

**ACHYRANTHES ASPERA - A PROMISING MEDICINAL HERB**Md. Abul Hassan\*<sup>1</sup> and Nafisa Yesmin<sup>2</sup><sup>1</sup>Department of Pharmacy, Faculty of Allied Health Sciences, Daffodil International University, Dhaka.<sup>2</sup>Department of Pharmaceutical Sciences, School of Health and Life Sciences, North South University, Dhaka.**\*Corresponding Author: Md. Abul Hassan**

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**ABSTRACT**

*Achyranthes aspera* Linn. (Amaranthaceae family) is an important medicinal plant is found throughout Bangladesh as an annual herb. The medicinal plants are used for treatment of various diseases because of their safety and effectiveness. *Achyranthes aspera* has been long history of medicinal plants Though almost all of its parts are used in traditional systems of medicines, seeds, roots and shoots are the most important parts which are used medicinally. The present research gives an account of updated information on its phytochemical and pharmacological properties. All chemical constituents and pharmacological properties are responsible for the treatment of various human disorders. The review exposes that wide numbers of phytochemical constituents have been isolated from the plant which holds activities like antiperiodic, antiasthmatic, hepatoprotective, anti-allergic, expectorant, stomach tonic, laxative, antihelminthic, diuretic, linthontriptic, sudorific, demulcent, anti-inflammatory, anticataract, antifungal, antibacterial, hypoglycaemic, antihyperlipidemic and haematinic and various other important medicinal properties. The crushed plant is used in pneumonia and infusion of the root is used as mild astringent in bowel complaints. For the last few decades or so, extensive research work has been done to prove its biological activities and pharmacology of its extracts. Saponins, oleonic acid, dihydroxy ketones, alkaloids, long chain compounds and many other chemical constituents have been isolated. For the reason of rich source of phytochemicals, this plant is may be used for herbal medicine.

**KEYWORDS:** *Achyranthes aspera*, Medicinal Herb, pharmacological actions, Antimicrobial.**INTRODUCTION**

*Achyranthes aspera* Linn. (Amaranthaceae) is an important medicinal plant, commonly known as Chirchita in Hindi, an annual, pubescent stiff erect herb, found as weed throughout India, tropical Asia and other parts of the world.<sup>[1-2]</sup> The inflorescences are pale to bright purple, loosely arranged below and compact above in long spikes. The fruits are oblong cylindrical, yellowish brown, smooth and glabrous. Root extract exhibit pronounced insect molting hormonal activity. These are also used as astringents to wounds, in abdominal tumor and stomach pain.<sup>[3]</sup> This plant is popularly supposed to act as a safeguard against scorpions and snakes.<sup>[4]</sup> According to the WHO more than 80 % of the world's population relies on traditional herbal medicine for their primary health care.<sup>[5]</sup> Plants continue to serve as possible sources for new drugs and chemicals derived from various parts of plants.<sup>[6]</sup> In recent time there has been a marked shift towards herbal cures because of the pronounced cumulative and irreversible reactions of modern drugs. However, due to over population, urbanization and continuous exploitation of these herbal reserves, the natural resources along with their related traditional knowledge are depleting day by day.<sup>[7]</sup>

Medicinal plants have been used as an exemplary source for centuries as an alternative remedy for treating human diseases because they contain numerous active constituents of immense therapeutic value. In the present era of drug development and discovery of newer drug molecules many plant products are evaluated on the basis of their traditional uses. The secondary metabolites of the plants are the major sources of pharmaceutical, food additives and fragrances. In the present era of drug development and discovery of newer drug molecules, many plant products are evaluated on the basis of their traditional uses. The curative properties of medicinal plants are mainly due to the presence of various complex chemical substances of different compositions which occur as secondary metabolites.<sup>[8]</sup>

*Achyranthes aspera* is a species of plant in the Amaranthaceae family. The plant is a perennial stiff erect herb, 0.2-2.0 m high, is growing up to 1000 m height. Stems are square, leaves elliptic ovate or broadly rhombate, 5-22 cm long, 2-5 cm broad, and adpressed pubescent. The inflorescences are 8-30 cm long, with many single, white or red flowers, 3-7 mm wide. Flowering time is in summer. Wide numbers of phytochemical constituents have been isolated from the

plant which possesses activities like antiperiodic, diuretic, purgative, laxative, antiasthmatic, hepatoprotective, anti-allergic and various other important medicinal properties. Traditionally, the plant is used in pneumonia, diarrhea, dysentery, asthma, cough, dropsy, ulcers, piles, rheumatism, scabies, snake bite and other skin diseases.<sup>[9]</sup>

In the present era of drug development and discovery of newer drug molecules many plant products are evaluated on the basis of their traditional uses. One of the many plants which are being evaluated for their therapeutic efficacies is *Achyranthes aspera* which is commonly known as Latjeera (Hindi) & Rough Chaff tree (English). It is an erect or procumbent, annual or perennial herb, 1-2m in height, often with a woody base, commonly found as a weed of waysides, on roadsides.<sup>[10,11,12]</sup> Although it has many medicinal properties, it is particularly used spermicidal, antipyretic & as a cardiovascular agent.

#### Scientific taxonomic classification

<b>Kingdom</b>	<b>Plantae</b>
Subkingdom	Tracheobionota
Super Division	Spermatophyta
Division	Mangoliophyta
Class	Mangoliopsida
Subclass	Caryophyllidae
Order	Caryophyllales
Family	Amaranthaceae
Genus	<i>Achyranthes</i>
Species	<i>Aspera</i>

#### Botanical description

*Synonyms*.<sup>[13,14]</sup>

**African vernacular names:** Swahili- Turura, Sotho-Bohomane, Bohome-bo-bolek, Mo-tswarak-gano, Belgian Congo-Denge, Gnegna, Kalambata, Lenge, Lenamo.

**Arabian** - Atkumah, Na'eem, No'eim, Mahout, Wazer (Yemen)

**Ayurvedic** - Apamarga, Chirchita, Shikhari, Shaikharika

**Bengali** - Apaang.

**English** - Prickly chaff flower, Hawai chaff flower, Devil's horse whip, Prickly chaff flower

**French** - Achyranth a feuilles rudes, Collant, Gendarme

**Gujarati** - Safad Aghedo, Anghadi, Anhedhi, Agado.

**Hindi** - Latjira, Chirchira, Lamchichra, Sonpur, Onga.

**Indonesia** - Jarong.

**Kannada** - Uttaraene, Utame.

**Latin** - *A. aspera*

**Malayalam** - Kadaladi, Vankadaladi, Katalati.

**Marathi** - Aghada, Pandhara-aghada.

**Other** - Pululue, Panga za wayuka, Crokars staff burweed

**Persian** - Khare-vazhun

**Philippines (Tagalog)** - Hangod

**Punjabi** - Kutri

**Sanskrit** - Aghata, Apamargah, Mayoora, Markatapippalee, Durgrahan, Khara-manjari.

**Sinhala**- Karalheba.

**Spanish** - Mosotillo, Rabo de gato, Rabo de chango, Rabo de raton.

**Swahili**- Shiru-kadaladi

**Tamil** - Shiru-kadaladi, Nayuruvi

**Telugu**- Uttaraene, Utareni, Aduchinnike, Antisha, Pamargamu, Uttaraene.

**Unani** - Chirchitaa

#### History and Origin

Two varieties of *A. aspera*, red and white are mentioned in Ayurvedic and Chinese medicines. *Achyranthes aspera* as a rough flowered stalk is described as in Sanskrit synonyms. It is described in 'Nighantas' as pungent, purgative, digestive, and a remedy for inflammation of the internal organs, itch, piles, abdominal enlargements and enlarged cervical glands. The diuretic property of the plant was well known to the natives of India and European physicians. Various plant parts form ingredients in many native prescriptions were used in combination with more active remedies.

The plant is globally available as a medicinal weed in Baluchistan, Ceylon, Tropical Asia, Africa, Australia and America. It is reported as an invasive alien species in northern Bangladesh. It is also found to be the most prevalent weed in Shivbari, Himachal Pradesh and an exotic medicinal herb of district, Lalitpur (Uttar Pradesh), India.<sup>[13]</sup>

#### Traditional Uses

Traditionally, the plant is used in asthma and cough. It is pungent, antiphlegmatic, antiperiodic, diuretic, purgative and laxative, useful in oedema, dropsy and piles, boils and eruptions of skin etc. Crushed plant is boiled in water and is used in pneumonia. Infusion of the root is a mild astringent in bowel complaints. The flowering spikes or seeds, ground and made into a paste with water, are used as external application for bites of poisonous snakes and reptiles, used in night blindness and cutaneous diseases.<sup>[15]</sup> For snake bites the ground root is given with water until the patient vomits and regains consciousness. Inhaling the fume of *Achyranthes aspera* mixed with *Smilax ovalifolia* roots is suggested to improve appetite and to cure various types of gastric disorders.<sup>[16]</sup> It is useful in haemorrhoids, leaves and seeds are emetic, hydrophobia, carminative, resolve swelling, digestive and expel phlegm. Ash of the plant is applied externally for ulcers and warts. The crushed leaves rubbed on aching back to cure strained back.<sup>[17]</sup> A fresh piece of root is used as tooth brush. Paste of the roots in water is used in ophthalmia and opacities of the cornea. Paste of fresh leaves is used for allaying pain from bite of wasps.<sup>[18]</sup>

#### Phytochemistry

Chemical investigations of the seeds of *Achyranthes aspera* by V. Hariharan & S. Rangaswami (1970) and

M. Ali (1993) reported the isolation & identification of Saponins A and B.<sup>[16,18]</sup> Saponin A was identified as D-Glucuronic Acid and saponins B was identified as  $\beta$ -D-galactopyranosyl ester of D-Glucuronic Acid. Along with these constituents certain other constituents were also isolated like oleanolic acid, amino acids and hentriacontane. The seeds also contain chemical constituents like 10-tricosanone, 10-octacosanone & 4-tritriacontanone.<sup>[19,20]</sup>

Chemical constituents: Betaine, achyranthine, hentriacontane, ecdysterone, achyranthes saponins A, B, C, D are the major chemical constituents found in *A. aspera*. The seeds of *Apamarg* contains  $\alpha$ -Lrhamnopyranosyl-(1 $\rightarrow$ 4)-( $\beta$ -Dglucopyranosuluronic acid)-(1 $\rightarrow$ 3)-Oleanolic acid,  $\alpha$ -Lrhamnopyranosyl-(1 $\rightarrow$ 4)-( $\beta$ -Dglucopyranosyluronic acid)-(1 $\rightarrow$ 3)-Oleanolic acid, 28-O- $\beta$ -D-glucopyranoside and  $\alpha$ -Lrhamnopyranosyl-(1 $\rightarrow$ 4)-( $\beta$ -Dglucopyranosyluronic acid)-(1 $\rightarrow$ 3)-oleanolic acid-28-O- $\beta$ -Dglucopyranosyl-(1 $\rightarrow$ 4)- $\beta$ -Dglucopyranoside.<sup>[21]</sup>

A.S. Chauhan *et al.* (2002) isolated a new cyclic chain aliphatic fatty acid (I) was also isolated from seeds of the plant.<sup>[20]</sup> H.N. Khastgir *et al.* (1958) isolated saponin along with oleanolic acid from the seeds.<sup>[22]</sup>

S.K. Sharma *et al.* (2009) from the ethanolic extracts of the roots isolated a new aliphatic acid and identified as n-hexacos-14-enoic acid from the roots of *Achyranthes aspera*. This compound is reported for the first time from any natural and synthetic source. Certain other was also isolated and identified as strigmasta-5, 22-dien-3- $\beta$ -ol, trans-13-docasenoic acid, n-hexacosanyl n-decanate, n-hexacos-17-enoic acid and n-hexacos-11-enoic acid. Strigmasta-5, 22-dien-3- $\beta$ -ol is a phytosterol, was obtained as a colourless crystalline mass from petroleum ether: benzene 75:25 elute. It responded positively to Liebermann Burchard test for sterols.<sup>[23]</sup>

T.G. Misra *et al.* (1993) reported certain long chain compounds from the shoots like 27-cyclohexylheptacosan-7-ol and 16-hydroxy-26-methylheptacosan-2-one.<sup>[24]</sup>

Y. Gariballa *et al.* (1983) isolated an aliphatic alcohol, 17-pentatriacontanol from the shoots.<sup>[30]</sup> T.N. Misra *et al.* (1996) isolated various compounds like tetracontanol-2 (C<sub>40</sub>H<sub>82</sub>O, melting point 76-77°C), 4-methoxyheptatriacont-1-en-10-ol (C<sub>38</sub>H<sub>76</sub>O) and  $\beta$ -sitosterol.<sup>[25]</sup>

A. Banerji *et al.* (1971) isolated ecdysterone from the whole plant.<sup>[32]</sup> K.S. Laddha (2005) *et al.* reported extraction, isolation and purification of 20-hydroxyecdysone from *Achyranthes aspera* and its characterization by DSC, UV, IR, CD, <sup>1</sup>H and <sup>13</sup>C NMR, MS and quantification by HPLC.<sup>[26]</sup>

R.D. Rameshwar (2007) isolated chemical

compounds of the volatile oil from *Achyranthes aspera* leaves, growing in Dehra Dun were analyzed by G.C. M.S. Seven compounds viz., p- benzoquinone, hydroquinone, spathulenol, nerol,  $\alpha$ -ionone, asarone and eugenol constituting 63.05% of the oil were identified. Hydroquinone (57.7%) was found to be the chief constituent.<sup>[27]</sup>

## PHARMACOLOGICAL ACTIONS

### Biological Activity of *Achyranthes Aspera*

**Antiviral and Anticarcinogenic:** the in vitro assay the methanolic extract of *A. aspera* leaves (100  $\mu$ g) revealed significant inhibitory effects on the Epstein-Barr virus early antigen induced by the tumour promoter 12-O-tetradecanoylphorbol-13-acetate in Raji cells. The fraction containing mainly non-polar compounds showed the most significant inhibitory activity (96.9 % and 60 % viability). In the in vivo two stage mouse skin carcinogenesis test the total methanolic extract possessed a pronounced anticarcinogenic effect. The total extract and the fraction are believed to be valuable antitumour promoters in carcinogenesis.<sup>[28]</sup>

### Spermicidal Activity

D. Paul *et al.* (2010) studied effects of various extracts from the roots of *Achyranthes aspera* and reported spermicidal activity in human and rat sperm. The hydroethanolic, n-hexane and chloroform extracts were found to be most effective for sperm immobilization, sperm viability, acrosome status, 5'-nucleotidase activity and nuclear chromatin decondensation.<sup>[29]</sup>

W. Shibeshi *et al.* (2006) studied effects of methanolic extract of the leaves and reported for anti- fertility activities such as abortifacient, estrogenicity, pituitary weight, and ovarian hormone level and lipids profile in female rats. The abortifacient effect of the methanolic extract of the leaves of *Achyranthes aspera* was determined by counting the dead fetuses *in vivo*. Effect on estrogenicity was assessed by taking the ratio of the uterine weight to body weight. The ratio of the pituitary weight to body weight was also calculated. The effect of the extract on the level of ovarian hormones and lipid profile were evaluated using electrochemiluminescence immunoassay.<sup>[30]</sup>

### Antiparasitic Activity

A. A. Zahir *et al.* (2009) reported that the ethyl acetate extracts of *A. aspera* shows antiparasitic activity (dried leaf, flower and seed extract) against the larvae of cattle tick *Rhipicephalus* (*Boophilus*) *microplus* (Canestrini, 1887) (Acari: Ixodidae), sheep internal parasite *Paramphistomum cervi*.<sup>[31]</sup>

A. Bagavan *et al.* (2008) studied the acetone, chloroform, ethyl acetate, hexane and methanol leaf extracts of *Achyranthes aspera* against the early fourth-instar larvae of *Aedes aegypti* L and *Culex quinquefasciatus* Say. The larval mortality was observed after 24 h exposure. All extracts showed moderate

larvicidal effects; however, the highest larval mortality was found in the ethyl acetate extract of *A. aspera*. In the present study, bioassay-guided fractionation of *A. aspera* led to the separation and identification of a saponin as a potential mosquito larvicidal compound, with LC50 value of 18.20 and 27.24 ppm against *A. aegypti* and *C. quinquefasciatus*, respectively. <sup>1</sup>H NMR, <sup>13</sup>C NMR and mass spectral data confirmed the identification of the active compound. This is the first report on the mosquito larvicidal activity of the saponin from the ethyl acetate extract of *A. aspera*.<sup>[32]</sup>

#### Hypoglycemic Activity

M.S. Akhtar & J. Iqbal (1991) studied the aqueous and methanolic extracts of the powdered whole plant, which shows hypoglycemic activity. Blood glucose levels of normal and Alloxan induced diabetic rabbits were determined after oral administration of various doses.<sup>[33]</sup>

#### Cancer Chemo preventive Activity

A. Chakraborty *et al.* (2002) reported that the methanolic extracts of leaves, alkaloid, non-alkaloid and saponin fractions shows cancer chemo preventive action on Epstein-Barr virus early antigen activation induced by tumor promoter 12-O-tetradecanoylphorbol-13-acetate in Raji cells.<sup>[34]</sup>

#### Hepatoprotective Activity

A.R. Bafna & S.H. Mishra (2004) reported that the methanolic extract of the aerial parts of *Achyranthes aspera* shows hepatoprotective activity on rifampicin induced hepatotoxicity in albino rats. Methanolic extract showed dose dependent decrease in the levels of SGPT, SGOT, ALKP and total bilirubin.<sup>[35]</sup>

#### Analgesic and antipyretic activity

Sutar N.G. *et al.* (2008) reported methanolic extract of leaves for analgesic and antipyretic activities by using hot plate and brewer's yeast induced methods using aspirin as a standard drug.<sup>[36]</sup> F.A. Mehta *et al.* (2009) studied the leaves and seeds of *Achyranthes aspera* which shows analgesic activity. Both leaves and seeds show analgesic activity in mice using acetic acid induced writhing response and hot plate method.<sup>[37]</sup>

#### Anti-inflammatory and anti-arthritic activity

S.Vijaya Kumar *et al.* (2009) studied the alcoholic extract of the roots of *Achyranthes aspera*, which shows anti-inflammatory activity in Wistar rats using carrageenan-induced paw edema method and cotton pellet granuloma test.<sup>[38]</sup>

The alcoholic extracts of leaves and seeds show anti-inflammatory activity in rats using carrageenan-induced paw edema method and formalin model.<sup>[39]</sup>

#### Antimicrobial Activity

M.T.J. Khan *et al.* (2010) reported that the ethanol and chloroform extracts of seeds of *Achyranthes*

*aspera* shows mild to moderate antibiotic activity against *B. subtilis*, *E. coli* and *P. aeruginosa*.<sup>[40]</sup> S.H.K.R. Prasad *et al.* (2009) studied the various extracts of the leaves and callus of the plant also shows antimicrobial activity.<sup>[41]</sup>

P. Saravanan *et al.* (2008) reported the solvent leaf extracts were tested for antibacterial and antifungal activities against *E. coli*, *P. aeruginosa*, *P. vulgaris*, *S. aureus*, *Klebsiella* species.<sup>[42]</sup> T.N. Misra *et al.* (1992) reported 17-pentatriacontanol as a chief constituent isolated from essential oil of the shoots of plant, the oil shows antifungal activity against *Aspergillus carneus*.<sup>[43]</sup>

S. Sharma *et al.* (2006) studied the alcoholic extract which shows the presence of the triterpenoid saponin with dose dependent inhibitory activity against *Staphylococcus aureus*, a bacteria causing skin disease in human beings. Minimum inhibitory concentration was found to be highest (0.15 mg) for purified fraction. The identification of the compound on spectral analysis gave a triterpenoidal saponin purified fraction.<sup>[44]</sup>

M. Manjula *et al.* (2009) studied the extracts of *Achyranthes aspera* for antibacterial activity against various pathogenic strains such as *Escherichia coli*, *Pseudomonas aeruginosa*, *Citrobacter* species, *Bacillus subtilis* and *Micrococcus* species using disk diffusion and well plate method. Phytochemical characterization of *Achyranthes aspera* extracts was done by thin layer chromatography (TLC) techniques and other phytochemical analysis. It was found that extracts of *Achyranthes aspera* shows the maximum inhibition of *E. coli* (17 mm) followed by *Pseudomonas* species (14 mm), *Citrobacter* species (12 mm), *Bacillus* species (12 mm) and *Micrococcus* species (12 mm). *Achyranthes aspera* shows predominant inhibition against gram negative bacteria at a higher concentration of 50 µg/ml. In the well plate method, the inhibition zone ranges from 7 to 19 mm against pathogenic strains thus by increasing the concentration of extracts. From the TLC analysis it shows that formation of color and the RF value indicate the presence of different phytochemicals in the sample. The samples of *Achyranthes aspera* were found to contain alkaloids and tannins.<sup>[45]</sup>

#### Anti-allergic Activity

S.B. Datir *et al.* (2009) reported that the petroleum ether extract (200 mg/kg, i.p.) of the plant shows significant antiallergic activity in both milk induced leukocytosis and milk induced eosinophilia in mice. Thus the antiallergic activity of *A. aspera* may be due to nonpolar constituents. The phytochemical screening of petroleum ether extract shows the presence of steroids. Literature shows the presence of steroids like  $\beta$ -sitosterol, ecdysone and ecdysterone. Thus these steroids present in the plant may be responsible for the antiallergic activity.<sup>[46]</sup>

**Anti-oxidant Activity**

P. Tahiliani & A. Kar (2000) studied various extracts of the leaves for anti-oxidant activity.<sup>[64]</sup> D.S. Gayathri *et al.* (2009) also reported antioxidant activity on leaves and roots.<sup>[47]</sup>

S. Edwin *et al.* (2008) reported free radical scavenging activity of the ethanolic and aqueous extracts. Both extracts were assessed using two methods, DPPH radical scavenging activity, and superoxide scavenging activity. The plant exhibited good antioxidant effect by preventing the formation of free radicals in the two models studied.<sup>[48]</sup>

**Anti-depressant Activity**

C.C. Barua *et al.* (2009) showed that Methanolic extract of the leaves of *Achyranthes aspera* shows anti-depressant effect in mice and rats using forced swimming test in mice and rats and tail suspension test in rats.<sup>[49]</sup>

**Bronchoprotective Activity**

B.R. Goyal *et al.* (2007) reported ethanolic extract of *Achyranthes aspera* shows bronchoprotective effect in toluene diisocyanate (TDI) induced occupational asthma in Wistar rats. The total and differential leucocytes were counted in blood and bronchoalveolar (BAL) fluid. Liver homogenate was utilized for assessment of oxidative stress and lung histological examination was performed to investigate the inflammatory status of airway. The results suggest that *Achyranthes aspera* treated rats did not show any airway abnormality.<sup>[50]</sup>

**Cardiovascular Activity**

Achyranthine, a water-soluble alkaloid isolated from *Achyranthes aspera*, decreased blood pressure and heart rate, dilated blood vessels, and increased the rate and amplitude of respiration in dogs and frogs. The contractile effect of the alkaloid at 0.5 mg/ml on frog rectus abdominal muscle was less than that of acetylcholine (0.1 mg/ml), and its spasmogenic effect was not blocked by tubocurarine.<sup>[51]</sup>

**Diuretic Activity**

S.S. Gupta *et al.* (1972) reported a saponin isolated from the seeds of *Achyranthes aspera* which shows significant diuretic effect in adult male albino rats.<sup>[52]</sup>

**Immunomodulatory Activity**

R. Chakrabarti & R.Y. Vasudeva reported that *Achyranthes aspera* show immuno-stimulant action in *Catla catla*. *Achyranthes* has significantly ( $P < 0.05$ ) enhanced the BSA-specific antibody titers than the untreated control group throughout the study period. The efficiency of antigen clearance was also enhanced.<sup>[53]</sup>

**Hypolipidemic Activity**

A.K. Khanna *et al.* (1992) investigated the alcoholic

extract of *A. aspera*, at 100 mg/kg dose lowered serum cholesterol (TC), phospholipid (PL), triglyceride (TG) and total lipids (TL) levels by 60, 51, 33 and 53% respectively in triton induced hyperlipidemic rats. The chronic administration of this drug at the same doses to normal rats for 30 days, lowered serum TC, PL, TG and TL by 56, 62, 68 and 67% respectively followed by significant reduction in the levels of hepatic lipids. The faecal excretion of cholic acid and deoxycholic acid increased by 24 and 40% respectively under the action of this drug. The possible mechanism of action of cholesterol lowering activity of *A. aspera* may be due to rapid excretion of bile acids causing low absorption of cholesterol.<sup>[54]</sup>

**Nephroprotective Activity**

T. Jayakumar *et al.* (2009) reported the methanolic extract of the whole plant of *Achyranthes aspera* shows nephroprotective activity against lead acetate induced nephrotoxicity in male albino rats.<sup>[55]</sup>

**Wound Healing Activity**

S. Edwin *et al.* (2008) investigated the ethanolic and aqueous extracts of leaves of *Achyranthes aspera* for wound healing activity. The wound healing activity was studied using two wound models, excision wound model and incision wound model.<sup>[56]</sup>

**CONCLUSION**

The herbals occupied a distinct place in the life right from the primitive period till date and provided information on the use of plants or plant products and products as medicine.<sup>[57]</sup> The use of medicinal plants in the management of various illnesses is due to their phytochemical constituents and dates back antiquity.<sup>[58]</sup>

From the above review, it is settled that *A. aspera* Linn. possess many chemical constituents that are responsible for various pharmacological and biological activities. *A. aspera* also exhibits multiple ethnobotanical uses, so *A. aspera* is a vital medicinal herb.

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**CONFLICT OF INTEREST**

Authors have no conflict of interest.

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