International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

Review On Pharmacognostical Characteristics And Pharmacological Activity Of Hygrophilaauriculata

Mr.Saurabh B Dere[1], Prof Mrs.Shital R Kalekar[1*]
[1*]*Final year Student, D.Y.Patil University, School of pharmacy, Ambi, Talegaon Dabhade, Pune,Maharashtra, India,410506*
[1]*Assistant Professor, D.Y.Patil University, School of pharmacy, Ambi, Talegaon Dabhade,Pune,Maharashtra, India,410506*

Date of Submission: 05-06-2024 Date of Acceptance: 15-06-2024

ABSTRACT
Hygrophilaauriculata, a common found plant in marshy and wet places, is a member of the Acanthaceae family. It isalso known as Asteracanthalongifoliaand is also referred to as "Neermulli, Talmakhana, Kokilaksha&Iksura." Theherb is used to treat blood diseases and is bitter, aphrodisiac, tonic, and sedative. The plant has been shown to havehepatoprotective,hemopoietic,hypoglycemic,aphrodisiac,antibacterial,antimicrobial,anticancer,freeradicalscavenging,andlipidperoxidationproperties. Alkaloids,fattyacids,butelin,stigmasterolandlupeolaremainsecondary metabolites present in the plant. In India it is commonly used traditional folk remedy that is used as adiuretic, totreathepaticblockage, gout,and urinary infections.The purpose of this review article istoexploredifferentpharmacological uses ofthe this weed plant "Hygrophilaauriculata".

KEYWORDS:
Hygrophilaauriculata, Aphrodisiac, Antibacterial, Free radical scavenger, Hepatoprotective, Antitumor, Secondarymetabolites

I. INTRODUCTION:

In traditional medicinal systems, Hygrophilaauriculata(Schumach.) Heine (Acanthaceae), also known as Kulekhara,isawell-knownplantwithseveralsynonyms,suchasAsteracanthalongifolia(L.)NeesandHygrophilaspinosaT..In India H. auriculatais widely known for curing anemia and several pathological illnesses, including fever, hepaticdisorders,gonorrhoea,spermatorhea,rheumatism,jaundice,andkidneystones(Kshirsagaretal.2010; Dasetal.2021). Ethanomedicinally the plant is used to treat diarrhea, asthma, and cancer. The roots and seeds are used as atonic. Different parts of this plant like leaf, root, and seed have long been used to treat oedema, jaundice, hepaticblockage, inflammation, and urinary infections. It is used to cure many ailments such as diarrhea and diabetes and iscategorized as Seethaveryam, Mathuravipaka in the Ayurvedic medical system.The plants are found in large quantitiesinNepal,Malaysia,Burma,SriLanka,andIndia.Differentsecondarymetaboliteswerefoundtobepresentintheplantareflavonoids,triterpenoids,alkaloids,tannins,andsaponins.Literaturereviewshowedthat Hygrophilaauriculatafound to be shown versatile pharmacological effects including anti-nociceptive, antitumor, antioxidant,hepatoprotective,hypoglycemic,anthelmintic,diuretic,freeradicalscavenging,haematinic,andantimotilityproperties. In addition to phytochemical and pharmacological data on Hygrophilaauriculata(K. Schum) Heine, thisreview will highlight the plant's many traditional and ethanobotanical applications. The current study is to explorepharmacognosticaland pharmacologicalinvestigations doneon theHygrophilaauriculata[2,3,4].

TOXONOMY:

Tableno:1ToxonomyofHygrophilaauriculata

Kingdom	Plantae–plantes,Planta,Vegetal,plants
Subkingdom	Viridiplantae
Infrakingdom	Streptophyta–landplants
Superdivision	Embryophyta

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

Division	Tracheophyta–vascularplants,tracheophytes
Subdivision	Spermatophytina,spermatophytes,seed plants,phanérogames
Class	Magnoliopsida
Superorder	Asteranae
Order	Lamiales
Family	Acanthaceae–acanthacées
Genus	HygrophilaR.Br.–swampweed
Species	Auriculata

VERNACULARNAMES:

Tableno:2VernacularnamesofHygrophilaauriculata

English	HygrophilaMarshBarbel
Hindi	Talimkhana
Sanskrit	Kokilaksha,Ikoura
Gujarati	Ekhro
Marathi	Talimkhana,Vikhra,Kolsunda
Bengali	Shulamardan
Kannada	Kalavankabija
Tamil	Nirumuli
Malayalam	Voyal-chullai
Telugu	Kokilakshi

Figno:1Aerial partofHygrophilaauriculata

PLANT DESCRIPTION:

Herbs, 40–100 cm tall, with subquadrangular, unbranched stems with many fasciculate, enlargednodes, hispid, and long hair.

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

Sub-sessile, lanceolate, 615×1.5-3 cm, acute, hairy, and arranged inwhorls of six at each node, with the two innermost ones being significantly bigger than the fourinnermost ones.Sharp, 2-3cm long, yellowish-brown thorns growing from the axils of leaves.Flower subaxillary clusters in four pairs of eight at each node. Similar to leaves, bracts arelanceolate,hairy,andciliate;bracteolesare linear, lanceolate,1.5–2cmlong,withhyalineborders in the bottom portion, hairy, and ciliate with long white hairs. Calyx 4 partite; top sepalsunequally larger and longer than the other 3 all linear lanceolate, 1.2-2 cm long; edge hyalineciliate;hairy onback.Purple-blue,2-3cmlong,bilippedcorolla;tube,11–13mmlength,enlarged at the tip; 4 didynamous stamens; glabrous filaments. Ovary: two-celled, four-ovule,linear-oblongcapsules,four-seeded,5-7mmlong,pointy seeds.Ovoid,compressed,hairy,hygroscopic, black seeds[2,4,5].

PHYTOCONSTITUENTS:

Flavonoids

Bairajandnagarajan(1982)extractedastaxanthin7-O-glucuronideandtraceamountsofastaxanthin7-O-glucosidefromAsteracanthalongifoliaflowers[6]/

Alkaloids

An alkaloidal fraction was separated by Parashar and Harikishan Singh (1964) from the alcoholicextract of Asteracanthalongifolia'saerial parts. From the seeds, two alkaloids were identified:asteracanthineandasteracanthicine[6].

Triterpenes

According to Govindachari et al. (1957), there is henicontane, a hydrocarbon, in the leaves andstemsaswellasluteolintheroots,leaves,andstem.FromthemethanolicextractofAsteracanthalongifolia's aerial parts, betulin was separated. Leaves of the plantwere found tocontainluteolin and luteolin7-O-rutinoside, accordingto Nairetal. (1965)[6].

AliphaticEsters

Twoaliphaticesters,methyl8-n-hexyltetracosanoateand25-oxo-hentriacontylacetate,wereextractedbyMisraetal.(2001)fromthemethanolicextractoftheaerialportionsofAsteracanthalongifolia[6].

Sterols

AccordingtoQuasimandDutta(1967), Asteracanthalongifoliarootscontainstigmasterol.[6, 5]

Minerals

AllofHygrophilaspinosa'sorganshavesignificantconcentrationsofFe,Cu,andCo,accordingtoChoudhari and Bandyopadhyay (1998) [6].

Saponinsandsteroids

[1] Lupeol,[2]Betulin,[3]25-Oxo-hentriacontylacetate,[4]Stimagsterol,[5]Methyl8-n-hexyltetracosanoate[6].

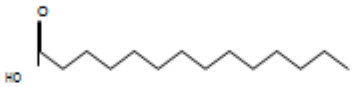
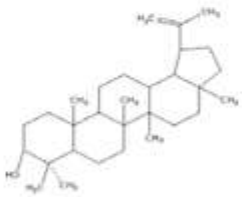
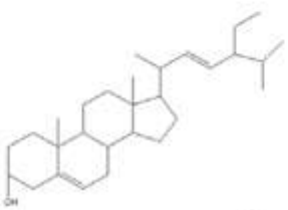
Qualitativephytochemicalanalysismethanolandwaterextractof*H.auriculata* [2]

Tableno:3PhytoconstituentofHygrophilaauriculata

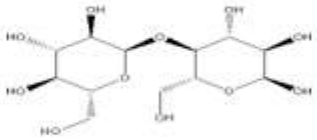
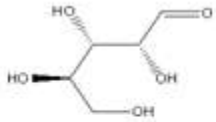
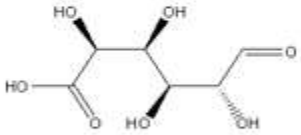
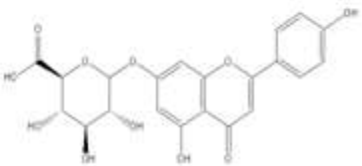
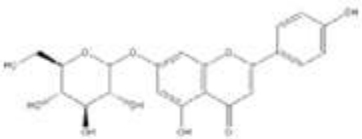
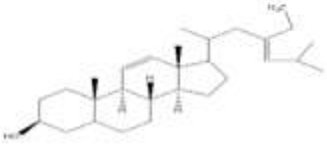
S.No.	Phytoconstituents	Methanol	Aqueous
1	Alkaloids	+	-
2	Saponins	-	+
3	Steroids	+	-
4	Phenoliccompounds	+	-
5	Tannins	+	+
6	Flavonoids	+	+
7	Terpenoids	-	-
8	Carbohydrate&Glycosides	+	+
9	Protein&Aminoacids	+	+
10	Anthraquinones	-	-

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

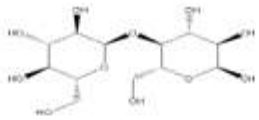
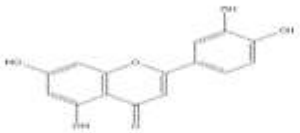
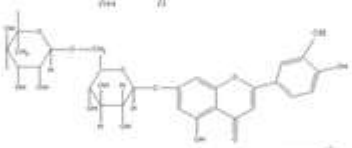
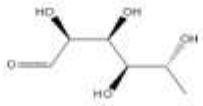
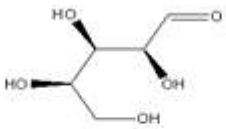
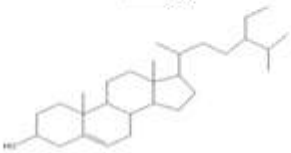
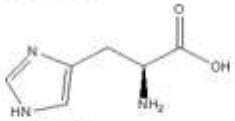
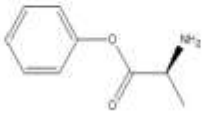
Tableno:4Chemicalconstituentsof Hygrophilaauriculata

Constituent	Structure	Isolatedfr omPartofPla nt
Myristicacid		Seed
Palmiticacid		Seed
Stearicacid		Seed
Linoleicacid		Seed
Lupenone		Root
25-oxo-hentriacontanylacetate		Plant,p Aerial art
Alkaloid(Hygrosterol)	---	Root
Lupeol		Aerial part, Root, Leaf, Stem, Whole plant,Seed
Stigmasterol		Aerialpart, Wholepla nt,Leaf

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

Betulin		Aerial part, Root
β-carotene		Leaf
Phytosterol(Hygrosterol)	---	Root
Maltose		Root
Oleicacid		Seed
Hentriacontane		Leaf,Stem
Xylose		Seed
Glucuronicacid		Seed
Apigenin-7-O-glucuronide		Flower
Apigenin-7-O-glucoside		Flower
3-methylnonacosane		Aerialpart
23-ethylcholesta-11(12),23(24)-dien-3β-ol		Aerialpart

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

Maltose			Aerialpart
Asteracanthine	---		Seed
Asteracanthicine	---		Seed
Luteolin			Leaf
Luteolin-7-rutinoside			Leaf
Methyl-8-n-hexyltetracosanoate			Plant, aerialpart
Rhamnose			Seed
Arabinose			Seed
β-sitosterol			Root,leaf ,seed
Histidine			Seed
Phenylalanine			Seed

PharmacologicalActivities:

1) Antioxidantactivity:

According to Sawadogo et al. (2006), the methanolic extract of leaves contains phenolicandflavonoidcomponentsthatpromiseantioxidantpotential.A.longifolialeavesaqueousextractdemonstrateshighantioxidantactivityinavarietyofinvitromodels[2,4,10].

2) Aphrodisiacactivity:

An ethanolic extract from the aerial parts exhibits androgenic activity in addition toimproving rat sexual behavior in a dose-dependent manner. It also enhances the testis'histoarchitecture, raises the amount of sperm in the epididymis, and raises testosteronelevels.The impactofAsteracanthalongifoliaaerialpartsonmale albinorats' sexualbehavior for a duration of 28 days, groups of rats were given varying dosages of 100,150, and 200 mg /kg of the ethanolic extract of Asteracanthalongifoliaaerial portions.The results were compared with those of control rats. Changes

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

in sexual behavior, bodyand organ weight, histoarchitecture, and fructose levels in semi-solids were noted.Thesexualbehavior was evaluated by calculating characteristics like amount and frequency.Significant anabolic effects were seen in treated mice, as shown by weight growth in thebody and reproductive organs. In the transverse slice, increased spermatogenesis as aresult of extract administration wasalso seen. The therapy also had a significant impacton the animal's sexual behavior, as seen by the decrease in mount latency, rise in mounting frequency and improvedability toattractfemales.Therewasa discernible rise inthe numberof spermandfructoselevels of seminal vesicles [2,4].

3) Hypoglycemicactivity:

When given to rats for three weeks, an ethanolic extract (AlEth) of the aerial portions ofAsteracanthalongifolia(100 and 250 mg/kg bodyweight) significantly lowered the rat'sbloodglucoselevels.Hydroperoxideandthiobarbituricacidreactivecompounds (TBARS)aresimilarlydecreasinginthekidneyandliver.Glutathione(GSH),glutathione peroxidase (GPx), glutathione S- transferase (GST), and catalase (CAT) wereall markedly elevated in the drug-treated group following the administration of Al Eth,which is similar to the group under control. Additionally, rats given ethanolic extract of Asteracanthalongifoliademonstratedreducedlipidperoxidation,whichislinkedtoimprovedactivityofcatalaseandsuperoxide dismutase (SOD) (Vijayakumaretal., 2006). Fernando et al. (1991) examinedhow individualswithmaturity-onsetdiabetesandhealthy humanvolunteer'sglucosetolerance was affected by hotwater extracts of the whole Asteracanthalongifolia plantmaterial.Whenratsweregivenanaqueousextract ofAsteracanthalongifoliabeforebeing given glucose, the rat's liver and muscle glycogen contents significantly increased and their adipocyte tissue's triacylglycerol content significantly increased as compared tocontrol rats. This indicated a hypoglycemic effect. Nevertheless, the plant extract had noimpacton thekidney's orthe intestine'sabilityto absorb glucoseasgluconeogenic[2,4].

4) Haematopoieticactivity:

Asteracanthalongifolia root extract in petroleum ether considerably raises WBC count(Mazumdar et al., 1996). In comparison to a vehicle-treated control rat, ethanolic extract(100 and 200 mg/kg, p.o.) of the aerial portions of H. spinosa markedly enhanced thehaemoglobin,haematocrit,RBC,andtotalWBC.Theextractmarkedlyraisedthehaemoglobin, haematocrit, and RBC count in anemic male albino rats (Gomes et al.,2001). The leaf extracts in petroleum ether and chloroform demonstrate hemopoieticactivitysincetheymarkedlyraisethecountsofleukocytes,erythrocytes,andhemoglobin [2,4]. Blood cell levels indicative of hematopoietic potential were restored by administering achloroformextractofAsteracanthalongifolialeaves(250–500mg/kgintraperitonealinjectionsinmice)for22daysfollowingcyclophosphamide-inducedanemia(normalizationafter15days). Asteracanthalongifoliatreatmentalsorestoredthesuppression in bone marrowcell count,andafter 19 days, anethanolic extract of theaerial parts(100–200 mg/kg) administeredintraperitoneally by injection wasable tonearly restore blood cell parameters (hematocrit, RBC count, and hemoglobin) in rats thathad been made anemic with haloperidol. Administering the supplement does not seem toincreaseerythropoesisinratsthatarenotanemicandaregiven200mg/kgoftheethanolic extract (injections); instead, there is a little (perhaps clinically insignificant)dropin comparison to theuntreatedcontrolgroup.[2,4]

5) Anticanceractivity:

Inratswithhepatictumors,amethanolic extract of the seeds (200–400 mg/kg) administered every other day for eightweeks appears to be able to reduce the development of subsequent foci by as much as51% (compared to the control group), along with a milder reduction in the glutathioneperoxides and catalasedeclines caused bythetoxin [2].

6) Antidiabeticactivity:

Reactions with the Metabolism of Glucose Absorption: Giving rats large oral dosages ofthe plant's aqueous extract (leaf and stem, dosed at 5g/kg bodyweight)hasn't changedhow they absorb glucose.

Glycogen: An oral glucose tolerance test revealed that the water extract did not altergluconeogenesis in the rat liver. Giving rats a water extract (5g/kg bodyweight) beforeglucoseloadingenhancedtheamountofglycogenstoredintheirskeletalmuscles(57.2+/-4.2%) and liver (108.5+/-9.5%), but it also raised the amount

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

of triglyceridestorage in their adipose tissue (10.2+/-1.8%).
Diabetes: For three weeks, 100–250 mg/kg of the ethanolic leaf extract is a diabetic-friendlymedicationthatmaybeusedtolowerfastingbloodsugarlevelsandnormalize lipidperoxidationandantioxidantenzymes(catalase,glutathione-S-transferase,andglutathione peroxidase). Oral administration of a hot water leaf extract (10 ml/kg; one mlis equal to one gram of plant material) in normal humans is able to reduce exposure toglucose following an oral glucose tolerance test by 25%; the drink was slightly moreeffectivein diabetics sinceit reducedexposureby36% [1].

7) Liverprotectingactivity:

The aqueous extract of the whole Hygrophilaauriculataplant possesses hepatoprotectiveand antioxidative qualities that guard against hepatotoxicities brought on by CCl4 andparacetamol.Athighdosages(40and80mg/kg),the petroleumetherextractofHygrophilaauriculatainfluences the hepatic parameters, renal functions, metabolism,and stellatecells.However, alow dosage(20mg/kg) did notshow any discernibleharmfuleffects.Thehepatoprotectiveeffectofmethanolicextractsfromtheaerialportionsisdemonstratedagainstparacetamolandthioacetamideboozing inrats.Nevertheless,researchindicatesthathasresisted chemicallyinducedhepaticcarcinogenesis in Wistar rats. In Wistar rats, a methanol extract of a seed that stimulatesputative inhibitors of hepatic carcinogenesis. examined the hepatoprotective effect in$CC1_4$-induced liver toxicity in rats, the protective efficiency against facet aminophen-inducedliverdamageinrats,andtheantioxidantactivity invitroutilizing therootaqueous extract. demonstrated that possesses the hepatoprotective action of a semi-liquidcombination of Hygrophilaauriculataagainst hepatotoxicity and liver dysfunction in ratsproducedbygalactosamineand CCL_4[4].

8) Neuroprotectiveactivity:

When Hygrophilaauriculatais given orally to rats for seven days, followed by a briefglobal cerebral ischemia, the terpenoid element in the plant improves cognitive tests andreducesbrain lipid peroxidationwith potencyequivalent to500 mg/Kgof Vitamin E [4].

9) **Antimicrobial efficacy** :

The anti-microbialactivity of an ethanolic extractofHygrophilaauriculata's leaves,stem,fruits,androotwasinvestigatedbyBoilyandVandervelde(1986)againstavariety of microorganisms, including Staphylococcus aureus, Pseudomonas aeroginosa, Bacillussubtilis,Escherachiacoli,Candidaalbicans,andMycobacteriumsmegmatis.Theirfindings revealed that the leaves demonstrated strong anti-microbial activity against theaforementioned microorganisms.
An ethanolic extract of the leaves, stem, fruits, and root of Hygrophilaauriculatawastestedforitsantimicrobialpropertiesagainst Staphylococcusaureus, Pseudomonas aeroginosa, Candida albicans, Tricophytonmentagraphytes, and Mycobacterium canis byVlientick et al. (1995). They found that the leaves showed active canisandTricophytonmentagraphytes, while antibacterial action against Candida albicans, Mycobacterium andStaphylococcusaureus[7,9,10].

10) Anthelminticactivity:

In a bioassay, the anthelmintic activity of petroleum ether, chloroform, alcoholic, andaqueous extract from the leaves of Hygrophilaspinosa was investigated against the testworm Pherithimaposthuma at various concentrations (10-100 mg/ml). The time untilparalysisandtimeuntilwormdeathwerealsodetermined.Atthemaximumconcentration of 100 mg/ml, the alcoholic extract had substantial anthelmintic activity;
incontrast,theaqueousandchloroformextractswereonly moderatelyactive,andthepetroleumetherextract shown theleast amount ofanthelminticactivity.[6]

11) Central Nervous System Activity

In 1999, Mazumdaretal conducted a chemical analysis on the petroleum ether extractderivedfromtherootofHygrophilaspinosa,revealingtheexistenceofactivecomponentssuchasluteol andlupenone.Theyalsosaidthatthesedative-hypnoticeffectsofphenobarbitone,diazepam,andchlorpromazineareenhancedinmicewhenthecrudepetroleumetherextract is administered intraperitoneally.[6,]

12) Diureticactivity

Using techniques outlined by Lipschitz et al. (1943), the diuretic ability of the aqueous,alcoholic extract and various fractions of the alcoholic extract of the whole plant ofHygrophilaauriculata(K.schum) Heine was

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

assessed.Different groups of Wistar albinorats were given single oral doses of alcoholic extract/fractions (200 mg/kg) to investigatethe diuretic impact. In the trial, furosemide (10 mg/kg) was employed as a positivecontrol.Amongthevariousfractions,thebutanolfraction(200mg/kg)significantlyraised the amount of urine produced.The diuresis pattern caused by the ethylene-butanolfractionwas nearlythesame as the furosemide-induced pattern.[6,7]

13) Non-nociceptiveactivity:

Inamousemodelofthermallyinducedanalgesia,Shanmugasundramet. al.(2005)discovered that an aqueous extract of the aerial parts and roots of Hygrophilaauriculata(K. Schum) Heine, at a dosage of 200 mg/kg (p.o.), demonstrated strong antinociceptiveaction. The analgesic potential of the leaf extracts from Hygrophilaspinosa T. Anders(Acanthaceae) in petroleum ether, chloroform, alcoholic, and aqueous formats was tested.Thethermalapproachemployedthehotplateand tailflickteststoinvestigateanalgesic efficacy, whereas the chemical method used the acetic acid-induced writhing test. At 200and 400 mg/kg body weight, the alcoholic, aqueous, and chloroform extracts significantlyreducedtheconstrictionoftheabdomencausedbyaceticacid.Theyalsoraisedthemice's pain threshold inresponse tothe heat source ina dose-dependentmanner similarto that of theconventional medication, aspirin (100mg/kgbodyweight) [6,8].

14) HepatoprotectiveActivity:

At200mg/kg/p.o.,methanolicextractofHygrophilaauriculataseedsdemonstratedstronghepatoprotectiveefficacyagainstrat'sliverinjurycausedbyParacetamol and ThioacetamideAn aqueous extract of Hygrophilaauriculata(K.Schum) Heine's roots, administered at aconcentration of 150 mg/kg/p.o., shown strong hepatoprotective action against rat's liverdamagecausedbycarbontetrachloride,according toresearchbyShanmugasundrametal. (2005) Hewawasamet al. (2003) investigated the hepatoprotective potential of anaqueous extract of Asteracanthalongifolia against acute hepatotoxicity in mice producedbycarbontetrachlorideandparacetamol.Theplantdemonstratednoteworthyhepatoprotective properties by mitigating alterations in liver enzymes caused by carbontetrachloride and paracetamol. The hepatoprotective effect of the plant extract could beexplained by its potential to interfere with free radical production. When compared tocommonmedicationsusedforthispurpose,Asteracanthalongifoliahadstronghepatoprotective effect against carbon tetrachloride and paracetamol.Rats' liver failurecaused by carbon tetrachloride was tested against the Asteracanthalongifoliawhole plantslurry.Theplantdemonstratednoteworthyhepatoprotectivepropertiesbymitigatingalterationsinhepaticenzymeactivitybiochemicalparameterscausedbycarbontetrachloride. Asteracanthalongifolia whole plant slurry shown strong hepatoprotectiveeffectiveness against carbon tetrachloride, with a recognized hepatoprotectantcalledsilymarin.[6]

15) Antiinflammatoryandantipyreticactivity:

Theanti-inflammatoryandantipyreticpropertiesofpetroleumether,chloroform,alcoholic, and aqueous extracts from the leaves of Hygrophilaspinosa T. Anders wereinvestigated by Patraet al. in 2009. The antipyretic activity of the different extracts wasassessed based on their impact on rat's pyrexia caused by Brewer's yeast, whereas theanti-inflammatory activity was investigated based on the effects on carrageenan-inducedpaw edema in rats. While the petroleum ether and aqueous extracts of Hygrophilaspinosaleaves did not display any significant anti-inflammatory and antipyretic properties, thechloroform and alcoholic extracts of the leaves did show substantial anti-inflammatoryandantipyreticactivityinadose-dependentmanner.Atadosageof400mg/kgbody weight, the alcoholic and chloroform extracts showed the most anti-inflammatory effects.Using Brewer'syeast-induced pyrexia, Patra et al. (2009) revealed the antipyretic effectof the alcohol extract of the leaves and roots of Hygrophilaspinosa T. Anders. In ananimal model , both of the rat extracts showed strong antipyretic action and dramaticallydecreased the rise in rectal temperature when administered at doses of 200 and 400 mg/kgbodyweight.[6]

16) Antimotilityactivity:

Thestandardcomparatordrugusedinthestudyofantimotilityactivitywasatropinesulphate, at a dose of 0.1 mg/kg (i.p.). The alcoholic extract of the leaves ofHygrophilaspinosa T. Anders, at a dose of 400 mg/kg body weight, significantly reducedthe distance that the charcoal meal traveled through the gastrointestinal tract, indicatingthat the extract exhibited antimotilityactivity.[6]

International Journal of Pharmaceutical Research and Applications
Volume 9, Issue 3 May-June 2024, pp: 1905-1914 www.ijprajournal.com ISSN: 2456-4494

II. CONCLUSION:

In conclusion, Hygrophilaauriculata, commonly known as "Kokilaksha," is a significant medicinal plant with a rich history in traditional medicine systems such as Ayurveda and Unani. The pharmacognostical aspects reveal that this plant is characterized by distinct morphological, anatomical, and phytochemical properties that aid in its identification and quality control. Key constituents such as alkaloids, flavonoids, phenolic compounds, steroids, and glycosides contribute to its extensive therapeutic potential.Pharmacological studies have substantiated the traditional uses of Hygrophilaauriculata, demonstrating a wide array of biological activities including anti-inflammatory, antioxidant, hepatoprotective, nephroprotective, antimicrobial, and antidiabetic effects. These activities are primarily attributed to the plant's bioactive compounds, which have shown promising results in both in vitro and in vivo studies.

Despite its extensive traditional and pharmacological uses, there are still gaps in the comprehensive understanding of its mechanisms of action, bioavailability, and clinical efficacy. Further research, particularly well-designed clinical trials, is essential to validate these therapeutic claims and to explore the full potential of Hygrophilaauriculata in modern medicine. Additionally, advancements in biotechnology could facilitate the development of standardized extracts and formulations, ensuring consistency and efficacy in therapeutic applications.

Overall, Hygrophilaauriculata holds great promise as a valuable resource in pharmacognosy and pharmacology. Its integration into contemporary medicinal practices, supported by rigorous scientific validation, could offer new avenues for the treatment and management of various health conditions.

REFERENCE:

[1]. ShibabrataPattanayak, Tapan Kumar Mandal, and Sushant Kumar Bandyopadhyay, Ethno-gyneconlogical study on the medicinal plant traditionally used in southern districs of westBengal, indiain july2016. vol 15,PP.482 486

[2]. Dr. Vijay Nikam, Dr. Rajesh Kumar Mishra, Ankita Gupta and Dr. Manoj Kumar Bhati,Pharmacognogyosticstudyandpharmacologicalreviewofaerialpartsof Hygrophilaauriculata.Nov2015 vol 4, Papper no: 1127 1143

[3]. SubrataDas,ManendeaSingh,GopalShukla, BidhanRoy,AbhaMonohar,SumitChakravarty, Effect of growing media on rooting of stem cutting and growth performance ofHygrophilaauriculata, 2022 PP.154 165

[4]. L. Sarvananda, AmalD.Premarathna, Ethenopharmacological Potential and medicinal useofHygrophilaauriculata,Journal ofAyurvedic andherbalmedicine2018,PP:185188

[5]. S Dhanalakshmi, N Harikrishnan, Nsirinivasan, P Pandian , V Lokesh, N Yuvashri, SSupriyaA prerspective overview on Hygrophilaauriculata, Pharmacogn J. 2020Suppl:1748 1752.

[6]. Md.SarfarajHussain,SheebaFareed,Mohd. Ali,Ethnobotany,phytochemistryandpharmacologyOf Hygrophilaauriculata, Asian JournalOf Traditional Medicines, 2010,

[7]. ArjunPatra,ShivashJha,P.NarasimhaMurthy,Phytochemicalandpharmacologicalpotentialof HygrophilaSpinosaT.Anders.PhcogRev. vol 3Issue6 330341,2009.

[8]. P.ShanmugasundaramAndS.Venkataraman,Anti-nociceptiveactivity ofHygrophilaauriculata(SCHUM) Heine, Afr. J. Trad.Cam2005 PP: 62 69.

[9]. ChristibaiJulietEstherV,SaraswathiR,DhanasekarS,InvitroAntibacterialandAntifungal along with x- ray irradiation studies of medicinal plant Hygrophilaauriculata,InternationalJournal Of PharmacyAndPharmaceutical SciencesVol 4,Suppl4,2012.

[10]. P.Anusha,S.RajkumarImmanuel,antioxidantandantibacterialactivitiesofleavesextract ofHygrophilaauriculata,Journalofpharmacognosyandphytochemistry20198(2):17841789.