also has anti-stress and anti-apoptosis activities.



Therapeutic uses: The dried plant is given to children for colic and also as an astringent in gonorrhoea. Plant is crushed in water and boiled, and solution is given in treating pneumonia. The infusion of roots of plant is given as a mild astringent. Plant's infusion is applied to the wounds caused, by Acacia thorns in the forests as per forest-tribal practices, used in acute stage of coughs and rheumatism. The seeds and leaves are considered emetic and are useful in hydrophobia.

The juice of leaves is given in dysentery and diarrhoea. The flowering spikes made into pills with a little sugar is popular preventive medicine for persons bitten by rabid dogs and this kind of herbal therapy is prevalent in certain rural areas. The ash of the whole plant is prepared by burning of herb and it contains potash in a large quantity and the same is used in treatment of coughs and asthma. The ash is mixed with sesamum oil and used externally over wounds, ulcers and on warts of penis (male genital) and also other parts of body.

The ash of whole plant is mixed and prepared with sesame oil and dropped into ear as an effective remedy for ear complaints. The herb is commonly used as a depurative, astringent, diuretic and pectoral remedy. The roots are given in puerperal, pulmonary, syphilitic and rheumatismal troubles. It is also used in ophthalmia, dropsy and various cutaneous complaints. An infusion of the roots is used as an emetic for pains in the chest not due to cough. The steam coming from boiling the whole herb is inhaled and also used as a hot bath for checking acute chills and this kind of fomentation causes sweating and relieving chills and fever temperature. Whole plant or almost every part of the herb are recommended as a good remedy in treatment of snake-bite and scorpion-sting. Roots of the plants are pounded with black pepper and given orally with water in cases of snake bite for checking venomous poison.

Homeopathic Preparation: In Homeopathy, the mother tincture of *Achyranthes aspera* is prepared from the fresh leaves and branches of the plant. The process involves macerating the plant material in a solution of alcohol and water to extract its active constituents. This tincture serves as the basis for further dilutions used in Homeopathic remedies.

Therapeutic Applications: *Achyranthes aspera* mother tincture is indicated for various conditions:

- **Menorrhagia:** Helps in managing excessive menstrual bleeding.
- **Diarrhea and Dysentery:** Alleviates symptoms associated with gastrointestinal disturbances.
- **Skin Eruptions:** Addresses boils, carbuncles, and other skin affections.
- **Respiratory Issues:** Aids in relieving cough and pneumonia.
- **Urinary Tract Infections:** Assists in managing UTIs and preventing kidney stones.

CONCLUSION

The plant shows many pharmacological activities like spermicidal, anti-allergic, cardiovascular, nephroprotective, antiparasitic, anti-inflammatory, hypoglycemic, analgesic, hepatoprotective potency, inhibit leukocyte infiltration (particularly eosinophils and neutrophils), antiperiodic, antimicrobial, purgative, antipyretic and are used in various types of gastric disorders. Thus, *Achyranthes aspera* is quite promising as a multipurpose medicinal agent and further clinical trials should be performed to prove its efficacy. So the present review substantiates the long standing believe that *Achyranthes aspera* has medicinal properties.

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