LITERATURE REVIEW

1. K. Ram et al. (1971) studied perfusion of isolated rat heart with adrenaline bitartrate or the saponin of Achyranthesaspera increased the activity of phosphorylase a but had no effect on the total phosphorylase activity.

2. S.S. Gupta et al. (1972) reported a saponin isolated from the seeds of Achyranthesaspera which shows significant diuretic effect in adult male albino rats. Achyranthine (5 mg/kg, orally) had diuretic activity in rats

3. 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 by tumor promoter 12-O-tetradecanoylphorbol-13-acetate in Raji cells.

4. A.B. Gokhale et al. (2002) reported the ethanolic extracts of the Achyranthesaspera at the doses of 50, 100 and 200 mg/kg were screened for their effect on acute and chronic inflammation induced in mice and rats using carrageenan and Freund’s complete adjuvant model. A. aspera inhibited these inflammatory responses at doses of 100-200 mg/kg.

5. A.R. Bafna & S.H. Mishra (2004) reported that the methanolic extract of the aerial parts of Achyranthesaspera 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.

6. Aziz et al. (2005), isolated 3-Acetoxy-6-benzoyloxyapangamide from an ethyl acetate extract of the stem of Achyranthesaspera. The structure of the isolated compound was established by modern spectroscopic techniques. The extract was found to show mild antibacterial activity against Bacillus cereus.
7. N. Vasudeva & S.K. Sharma (2006) reported post coital antifertility activity in female albino rats from the ethanolic extract of the root of Achyranthes aspera. The said extract exhibited 83.3% anti-implantation activity when given orally at 200 mg/kg body weight.

8. W. Shibeshiet al. (2006) reported antifertility activities such as abortifacient, estrogensity, pituitary weight, and ovarian hormone level and lipids profile in female rats. of methanolic extract of the leaves. The abortifacient effect of the methanolic extract of the leaves of Achyranthes aspera was determined by counting the dead fetuses in vivo. Effect on estrogensity was assessed by taking the ratio of the uterine weight to body weight.

9. D.Paulet al. (2006) reported 50% ethanolic extract of the leaf of Stephania hernandifolia and the root of Achyranthes aspera shows effect on sperm motility and function in a ratio of 1:3 by weight at different concentrations.

10. R.D. Rameshwar (2007) isolated. Seven compounds viz., pbenzoquinone, hydroquinone, spathulenol, nerol, α-ionone, asarone and eugenol constituting 63.05% of the oil were identified. Hydroquinone (57.7%) was found to be the chief constituents.

11. B.R. Goyalet 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.

12. 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.


15. 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.

16. S. Edwin et al. (2008) reported the wound healing activity ethanolic and aqueous extracts of leaves of Achyranthesaspera. The wound healing activity was studied using two wound models, excision wound model and incision wound model.

17. R. Chakrabarti & R.Y. Vasudeva reported that Achyranthesasperashow immuno-stimulant action in Catlacatla. Achyranthes has significantly (P < 0.05) enhanced the BSA-specific antibody titers than the untreated control group throughout the study period.

18. F.A. Mehta et al. (2009) studied the leaves and seeds of Achyranthesasperawhich shows analgesic activity. Both leaves and seeds show analgesic activity in mice using acetic acid induced writhing response and hot plate method.
19. H. Kumar et al. (2009) reported the hydro alcoholic extract of the roots and leaves of *Achyranthes aspera* shows centrally acting analgesic activity in adult male albino rats using tail flick, hot plate and acetic acid induced writhing method for peripherally acting analgesic activity using aspirin as standard drug. The doses administered were 200 mg/kg and 400 mg/kg. The animal that administered a dose of 400 mg/kg leaf extract has shown the maximum analgesic activity.

20. 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.

21. Zahiret 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.


23. T. Jayakumaret 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.

24. 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.

25. S.B. Datiret 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 β-sitosterol, ecdysone and ecdysterone. Thus these steroids present in the plant may be responsible for the antiallergic activity.

26. 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.

27. 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*.

28. S.R. Neeta *et al.* (2011) studied the methanolic extracts of achyranthesaspera against the various bacteria species were found susceptible to organism at higher concentration.

29. T.Chanderdeep *et al.* (2011) studied indicate that the aqueous extracts of achyranthesaspera roots prevented urolithiasis induced with ethylene glycol and reduced the growth of calcium oxalate stones. The extract was effective in reducing the renal tissue injury, decreasing the crystal size and thus facilitating easy expulsion and restoring normal kidney architecture in rats.

30. Vidhya *et al.* (2012) the extracts of Achyranthes aspera shows antidiabetic activities as dose dependent manner. It stimulates the immune system and enhance the antigen clearance. It also possess anti inflammatory effect and cytotoxic activity. Decrease in peroxidation claim to have hypoglycemic activity. The plant is used for treating
Asthmatic cough, snakebite, hydrophobia, urinary calculi, rabies, influenza, piles, bronchitis, diarrhoea, renal dropsy, gonorrhoea and abdominal pain.

31. P. Narisi Reddy et al. (2012) the root of Achyranthes aspera was extracts with different solvent: petroleum ether, ethanolic extracts and aqueous extracts and % yield was 2.09, 7.02 & 5.35. The phytochemical screening shows carbohydrates, protein, steroids, glycosides, alkaloids, tannins, saponins, flononoids, and linin presents. The extract of A. aspera has shown anti-cancer, anti-diabetic, anti-inflammatory, anti-spasmodic, anti-bacterial, diuretic and antileprotic activities.

32. Rishikesh et al. (2013) Achyranthes aspera the herb and it was studied for its phytochemical and some pharmacological activities. The methanolic extract indicated the presence of flavonoides, tanins, saponins, and alkaloids. Pharmacological study shows cytotoxic and thromolyltic activities.

33. S. Narendhiran et al. (2014) reported the various extracts of achyranthesaspera tested for antibacterial activity against some bacteria are E.coli, P mirabilis, S. typhi, E.aerogenes and antifungal activity against some fungus like Aspergillusniger, Dresleurtheraucica, Aspergillusflavus, Fusariumverticillioides. It shows mild activity.