

# Achyranthes aspera: A Comprehensive Review of its Botanical, Phytochemical, and Pharmacological Significance

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**Abstract**—*Achyranthes aspera* (Amaranthaceae) is an important medicinal herb found as a weed throughout India, almost seen in rural areas in India. Throughout, almost all parts are used in the traditional system of medicines. Like seeds, roots, leaves, and shoots, they are most important parts, which are used medicinally. The *achyranthes asper* L has been used in the treatment of cancer, leprosy, asthma, fistula, piles, arthritis, wounds, insect and snake bites, dandruff, hepatitis, renal disorders, dermatological disorders, gynecological disorders, gonorrhea, malaria, fever, cough, diabetes, pyorrhea, dysentery, ophthalmia, rabies, hysteria, toothache, etc. The plant has been used as an antimicrobial, larvicide, antifertility, immunostimulant, hypoglycemic, hypolipidemic, anti-inflammatory, antioxidant, diuretic, cardiac stimulant, antihypertensive, anti-anasarca, analgesic, antipyretic, antinociceptive, prothyroidic, antispasmodic, and hepatoprotective. It also has healing and ant

**Index Terms**—Botanical, *Achyranthes aspera*, Traditional, herb, Medicinal

## I. INTRODUCTION

Botanical Characteristics *Achyranthes aspera* L., commonly known as the prickly chaff flower, rough chaff, or devil's horsewhip, is a perennial herb of recognized medicinal value that belongs to the Amaranthaceae family. The plant is readily identifiable by its stiff, erect nature, angular or ribbed woody base, and an extensively branched stem structure. Its stems are usually green but can have hints of purple, especially at the nodes. They are covered in long, fine hairs, which give them a rough texture. Leaves are simple, exstipulate, opposite, and decussate, typically ovate to elliptic or obovate, hairy on both surfaces, and can range from 3 to 22 cm in length. The leaves demonstrate a prominent reticulate

venation and an acute to acuminate apex. The plant's inflorescence occurs as long, upright terminal or axillary spikes, often extending up to 75 centimeters.

These spikes are densely packed with greenish-white, bisexual, sessile flowers, each subtended by a persistent spiny bract. The flowers' perianth comprises five tepals, lying in two ranks, persistent through to fruit development. The androecium comprises ten stamens five fertile and five sterile (the latter scale-like and fimbriated). The gynoecium is bicarpellary and syncarpous, with a single basal ovule. The fruit is a small oat-shaped or oblong utricle, endospermic and thin-walled, bearing a single brown to black, shiny, oblong, or cylindrical seed, often 2 mm in length.

Morphological variation exists with growth form: while often described as an annual herb, *Achyranthes aspera* may behave as a short-lived perennial or even develop a shrubby, woody lower stem under appropriate conditions. The strong taproot helps the plant in different environments and gives it resistance to drought. Phytochemistry studies show that the plant has a variety of secondary compounds. These include triterpenoid saponins, with oleanolic acid as the aglycone; alkaloids like achyranthine and betaine; and flavonoids such as quercetin and kaempferol. It also contains ecdysterone, coumarin, phenols, tannins, essential fatty acids, steroids ( $\beta$ -sitosterol), long-chain alcohols, and several amino acids. The aerial parts (leaves and stems), roots, seeds, and even ashes from combustion yield different proportions of these compounds.

#### Advantages of *Achyranthes aspera*

- Wide therapeutic spectrum:

Used in Ayurveda, Siddha, Unani, and folk medicine for respiratory, digestive, cardiovascular, dermatological, and gynecological disorders.

- Rich phytochemistry: Contains alkaloids (achyranthine), saponins (oleanolic acid derivatives), flavonoids (quercetin, kaempferol), steroids ( $\beta$ -sitosterol), and phytoecdysteroids (ecdysterone).

- Pharmacological diversity:

Demonstrates anti-inflammatory, antimicrobial, antioxidant, antidiabetic, hypolipidemic, hepatoprotective, nephroprotective, immunostimulant, and anticancer activities.

- Accessibility:

Grows abundantly as a weed in rural India and tropical regions, making it inexpensive and widely available.

- Traditional surgical utility:

Its alkaline ash (Kshara) is used in Ayurvedic minor surgical procedures for piles and fistula.

- Potential for drug development:

Bioactive compounds show promise for novel herbal formulations and modern drug candidates.

#### Disadvantages / Limitations

- Toxicological concerns:

Some extracts (e.g., aqueous shoot extract) show acute toxicity in animal studies; requires careful dose validation.

- Abortifacient effect:

Root and stem extracts can interfere with pregnancy (anti-implantation activity), making it unsafe for pregnant women.

- Variability in phytochemistry:

Different plant parts and extraction solvents yield different compounds, complicating standardization.

- Lack of clinical trials:

Most evidence is preclinical (animal or in vitro); human studies are limited.

- Potential side effects:

Reports of hepatotoxicity, reproductive toxicity, or allergic reactions in some contexts.

- Quality control issues:

Being a common weed, contamination, adulteration, and inconsistent harvesting practices affect medicinal reliability.

#### Botanical Description of *Aspera* is a stiff, erect herb:

- Height: 0.2-2.0 m high. The base is woody, angular, or ribbed, simple or branched, and the nodes are bulged and often tinged with pink color.

- Root: Cylindrical root, 0.1-1.0 cm in thickness, slightly ribbed, gradually tapering, yellowish brown in color, with secondary and tertiary roots present.

- Stem: Square, yellowish-brown, branched, hairy, erect, cylindrical, solid, and hollow when dry.

- Leaf: Simple, subsessile, slightly acuminate, estipulate, wavy-margined, obovate, petiolate or elliptic, ovate or broadly rhombate, opposite, decussate, and pubescent due to the presence of a thick coat of long simple hairs. 5-22 cm long with 2-5 cm broad. Occur in various sizes. The type of stomata present on the lower epidermis is anomocytic.

- Flower: Arranged in long spikes in inflorescences, 8-30 cm long, 3-7 mm wide, bisexual, greenish-white, numerous, sessile, bracteate with two bracteoles, one spine-lipped, actinomorphic, hypogynous, with 5 perianth segments, membranous, 5 stamens, short filament, anther, two-celled, 7 gynoecium bicarpellary, syncarpous, superior ovary, single ovule, single style, and white or red stigma. Flowers appear during summer.

- Fruit: An indehiscent dry utricle enclosed within bracteoles, persistent, and perianth.

- Seed: These are round at the base, sub-cylindric, truncate at the apex, endospermic, and brown colored. Distinct features for field identification include opposing leaf arrangement, pronounced node swelling, sharp-tipped spiny bracts on the inflorescence, and hard, easily detachable seeds that stick to clothing or animal fur, assisting in seed dispersal. Flowering and fruiting are most prominent from September to April, though environmental conditions can permit year-round phases in tropical regions.



Fig no: 01

II. CLASSIFICATION

- Kingdom: Plantae
- Subkingdom: Tracheobionta
- Super Division: Spermatophyta
- Division: Mangoliophyta
- Class: Mangoliophsida
- Subclass: Caryophyllidae
- Order: Caryophyllales
- Family: Amaranthaceae
- Genus: Achyranthes

Category	Details
Common Names	Prickly Chaff Flower, Apamarga, Aghada (Marathi)
Family	Amaranthaceae
Traditional Uses	Asthma, cough, bronchitis, dysentery, wounds, inflammation, nephritis
Key Bioactive Compounds	Alkaloids, Flavonoids (rutin, quercetin), Saponins, Triterpenoids, Polypeptides
Pharmacological Activities	Anti-inflammatory, Antioxidant, Antimicrobial, Hepatoprotective, Cardioprotective, Immunomodulatory, Antipyretic
Neuroprotective Role	Effective in Alzheimer’s, Parkinson’s, Huntington’s, ALS
Mechanisms of Action	Reduces oxidative stress, modulates immune response, supports neural repair
Safety Considerations	Not recommended during pregnancy; requires toxicological validation
Drug Development Potential	Promising for herbal formulations and novel drug candidates

III. PHYTOCHEMICAL TABLE

Phytochemical	Plant Part
Quercetin	Leaves, Inflorescence
Kaempferol	Leaves
Rutin	Leaves, Inflorescence
β-Sitosterol	Seeds
Achyranthine	Whole plant
Ecdysterone	Whole plant
Asparoside A	Roots
Tannic acid	Stem, Root
Caffeic acid	Whole plant

IV. MEDICINAL USES

Achyranthes aspera is a cornerstone plant in Ayurveda, Siddha, Unani, traditional Chinese medicine, and various folk systems, especially in India, Southeast Asia, and Africa. Nearly every plant part roots, leaves, seeds, flowers, sap, and ashes—is employed for diverse ailments. The following table summarizes key medicinal applications

Table: Medicinal Applications of Achyranthes aspera

Area Application	Plant Part/Preparation	Associated Ailments/Effects
Anti-inflammatory	Whole plant, root, leaves	Arthritis, rheumatism, bronchitis, skin infections, wounds, boils
Analgesic	Leaves, root extracts	Headache, musculoskeletal pain, abdominal colic, piles
Wound Healing	Leaf paste, juice	Cuts, ulcers, burns, skin regeneration
Respiratory Health	Whole plant, leaves	Asthma, bronchitis, cough, common cold, tonsillitis

Digestive Support	Roots, seeds, whole plant	Indigestion, colic, dysentery, flatulence, abdominal enlargement
Antibacterial/Antiparasitic	Leaves/stems, root extracts	Bacterial and fungal infections, scabies, cattle ticks, parasites in livestock
Diuretic	Root decoction or sap	Renal and cardiac dropsy, urinary tract infections, kidney stones
Antipyretic	Whole plant, decoctions	Fever, malaria, antipyretic in children
Cardiovascular Benefits	Alkaloid (achyranthine)	Blood pressure reduction, heart rate management, vasodilation
Antioxidant	Leaf/seed extracts	Oxidative stress, chronic diseases, skin aging, wound healing
Hepato/Nephroprotective	Leaves, seeds, whole plant	Jaundice, nephrotoxicity, liver diseases
Piles / Anal Fistula	Alkaline ash (Kshara), whole plant	plant Hemorrhoids, fistula, minor surgical procedures (Ayurveda)
Snake and Insect Bites	Leaf/seed paste, root, sap	Scorpion stings, snake bites, dog bites
Anticancer/Chemoprevention	Leaf and seed extracts	Prevention and inhibition of tumors/carcinogenesis
Immunostimulant	Whole plant, seed extracts	Heightened immune response, antibody production
Antidiabetic	Seeds, whole plant	Blood sugar regulation, diabetes management
Hypolipidemic	Leaves, whole plant extracts	Hyperlipidemia, obesity management
Antiallergic	Leaves, aerial parts	Skin allergies, immune system mediation
Bronchoprotective	Leaves, root	Intestinal worms, animal parasite control

#### Phytochemistry: -

The whole *Achyranthes aspera* plant was analyzed, showing its solubility in water and chloroform. In the *achyranthes aspera* have a many chemical contents like alkaloids, flavonoids, tannins, phenols, saponins, steroids ( $\beta$ ), and glycosides.

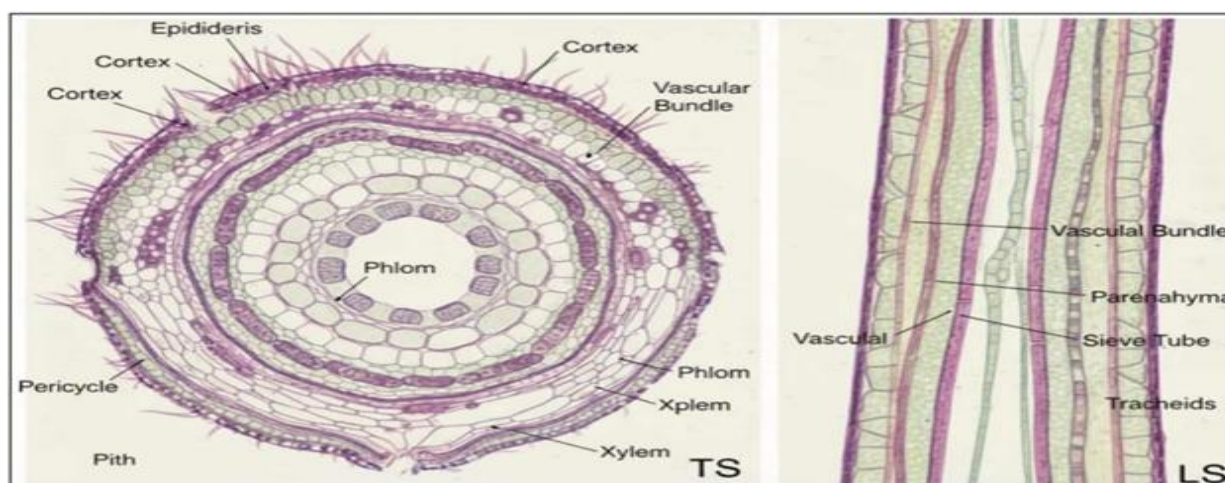
#### Shoot: -

From the shoots of *Achyranthes aspera*, the rare or unique aliphatic dihydroxyketone named. Dihydroxyhenpentacontan-4 it was synthesized with along tritriacontane. Additional research isolated other dihydroxyketones, such as dihydroxyhenpentacontan-

4-one, along with triacontanol. Another novel long-chain alcohol, 17-pentatriacontanol, was also isolated from shoots

#### Stem: -

The *achyranthes aspera* stem extract from chloroform, In the stem have unique compounds including pentatriacontanone, 6 – pentatriacontanone, hexatriacontane and triacontane were successfully isolated, Ecdysterone and distinctive component, was identified in the stem, the ethyl acetate as use the extracting agent, the stem yielded 3-acetoxy-6 benzoyloxyapangamide



*Achyranthes aspera* LS & T.S Stem Fig no: 02

Compound Name	Type / Class	Extraction Solvent	Structural Features / Notes
Pentatriacontanone	Long-chain ketone (C35)	Chloroform	Aliphatic ketone; contributes to waxy texture and hydrophobicity
6-Pentatriacontanone	Positional isomer of above	Chloroform	Ketone group at C-6; structural variant
Hexatriacontane	Saturated hydrocarbon (C36)	Chloroform	Non-polar; structural role in cuticular wax
Triacotane	Saturated hydrocarbon (C30)	Chloroform	Common wax component; hydrophobic barrier
Ecdysterone	Phytoecdysteroid	Ethyl acetate	Steroid structure; mimics insect molting hormone
3-Acetoxy-6-benzoyloxyapangamide	Alkaloid derivative / Amide	Ethyl acetate	Contains acetoxy and benzoyloxy groups; bioactive potential

Table no 05

Seeds: -

The seeds of *Achyranthes aspera* it is a rich source of protein, with content of 24.8% and a calorific value of 3.92/g, it comparable to Bengal seeds. The protein hydrolysis in the seeds revealed the presence of essential amino acids. The compound of saponin sugar moieties includes glucose, galactose, xylose & rhamnose, the seeds contain a portion of crude sapogenin, which secretes oleanolic acid. The further research led to the isolation of two oleanolic saponins, identified a saponin A and saponin B. these are characterized as  $\alpha$ -L-rhamnopyranosyl (1 $\rightarrow$ 4)- $\beta$ '-D-glucopyranosyl (1 $\rightarrow$ 4)- $\beta$ '-D-glucuronopyranosyl (1 $\rightarrow$ 3)-oleanolic acid and  $\beta$ -D-galactopyranosyl (1 $\rightarrow$ 28) ester of saponin A, respectively. Acid hydrolysis of total saponins confirmed in the presence of oleanolic acid. Partition chromatography is a rapid procedure for isolating triterpenoid saponins from plants.

- In the seed have been identified as constituents are following: -

- 1) Hexatriacontane
- 2) 10-triacosanone
- 3) 10-octacosanone
- 4) 4-triacosanone

The fatty fraction of seed oils includes lauric, myristic, palmitic, stearic, arachidic, behenic, oleic and linoleic acids, Additionally, the seeds were found to contain Ecdysterone.

Fig No: 03 Seeds of *Achyranthes Aspera*

#### Saponins and Sapogenins in seed

Compound	Structure / Notes
Crude Sapogenin	Yields oleanolic acid — a triterpenoid with anti-inflammatory and hepatoprotective properties
Saponin A	$\alpha$ -L-rhamnopyranosyl-(1 $\rightarrow$ 4)- $\beta$ -D-glucopyranosyl-(1 $\rightarrow$ 4)- $\beta$ -D-glucuronopyranosyl (1 $\rightarrow$ 3)-oleanolic acid
Saponin B	$\beta$ -D-galactopyranosyl-(1 $\rightarrow$ 28) ester of Saponin A
Sugar Moieties	Glucose, galactose, xylose, rhamnose
Isolation Method	Partition chromatography — rapid triterpenoid saponin isolation

Table No: - 06



Roots: -

Multiple independent investigations have explored the root's chemical compound. It was noted that the saponin fraction contains oleanolic acid as its aglycone component. Additionally, analyses revealed the presence of saponins and alkaloids in both the root and shoot, with no detectable flavonoids. Alkaloids were identified in the root, while saponins and tannins were not reported, another preliminary chemical study unveiled the presence of steroids, flavonoids, alkaloids, saponins and terpenoids in the root, with no glycosides detected. Notably,  $\beta$ -sitosterol was also identified in the root, furthermore, Ecdysterone was reported to be present in the root.



Roots of achyranthes aspera Fig no:-03

Compound Class	Detection Status	Notes
Saponins	Present	Found in both root and shoot
Alkaloids	Present	Includes achyranthine; hypotensive and anti-inflammatory
Flavonoids	Absent	Not detected in some studies
Tannins	Absent	Absent in one study
Steroids	Present	Includes $\beta$ -sitosterol
Terpenoids	Present	Implicated in antimicrobial activity
Glycosides	Absent	Not detected in root extracts
Ecdysterone	Present	A phytoecdysteroid with hormonal activity

#### V. PHARMACOLOGICAL REVIEW OF ACHYRANTHES ASPERA

Different parts of *Achyranthes aspera* contain different phytochemicals which show different pharmacological activities. Some of them are described as follows

##### 1) Anti-microbial and Anti-fungal activity: -

Numerous studies have been conducted to assess the antibacterial and antifungal properties of the plant. There have been reports of the plant having strong antibacterial properties. Seeds stem leaf extract in ethyl acetate, leaf and stem extracts in ethanol and methanol, leaf and stem extract in ethanol, and aqueous flower extract all exhibit antibacterial properties. There have been reports of the antibacterial and antifungal properties of dried leaf extracts in petroleum ether, chloroform, and methanol. The plant was discovered to possess antibacterial properties against gram-positive bacteria that originated in hospitals. The plant's antibacterial properties may be attributed to its tannins, saponins, flavonoids, and alkaloids. *Achyranthes aspera* extracts were tested

using disk diffusion and well plate method for their antibacterial effectiveness against a variety of pathogenic pathogens, including *Escherichia coli*, *Pseudomonas aeruginosa*, *Citrobacter* species, *Bacillus subtilis*, and *Micrococcus* species. The highest inhibition of *E. coli* was observed in extracts from *Achyranthes aspera* (17 mm), which was followed by *Pseudomonas* species (14 mm), *Citrobacter* species (12 mm), *Bacillus* species (12 mm), and *Micrococcus* species (12 mm).

##### 2) Anti-inflammatory activity: -

In albino male rats, an alcohol extract of *Achyranthes aspera* demonstrated anti-inflammatory effects on models of carrageenan induced hind paw edema and cotton pellet granuloma. Additionally, it has been claimed that *A. aspera*'s ethanol extract has anti-inflammatory and anti-arthritis properties at doses of 100–200 mg/kg. Rats with carrageenan-induced paw edema, granuloma pouch, formalin-induced arthritis, and adjuvant arthritis were used to test the anti-inflammatory and anti-arthritis properties of

achyranthine, a water-soluble alkaloid derived from *A. aspera*.

### 3) Anti-cancer activity: -

Numerous studies on *Achyranthes aspera* demonstrate its ability to inhibit malignant activity. Swiss albino mice that have been given mineral oils may be used in this investigation's tests. Antitumor properties were investigated on parts of the flowers and foliage. The mice may be administered varying concentrations of the plant's crude extract. More than other extracts, the ether extract might have beneficial benefits on malignancies.

### 4) Anti-cancer activity: -

Numerous studies on *Achyranthes aspera* demonstrate its ability to inhibit malignant activity. Swiss albino mice that have been given mineral oils may be used in this investigation's tests. Antitumor properties were investigated on parts of the flowers and foliage. The mice may be administered varying concentrations of the plant's crude extract. More than other extracts, the ether extract might have beneficial benefits on malignancies.

### 5) Anti-diabetic activity:

When oral administration of 250 and 500 mg of *Achyranthes aspera* was used in a rat model of alloxan-induced diabetes and normal glucose, a unique dose-related hypoglycaemic response was seen. A group of albino rats without glucose was starved for 12 hours in order to establish diabetes mellitus in them. Intraperitoneally (IP) 150 mg/kg body weight of alloxan monohydrate was injected after it had been dissolved in physiological saline. After four days, this dosage of alloxan resulted in persistent hyperglycemia, as evidenced by the examination of blood and urine samples used to determine glucose levels. The HbA1C level and blood glucose were significantly lower in the *A. aspera* aqueous extract group (500 mg/kg) than in the control group.

### 6) Anti-oxidant activity: -

Through a number of in vitro tests, including 1, 1-diphenyl-2-picrylhydrazyl (DPPH) and the Hydroxyl Radical Scavenging technique, the antioxidant activity of *A. aspera* crude root extract was assessed.

### 7) Hypolipidemic activity: -

In rats with triton-induced hyperlipidemia, the alcoholic extract of *A. aspera* was observed to reduce blood cholesterol (TC), phospholipid (PL), triglyceride (TG), and total lipids (TL) at 100 mg/kg. The hypolipidemic effectiveness of the plant was evaluated in rats fed sesame oil. There have been reports on the plant's ability to inhibit lipid peroxidation induced by sesame oil. [21] After giving this medication to normal rats at the same doses for 30 days, the treatment significantly reduced the levels of hepatic lipids and decreased serum TC, PL, TG, and TL by 56, 62, 68, and 67%, respectively. Under the influence of this medication, the excretion of deoxycholic acid and cholic acid in the feces rose by 40% and 24%, respectively. *A. aspera*'s potential mode of action for its cholesterol-lowering activity could be the quick excretion of bile acids, which results in less cholesterol being absorbed.

### 8) Diuretic activity:

As rats were given 10–20 mg/kg i.m. dosages of the saponin extracted from *A. aspera* seeds, their urine production increased significantly after 2, 6, and 24 hours as compared to rats that were not given any treatment. The diuretic impact was similar to what was seen with a dosage of 3 mg/kg of mersalyl. The saponin's ideal dosage was 10 mg/kg. Rats who received oral saponin (5–10 mg/kg) showed a substantial increase in urine production that was equivalent to an oral acetazolamide dose of 10 mg/kg. Similar to acetazolamide, saponin's diuretic impact has been linked to increased potassium and sodium excretion in the urine.

### 9) Anti-depressant Activity: -

The methanolic extract of *Achyranthes aspera* leaves was tested for antidepressant activity, and the results indicate that the extract has antidepressant effects on rats and mice when tested using the tail suspension test and forced swimming test.

### 10) Anti-asthmatic activity: -

The anti-asthmatic activity of the medication was tested using an ethanol extract of the aerial portion of *A. aspera*. One of the chronic inflammatory diseases that causes bronchoconstriction and inflammation in the airway pathway is bronchial asthma. It is also the cause of the hyperresponsiveness of the bronchi to

most stimuli, including mast cells, lymphocytes, and eosinophils. Several agonists, including histamine, acetylcholine, bradykinin, and 5-hydroxytryptamine, are in charge of the contractile responses.

#### 11) Wound Healing Activity: -

Achyranthes aspera leaf extracts in both ethanolic and aqueous form for their ability to heal wounds. Two wound models—the excision wound model and the incision wound model—were used to investigate the wound healing activity.

12) Nephroprotective Activity: - Lead acetate-induced nephrotoxicity in male albino rats was prevented by a methanolic extract of the entire Achyranthes aspera plant.

#### ➤ Mechanism of Action (MOA) of Achyranthes aspera (Apamarga):-

##### 1. Anti-inflammatory MOA

- o Alkaloids and saponins inhibit cyclooxygenase (COX) and lipoxygenase pathways, reducing prostaglandin and leukotriene synthesis.
- o This suppresses edema, granuloma formation, and arthritic inflammation.

##### 2. Antimicrobial MOA

- o Tannins and flavonoids disrupt microbial cell walls and membranes.
- o Saponins increase cell permeability, leading to leakage of intracellular contents.
- o Alkaloids interfere with microbial enzyme systems.

##### 3. Antioxidant MOA

- o Flavonoids (quercetin, rutin) donate hydrogen atoms to neutralize free radicals.
- o They inhibit lipid peroxidation and protect cellular membranes from oxidative damage.

##### 4. Antidiabetic MOA

- o Saponins and alkaloids enhance insulin secretion from pancreatic  $\beta$ -cells.
- o They improve peripheral glucose uptake and reduce gluconeogenesis, lowering blood glucose and HbA1c levels.

##### 5. Hypolipidemic MOA

- o Oleanolic acid saponins promote bile acid excretion, reducing cholesterol absorption.
- o They inhibit HMG-CoA reductase activity, lowering serum triglycerides and total cholesterol.

##### 6. Cardiovascular MOA

- o Achyranthine (alkaloid) acts as a vasodilator, reducing blood pressure.
- o It modulates calcium channels and autonomic tone, stabilizing heart rate.

##### 7. Diuretic MOA

- o Seed saponins stimulate renal tubular excretion of sodium and water.
- o This increases urine output, similar to acetazolamide or mild mercurial diuretics.

##### 8. Anticancer MOA

- o Flavonoids and saponins induce apoptosis in malignant cells.
- o They inhibit angiogenesis and suppress oxidative DNA damage, reducing tumor progression.

##### 9. Immunomodulatory MOA

- o Plant extracts enhance antibody production and stimulate macrophage activity.
- o They balance Th1/Th2 immune responses, strengthening host defense.

##### 10. Neuroprotective MOA

- Steroidal compounds support synaptic repair and protect against neurodegenerative changes.

#### VI. THERAPEUTIC BENEFITS ACCORDING TO AYURVEDA:-

- Remedy for asrigdara (heavy menstrual bleeding):

अपामार्गदलंपपष्ठापिलैलेनपाययेत् ।

असृग्दरप्रशान्त्यर्गरहस्यपमदमौषधम् ॥

(सहस्रयोर)

apāmārgadalampīṣṭvātilatailenapāyayet|

asṛgdaraprasāntyartharahasyamidamauśadham||

(sahasrayoga) Paste of Apamarga (Achyranthes aspera) leaf should be consumed along with sesame oil for the cure of asrigdara, or excessive menstrual bleeding.

- Method of intake:-

Apamarga (Achyranthes aspera) leaf paste should be prepared by rubbing it on a stone plate by adding a little quantity of water and should be consumed in a dose of 3 to 5 grams two times a day, along with 3 to 5 ml of sesame oil, before food.

- For weight loss: -

Achyranthes aspera for weight loss

Chedi – has a scraping effect, useful in cholesterol deposition, fat reduction. Hence, Apamarga is one of



the efficient herbs to induce weight loss. Medohara – reduces fat deposition.

- Use of Apamarga in making Bhasma of Tin and Zinc: In preparing Vanga Bhasma (Calx of Tin) and Yashada Bhasma (Calx of Zinc), the powder of Apamarga and Ashwattha (*Ficus religiosa*) is added to the molten metal and ground. This process is called Avapa

- Sanke & Insect bite: -

Apamarga (*Achyranthes Aspera*) has been used extensively in traditional Ayurvedic and folk medicine as a successful treatment for insect and snake bites. To neutralise the venom and lessen inflammation, the plant's leaf or root paste is frequently applied externally to the afflicted area. To counteract the toxic effects of the bite, some traditional practices also involve giving small amounts of fresh leaf or root juice orally. The plant's potent analgesic, anti-inflammatory, and detoxifying qualities aid in lowering bite site pain, swelling, and infection. *Achyranthes aspera*'s alkaloid content, especially achyranthine, which has pharmacological properties helpful in toxin neutralisation, supports the use of the plant in such treatments. The majority of these nations use traditional ayurvedic methods.

1. India – Widely used in Ayurveda, Siddha, and folk medicine systems for treating snake and insect bites.

2. Nepal – Commonly used by local healers (Vaidyas) and traditional practitioners in rural areas.

3. Bangladesh – Utilized in Unani and folk medicine for detoxification after snake or scorpion stings. 4. Sri Lanka – Employed in traditional herbal practices for venom neutralization.

5. African countries (e.g., Nigeria, Kenya) – Used in ethnomedicine for wound healing and treating venomous bites.

## VII. CONCLUSION

*Achyranthes aspera* is a valuable medicinal plant widely recognized in traditional systems of medicine for its diverse therapeutic uses. Various parts of the plant, including leaves, roots, and seeds, possess potent phytochemicals such as saponins, alkaloids, flavonoids, and glycosides, which contribute to its anti-inflammatory, antimicrobial, antioxidant, and wound-healing properties. Scientific research

continues to validate these traditional claims, emphasizing the plant's pharmacological potential and paving the way for its inclusion in modern drug development. Overall, *Achyranthes aspera* represents a vital link between traditional herbal practices and contemporary medicinal science, highlighting the importance of conserving and studying such ethnomedicinal species for future health applications

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