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A Comprehensive Review on Sphagneticola Trilobatal.

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ABSTRACT:
Sphagneticolatrilobata (L.) Pruski, also known as Wedeliatrilobata (L.), is a tropical perennial flowering plant which is distributed across various parts of the world.The aim of the study was to evaluate antimicrobial, antioxidant and anti-inflammatory activity of dry and fresh parts of leaf, stem and flower from the water extract of Wedeliatrilobata.The extracts were subjected to qualitative phytochemical screening using standard procedures. From the results, it was observed that of the thirteen phytochemicals screened, ten were found present in various solvent extracts. They are alkaloids, flavonoids, saponins, terpenoids, steroids, glycosides, tannins, proteins, aminoacids and carbohydrates.Inall, more phytochemicals were found present in extract prepared with ethanol.Preliminary phytochemical investigation showed the presence of alkaloids, glycosides, tannins, triterpenoids, carbohydrates and flavonoids.Anatomical and histochemical investigations of Sphagneticolatrilobata (L.) Pruski, Asteraceae, secretory structures in leaves and stems and the seasonal variation of essential oils were carried out.

Key Words: Wedeliatrilobata, PharmacognosticEvaluation, Phytochemical Studies, Pharmacological Activity,Pharmaceutical Analysis.

I. INTRODUCTION

Wedeliatrilobata is one kind of species of the Asteraceae family commonly known as Bhringraj, Singapore Daisy, Rabbits Paw, Trailing Daisy, Bay Biscayne creeping-oxeye, Creeping oxeye, Trailing daisy, Wedelia, Yellow dots. It is native to north and central America and in the Indies. Wedelia includes 104 additional species and they are found mainly in the tropical areas in America. The genus is named in honor of German botanist and physician Georg Wolfgang Wedel (1645–1721). (1).

It was introduced to humans mostly as aground covering plant in Mexico, Central America (i.e. Belize, Costa Rica, Guatemala, Honduras, Nicaragua and Panama), the Caribbean and tropical South America (i.e. French Guiana, Guyana, Surinam, Venezuela, Brazil, Bolivia, Colombia, Ecuador and Peru).Thisspecies is widely naturalized in the coastal districts of northern and eastern Australia. It is most common in the coastal parts of south-eastern Queensland and north-eastern New South Wales. It is regarded as a significant environmental weed in Bangladesh, and a minor or potential environmental weed in New South Wales and Western Australia as well. Its whole plant and leaves are used to cure hair disease, jaundice, fevers, astringent, hemorrhages, toothache, asthma, bronchitis. (2)

TAXONOMICAL CLASSIFICATION:
Kingdom: Plantae
Phylum: Spermatophyta
Subphylum: Angiospermae
Class: Dicotyledonae
Order: Asterales
Family: Asteraceae
Genus: Sphagneticola
Species: Sphagneticola trilobata
Domain: Eukaryota

SYNONYMS OF WEDELIA TRILOBATA:
Complayatrilobata (L.),Silphium trilobatum(L),Thelechitoniatrilobata (L.) ,WedeliacarnosaWedeliapaludosa DC. Sphagneticolatrilobata. (2).

DISTRIBUTION OF WEDELIA TRILOBATA:

Wedeliatrilobata is native to the northern part of South America, Central America, Mexico and the West Indies but is also widely found in Bangladesh, India, China, Hong-Kong, Malaysia, Indonesia Hawaii, Vietnam, Kampuchea, Burma and Philippine, south and West Africa. It grows well in warm and humid climate. Wedeliatrilobata is commonly cultivated as an ornamental groundcover in the warmer regions of Australia. It often grows luxuriantly in valleys, raceways, field edge, roadway and humid lands and grows mostly in agricultural areas, coastland, natural forests, planted forests, range/grasslands, riparian zones, scrub/shrub lands and in the urban areas. It is an

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important weed and garden herb in South China.In Bangladesh it is widely grows in Chittagong, Dhaka, Mymensingh, Patuakhali, Tangail and NijumDeep,agneticolatrilobata.(2)

HABITANT OF WEDELIA TRILOBATA:

It is a tropical perennial, mat-forming herbaceous plant with wide ecological tolerance range it is equally suited to dry and moist sites.Howeverit grows best in sunny and welldrained area. It grows well on almost all soil types, including bare limestone, poor sandy beaches, swampy or waterlogged soils. It is also tolerant to inundation and high levels of salinity. It is widely available almost throughout all the areas of Bangladesh and also grows in wild. It is mostly planted and cultivated as a ground covering and ornamented plant in the cities, roads, parks and houses. These plants when cultivated in gardens, will quickly spread along fences and roadsides, up electricity poles, over nearby trees and into suburban bush land. (2).

MORPHOLOGY OF WEDELIATRILOBATA:

Wedeliatrilobata is a perennial herbaceous plant, with broad leaves and vegetatively propagated seeds. (2).

Organoleptic Evaluation:

Organoleptic characteristics of Wedeliatrilobata root was assessed by observing color, odor, taste, shape and size according to WHO quality control methods for herbal medicine (fig 1).(3).

Fig 1: Wedeliatrilobata

Stem of W. trilobata:

The stems are rounded, green or reddish in color, and may be somewhat hairy (i.e. strigose or hirsute) to almost hairless (i.e. sub-glabrous). They grow up to 2 m long and regularly develop roots (i.e. adventitious roots) at their joints (i.e. nodes). Short, semi-upright (i.e. ascending), flowering branches are produced off these creeping (i.e. prostrate) stems. Stems those are rooting at the nodes are cylindrical, much-branched, and Stem of W. trilobata.(4)

Leaf of W. trilobata:

The oppositely arranged leaves are stalk less or shortly petiolate, opposite-decussate, ovatedentate or 3-lobed, irregularly toothed or serrate, usually with a pair of lateral lobes, fleshy, strigose on both surfaces, 4-7 cm long and 1.5-2.5 cm wide. Capitula heterogamous, rayed, solitary on 3-10 cm long peduncles. Involucre campanulate, hemispherical; bracts 2- seriate, outer 1.0-1.2 cm long and 0.4-0.5 cm broad, ovate-lanceolate, chuffy, rigid, often recurved and exceeding the disk; inner shorter, lanceolate; receptacle convex, paleaceous. Paleae embracing the cypselas , concave. Ray florets 1-seriate, female, ligulate, 5-12 mm long; disc-florets many-seriate, tubular, bisexual. Corolla of the ray-florets golden yellow with 2-3-fid limb; that of disc-florets with 5-fid limb.(4)

Flowers of W. trilobata:

The bright yellow to orange-yellow flower-heads are daisy-like in appearance and 3-15 cm long born singly on upright stalks. Each flower has 8-13 yellowish 'petals' that are 6-15 mm long with finely toothed tips. In the center of these flower-heads there are numerous 20 tiny yellow tubular flowers (i.e. tubular florets) which is 4-5 mm long. The base of each flower-head (i.e. capitulum) is enclosed in a row of narrow) green bracts of about 1 cm long. Flowering occurs throughout the year, but is most common from spring through to autumn. .(2)

Roots of W. trilobata :

Stem fragments readily take root where they come into contact with the ground and can develop into new plants. Such segments are commonly spread in dumped garden waste, by mowing and slashing, and during floods. This mat-forming (i.e. stoloniferous) plant often creates a dense ground cover (usually 15-30 cm tall but occasionally up to 70 cm tall) that crowds out the growth of other species. It may also climb a short distance up trees or over other vegetation.(2)

PHARMACOGNOSTIC EVALUATION:

The transverse section of root is found to be circular in outline. The epidermis is the outer most layer it is made up of cuboidal shaped cells,

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which are arranges compactly without any intercellular sapaces. The outer layer consists of many uniseriate multicellular hairs. The hypodermal layer is composed of parenchymatous cells with some intercellular spaces. The endodermis showed the presence of phloem and xylem. The phloem is present in between the medullary rays. The medullary rays are parenchymatous and are biserrate in nature. Phloem is well developed and shows the presence of phloem fibres, which are lignified. It also showed the presence of phloem parenchyma. The xylem region was similar to phloem region and was also surrounded by biserriate. Xylem tissue consists of spiral xylem vessels, xylem fibres and xylem parenchyma as shown in Figure 2 to 7. (5,6)

Fig 2: Morphological Characteristics of Rootwedeliatrilobatal.

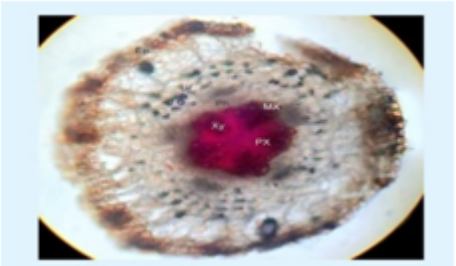

Fig 3: Transverse section of WedeliatrilobataL.

Ep;Epidermis
Par;parenchyma cells
ph:Phloem ;Mx:meta xylem;PX:protoxylem and xy:xylem

Fig 4: Detailed TS of Root showed epidermis

Fig 5:Epidermal cells showed uniseiatemulticellular covering trichomes.

And parenchyma cells.Epi: epidermis and Par: parenchyma cells.

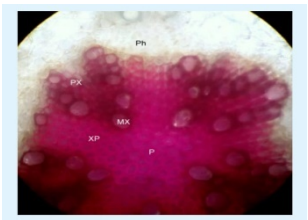

Fig 6: T.S of Root portion of Wedelia Pilosa L.

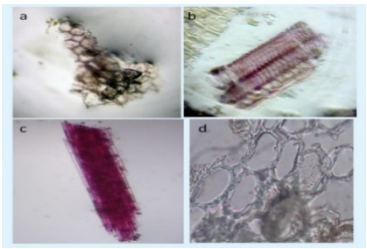

Fig7: Powder microscopy of Showed Vascular Bundles.Ph: Pholem;wedeliatrilobata root.(a) Cork PX:Proto Xylem ;Mx :Meta Xylem : XP:Xylemcells (b) Lignified xylem Parenchyma;P: Pith.vessels(c) Lignified fibers (d) Parenchyma cells.

The transverse section of the leaves shows the typical morphoanatomical characteristics as Upper epidermis: single layered compactly arranged parenchymatous cells covered with cuticle (Fig.8). It shows presence of multicellular uniserriate covering trichomes (Fig.9). Lower epidermis: single layered compactly arranged parenchymatous cells covered with cuticle. It shows presence of multicellular uniserriate covering trichomes. It also shows presence of anomocytic stomata. Spongy mesophyll: loosely arranged parenchymatous big size cells than epidermal cells. It shows presence of starch grains and volatile oil (Fig.10). Palisade cells: tubular

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compactly arranged palisade cells are present only below upper epidermis in lamina region; it is not continued in midrib region (Fig. 11). Midrib: it shows presence of upper epidermis, collenchyma, palisade cells, lower epidermis. Vascular bundles are present in the central part of transverse section of leaf passing through midrib which is composed of xylem on ventral side and phloem on dorsal side. Both are lignified in nature (Fig.8). (7)

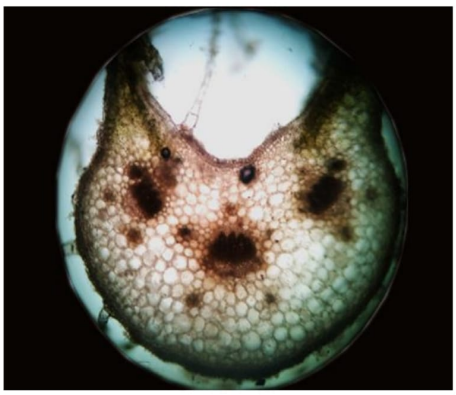

Fig 8: Transverse section of leaf

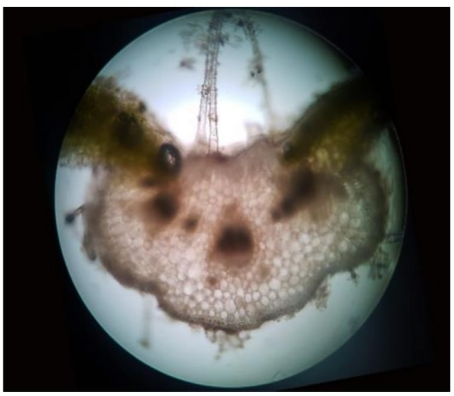

Fig 9: Transverse section of leaf

Showing Multicellularuniseriate Covering tricomes

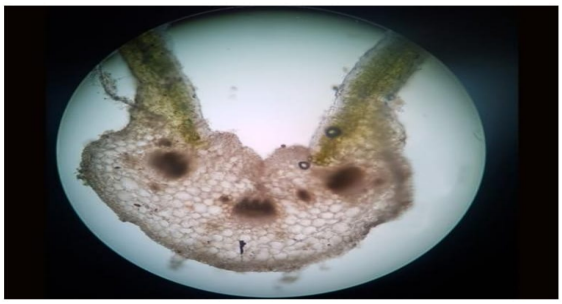

Fig 10:Transverse section leaf showing palaside cells

Fig 11:Transverse section of leaf showing starch grains

ETHANOBOTANICAL USES OF WEDELIATRILOBATA:

- W.trilobata has traditionally been used to treat infections, indigestion and to treatϖ hepatitis. It shows considerable anti-hepatotoxic and protective effects against carbon tetrachloride induced liver destruction.(1)
- The leaves or aerial parts of this plant are used in traditional medicine in Caribbeanand Central America for backache,muscle cramp, rheumatism, stubborn wounds, sores,swelling, and arthritic painful joints.(1)
- In Hong Kong it is utilized as substitute for W.cinensis, a traditional Chineseϖ medicine used for treatment of the common cold, hepatitis, indigestion and infections (1)
- After childbirth women drink a tea of W. trilobata, venvennkawayib, to contractthe uterus and stop hemorrhage. (8)
- Chouvalyewonze(Portulaca pilosa) is sometimes added to it in making the tea.(8).
- As a tisane, twef (Aristolochiaconstricta), go ponpon (Leonotisnepetaefolia) andhog plum bark (Spondias purpurea) are added to it.Alsoas a tisane, this plant is used for cooling, sometimes with venvennlache wat (Stachtarpheta spp.), and for inflammation when blood is passed.(8)
- When a nerve is pinched and unable to straighten arm, a good bit of W. trilobata is pounded, mixed with a spoon of castor oil and applied.(8,9)

PHYTOCHEMICAL STUDIES:

Preliminary phytochemical analysis

A systematic preliminary phytochemical screening of plant material is essential for identifying plant constituents and to establish a chemical profile of a crude drug for its proper evaluation. Extracts obtained by continuous soxhlet by using different solvents viz. petroleum ether,

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chloroform, ethyl acetate and methanol were subjected to standard qualitative phytochemical tests to identify the presence of chemical constituents (viz., alkaloids, glycosides, tannins, flavonoids, sterols, fats, oils, phenols and saponins) present in them.(10,11)

The screening of plant material (leaves, stem and aerial part) is the first step toward identifying the secondary metabolites of the plant and establishing a chemical profile of crude drug for its proper evaluation.(12) Extracts obtained by continuous Soxhlet by using different solvents viz. distilled water, methanol, chloroform, benzene, petroleum ether, ethyle acetate was subjected to a standard qualitative test to identify the presence of chemical compounds like glycoside [13], tannins [14], sterols [15], fats [16], oils [17], phenols [18] and saponins [19] present in the parts of plants.(20).

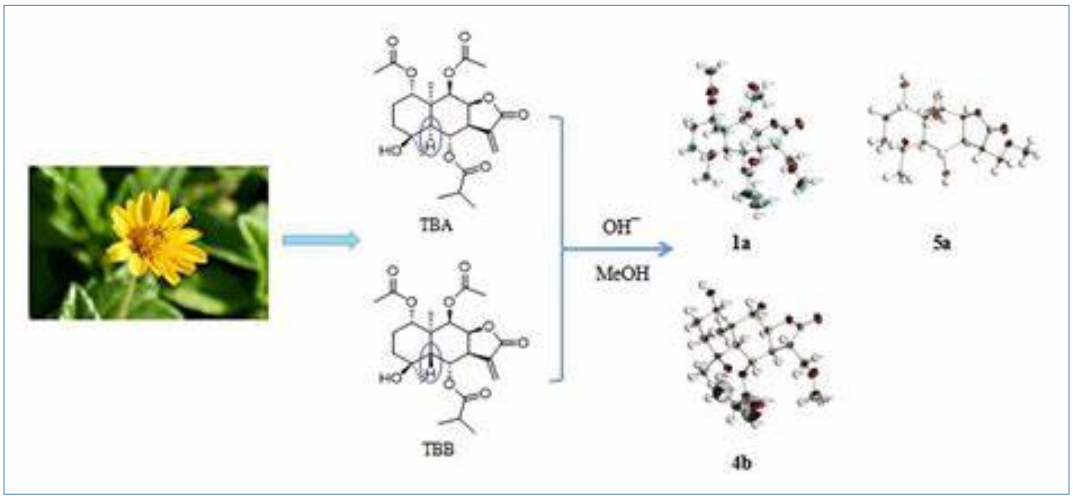

Fig 12: Chemical Structure Wedeliatrilobata (21)

TABLE 1: PHYTOCHEMICAL ANALYSIS OF WEDELIA TRILOBATA (22)

Extract	Part of Plant	Phytoconstituents	Reference
Aqueous extract of aerial parts	Aerial parts	Terpenoids, flavonoids, polyacetylenes and Steroids.	Sadananda (et.al 2011).(19)
Aqueous extract of Leaves and stem	Leaves and stem	Eudesmanolide lactone, luteolin and Arachidonic acid	Sharanappa (et.al 2011).(20)
Ethanol extract of aerial parts	Aerial parts	Sterols, flavonoids, Benzene derivatives.	Guaratini (et.al 2016).(21)
A methanol extract of Leaves	Leaves	Terpenes	Hoepers (et.al. 2016).(22)
Essential oils obtained from leaves analyzed by GC/MS.	Leaves	α -pinene. α -phellandrene. Limonene	Govindappa et.al. (2011).(23)

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PHARMACOLOGICAL ACTIVITIES

Anti-inflammatory Activity

Giovana et al. 2018 conducted a study on S. trilobata ethanol spray dried semisolid extracts to find out the anti-inflammatory property of the plant. The study was conducted on male Swiss mice. Ear edema (inflammation in ear) was induced in the right ear of mice by applying croton oil, arachidonic acid and decanoylphorbol-13-acetate (TPA) respectively after 30 minutes of administration of S. trilobata semisolid extract, semisolid placebos like Ceteth 20® and Steareth 21®. The results showed that mice treated with semisolid extract of S. trilobata decreased the ear edema significantly than the two semisolid placebos, concluding that the anti-inflammatory effect produced by S.trilobata is due to the presence of Kaurenoic acid and novel antiinflammatory agents can be developed from the plant.(23)

Govindappa et al. 2018 studied to assess the in-vitro anti-inflammatory potential of ethanol extract of S. trilobata leaf, stem and flower.(24)

In-vitro anti-inflammatory assay was done using inhibition of albumin denaturation, protein inhibitory action and membrane destabilization test by using aspirin as the standard drug.(25)

The leaf, stem and flower ethanol extract showed good antiinflammatory effects which may be due to the presence of phytochemicals. Maximum effect was showed by ethanolic leaf extract. (26)

Antioxident Activity

Swarnalatha et al. 2018 performed an analysis of anti-oxidant potential of S. trilobata extract by DPPH assay and ABTS assay. Extract was prepared by using solvents like n-hexane, ethyl acetate, methanol and water in their increasing order of polarity. The standard for DPPH assay was ascorbic acid. The methanolic extract showed high DPPH activity with a value of IC50 at 20 µg/ml which is same as that of the standard ascorbic acid, showing the high anti-oxidant potential of S. trilobata.(27)

Antidiabetic Activity:

Sunita Kanikaram et.al. (2018) determined the anti-diabetic activity of crude extracts of Wedeliatrilobata along with Brassica oleraceae by applying in vitro α-amylase inhibition method. The methanol extract of Wedeliatrilobata significantly showed DPPH inhibition with IC50 20 µg/mL and in vitro α-amylase inhibition IC50 50µg/mL. It was concluded that methanol extract of Wedeliatrilobata can be a potential source of anti-oxidant and as good anti-diabetic.(28)

Pradeep et.al.(2014) conducted a study on methanolic extract of Wedeliatrilobata using in-vitro glucose diffusion, α-amylase, α-glycosidase & angiotensin I converting enzyme inhibition method. They showed an inhibitory effect on the α-glucosidase enzyme. Glucose movement from sealed dialysis tube to an external solution was inhibited by Wedeliatrilobata extract. The methanol extract of Wedeliatrilobata inhibited the rabbit lung angiotensin I converting enzyme with Ic50 of 30µg/mL. (29)

Antipyretic Activity

Babu MM et al. 2016 collected the plant Wedeliatrilobata from Gudlavalleru and was identified and authenticated. The whole plant material was dried, grounded and macerated with distilled water for three days and the crude extract is concentrated. Wistar albino rats were selected for performing the experiments and were kept accordingly with the CPCSEA guidelines.Acute toxicity studies were conducted according to OECD guideline no: 423 .To conduct the anti-pyretic study, the animals are divided into five groups containing 6 animals in each group. Pyrexia was induced in animals by injecting brewer's yeast solution (20%). One group served as control, to one group yeast solution was injected, the 3rd group was administered with yeast solution and standard drug paracetamol, and the 4th and 5th group was given yeast solution along with ethanolic extract of W. trilobata 100 and 200 mg/kg b.wt respectively. Rectal temperature of rats werechecked simultaneously before and after administration at 1st, 2nd and 3 rd hour. It shows that after the study, the ethanolic extract of W. trilobata showed significant results by reducing the increased body temperature of rats with respect to the control group. Thus the ethanolic extract of W. trilobata possess anti-pyretic activity.(30)

Wound healing Activity

N. Balekar et al. 2016 experimented on the leaves of Wedeliatrilobata to find out its wound-healing potential based on the knowledge that these laves were used in the treatment of wounds. The fractions obtained after column chromatography of ethanolic leaf extract include hexane fraction, ethyl acetate (WEA) fraction and chloroform: methanol (WCM) fraction. These fractions were subjected to in-vitro wound healing assays like fibroblast proliferation, in-vitro scratch assays, oxidative stress using hydrogen peroxide, and increasing collagen content. WEA showed fibroblast stimulating effect and WCM showed antioxidant potential which altogether contribute to

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the wound-healing potential of the plant W. trilobata. The compound responsible for the action exerted by WEA fraction is diterpene. (31).

Anti-Proliferative Activity:

Uday Venkatesh et al. 2016 investigated the cytotoxic effect and anti-proliferative activity of the methanolic extract of W. trilobata using in-vitro methods like thymidine uptake assay, MTT assay and wound-healing assay. MTT assay was performed to find out the cytotoxic effect by using MEG-01 (Megakaryoblastic cells) and HEK-293 cells (Human embryonic kidney cells). It showed that with the increase in concentration of the methanolic extract of W. trilobata, the proliferation of MEG-01 cells decreased (IC50 value is 80µg/mL). The anti-proliferative effect of methanolic extract of W. trilobata is further confirmed in thymidine uptake assay and woundhealing assays, making W. trilobata a potent anti-proliferative agent.(32)

Anti-hypertensive Activity

Chethan et al. 2014 performed a study on plants of Asteraceae family which included W. trilobata to find out their anti-diabetic and anti-hypertensive potential. Anti-hypertensive action was done by in-vitro ACE (Angiotensin-I Converting Enzyme) inhibition assay using the methanolic extract of the plant. 10 µL (1g/10mL) of rabbit lung extract is added to 10 µL (100mg/mL) of plant extract which acted as the negative control while 10µL of captopril solution is used as the positive control. W. trilobata showed about 50% ACE inhibition at a concentration of 30µg/mL and 96% ACE inhibition at a concentration of 60µg/mL showing its anti-hypertensive potential. (33,34)

Analgesic Activity

Teerapolsrichana et.al. 2014conducted a study in mice on the analgesic activity of ethanol extract of Wedeliatrilobata by the acetic acid-induced writhing method. The extract showed dose depended (500mg/kg) blocking of writhing response. kaurenoic acid(10mg/kg) obtained from Wedeliatrilobata inhibited over nociception, acute carrageenin, & PGE2 induced complete Freund's adjuvant (CFA) and chronic induced mechanical hyperalgesia. The results reflect analgesic effects and therapeutic efficacy of the extract on animal models which are comparable with that of standard drug aspirin.Comparative study in mice on the analgesic activity of the ethanol extracts of W. trilobata, W. biflora and E. alba 2012 was evaluated by acetic acid induced writhing method. It was found that W. trilobata extract showed dose-dependent blocking of writhing response. Dose of 500 mg/kg of W. trilobata extract and aspirin (500 mg/kg) block the writhing response by 49.17% and 68.68%. Kaurenoic acid (10 mg/kg) obtained from Wedeliatrilobata kaurenoic acid inhibited overt nociception like behavior induced by phenyl-p-benzoquinone, complete Freund's adjuvant (CFA) and formalin. Kaurenoic acid (1-10 mg/kg p.o.) also inhibited acute carrageenin and PGE2 induced and chronic CFA induced mechanical hyperalgesia. (35,36)

Suresh Kumar et.al. (2007) conducted a study on Wedeliatrilobata by acetic acid-induced writhing method and hot plate assay to assess analgesic activity in mice. It was found that the extract caused an inhibition of the writhing response induced by acetic acid a dose depended manner (500mg/kg). The results reflect analgesic effects and the therapeutic efficacy of the extract in animal models was comparable with that of standard drugs such as aspirin and morphine8.(37,38)

Cytotoxic Activity

In transient transfection assay 2012 the N-hexane and ethyl alcohol extracts of W. trilobata flower could activate PPARα. In MTT assay of SK-Hep-1, extract of W. trilobata flower had the best inhibitory ability. The ethyl alcohol extract of W.trilobata had the best ability to diminish the expression of matrix metalloproteinase (MMP)-9 and MMP-2. The ethyl alcohol extracts of flower had good anti-migration and anti-invasion ability especially on 80 µg/mL dose.(39).

PHARMACEUTICAL PREPARATION:

Development of semisolid formulations:

Considering the topical use of S. trilobata in folk medicine (Correa 1984) and pharmacological studies regarding the antiinflammatory activity, semisolids containing 0.5–5.0% of hydroethanolic dried extract and 0.0025–0.015% of isolated KA were developed.(40,41)

The semisolid containing the extract showed a slightly greenish colour, depending on the concentration of the extract, with a homogeneous and glossy aspect and an odour characteristic of vegetal dried extracts. The formulations were found to be stable in a preliminary stability study of its physical aspects (data not shown).(42,43)

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PREPARATIONOF PLANT EXTRACT:

Air-dried and powdered aerial parts without flowers (300g) were extracted, thrice, by maceration for 7 days with CHlClrMeOH (1:1, 3x 1000ml) at room temperature. Solvents were concentra ted in vacuo to a small volume (250ml), diluted with distilled water (500ml), and allowed to stand for 7 days at 4°C. After removing most of the chlorophyll by decant ation, the aqueous layer was extracted with n-hexane (5x500ml) followed by ethyl acetate (5x500ml). The resulting organic layers, as well as the aqueous one, were concentrated in vacuo to obtain the correspon ding extracts: n-hexane (O. 82g), ethyl acetate (1.60g), and the aqueous extract (5.50g).(44,45)

Table 2: Disc-diffusion assay of crude extracts from W. trilobata against different Gram-positive and Gram-negative bacteria. (46,47)

Microorganism	Wedeliatrilobata crude extract		
	n-hecane	**ethyl acetate**	**water**
Gram-positive bacteria			
Bacillus cereus	**9-**		**-**
Bacillus subtilis	**20 -**		**-**
Mycobacterium smegmatis	**18-**		**-**
Staphylococcus aureus	**9 -**		**-**
Staphylococcus epidermidis	**9 -**		**-**
Gram-negative bacteria			
Escherichia coli	**-**		**-**
Klebsiella sp.	**-**	**-**	**-**
Proteus vulgaris	**10 -**		**-**
Pseudomonas aeruginosa	**-**		
10 Salmonella group C16	**10 -**		
Salmonella paratyphi	**20 -**		**-**
Shigella sonnei	**11**	**-**	**-**

Inhibition diameters in mm at cel Omg/ml; - no inhibition zone

Pharmaceutical Analysis:

Leaves were collected separately, in a completely randomized way, from the population under investigation. Each sample was subdivided into three portions of 100 g each, chopped and then subjected to a three hours hydrodistillation in a Clevenger-type apparatus. (48)

The resulting oils were weighed and the reported yields were calculated with respect to drymatter mass. All distillations were repeated three times and the oils produced in these processes were stored under nitrogen atmosphere, maintained at -4 o C, until they were analyzed by gas chromatography coupled to a mass spectrometry (GCMS). Leaf dry matter mass was calculated by drying each sample (2 g, held at 103±2 ºC until constant mass) according to published methods (ASAE, 2000). Each determination was carried out in triplicate. (49).

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Table 3: Yield, precipitation and temperature registered during the study(50)

		Yield (mL/g dry wet)	Precipitation (mm)	Temperature (^{0} C)
Spring	Sep	0.48	147.4	18.7
	Oct	0.49	41.4	21.4
	Nov	0.57	22.4.8	21.1
Summer	Dec	0.60	605.7	21.4
	Jan	0.51	253.1	22.6
	Feb	0.56	224.1	22.9
Autumn	Mar	0.54	243.1	22.8
	Apr	0.54	90.9	22.6
	May	0.78	9.6	18.4
Winter	Jun	0.77	53.6	16.5
	Jul	0.77	14.6	17.6
	Aug	0.64	13.7	17.5
Spring	Sep	0.60	72.2	21.2
	Oct	0.56	127.9	21.7
	Nov	0.54	131.5	23.1

III. CONCLUSION:

In the present study results indicate that the leaves and flower extracts of W. trilobata possess antimicrobial, antioxidant and anti-inflammatory properties. These activities may be due to the strong occurrence of polyphenolic compounds such as flavonoids, tannins, terpenoids, phenols, saponins and coumarins.The wound healing response is aimed at renovating a tissue that is closely similar to the original one and involves several distinct but overlapping phases.The plant Wedeliatrilobata emerged as a good source of medicine with anti-inflammatory anti-microbial, analgesic, anti-oxidant, hepatoprotective and anti-diabetic properties.The leaves of this plant are also used in the treatment of kidney dysfunction.

Morphology as well as various pharmacognostic aspects of the root of W. trilobata was studied and described along with phytochemical and physicochemical parameters that can be useful in further isolation and purification of medicinally important compounds.The wound healing response is aimed at renovating a tissue that is closely similar to the original one and involves several distinct but overlapping phases.A large number of phytoconstituents have been isolated and identified from different parts of Wedeliatrilobata which include flavanoids, triterpenoids luteolin, arachidonic acid, sterols and other constituents of the essential oil reported are α-pinene, α-

II.

phellandrene and limonene.It is very necessary to introduce new and biologically safe and active drugs for an eco friendly life style. Phytochemicals found present in the Sphagneticolatrilobata (L.) Puruski. indicates their potential as a source of principles that may supply novel medicines.

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