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Wedelia Chinensis: A Phytopharmacological Review

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ABSTRACT: Wedelia chinensis, a member of the Asteraceae (sunflower family), is avital component of Ayurvedic, Siddha, and Unani traditional medical practises. The substance was powdered, and examined under microscope, several different forms of multicellular covering andsporadic glandular trichomes, paracytic stomata, xylem arteries, etc. were visible. Different leaf extracts were subjected to preliminary phytochemical screening, which identified the presence of several types of chemicals including Wedelolactone, Apigenin, Norwedelolactone,Norwedelic acid, etc. According to physico-chemical study, 8.25% of moisture was found in the air-dried leaves of W. Chinensis. According to estimates, the amounts of total ash, acid-insoluble ash, water-soluble ash, and sulphated ash were, respectively, 14.66%, 1.32%, 9.79%, and 7.18%.According to reports, W. Chinensis has anti-inflammatory, anti-oxidant, analgesic, antimicrobial, CNS depressant, anticonvulsant, wound-healing, sedative, antistress, and anticancer activity. The presence of several phytochemicals is confirmed by TLC profiling of the extract. The methanol extract of the leaf produced by HPTLC fingerprinting showed a number of peaks with Rf value ranging from 0.01 to 0.97. In this study,an attempt is made to investigate the key bioactive chemicals found in the leaf extract from Wedelia chinensis (Osbeck) Merrill (FamilyAsteraceae) by GC-MS in order to better comprehend the scientific basis for its medicinal efficacy. 2-Tridecanone (CAS) (4.51%), n-(methoxyphenylmethylene) carbamic acid ethyl ester (1.65%), and9,12,15-octadecatrienoic acid, methyl ester (Z,Z,Z) (13.68%) are the main chemical components. The phytochemical and pharmacological evidence of W. Chinensis is reviewed in this work.

Keywords: Wedelia chinensis, TLC, HPTLC Fingerprinting, GC-MS.

I.INTRODUCTION

[9, 12]Wedelia chinensis is a perennial herb with a height of between 0.3 and 0.9 cm. The leaves are oval in form, succulent, often 4–9 cm long and 2–5 cm broad, irregularly serrated or serrate, and usually include a pair of lateral lobes. [16]Flowers are 4-5 cm in diameter, yellow, tubular, and found in terminal or axillary heads. The plant contains wedelolactone, Nor-Wedilic acid, tannin, flavonoids, lactone, saponins, alkaloids, and saponins. An oil-soluble black pigment, waxy substances, phytosterols, carotene, and resin are all found in Wedelia chinensis's expressed juice. Pectin, mucin, siliceous compounds, and inorganic salts are also present in the plant.The herb has been used traditionally for treating renal disease,colds, wounds, amenorrhea, dying hair, skin diseases, cephalegia, apopecia, and inflammatory activities.

BOTANICAL DESCRIPTION

Fig no 1: Leaves of Wedelia chinensis

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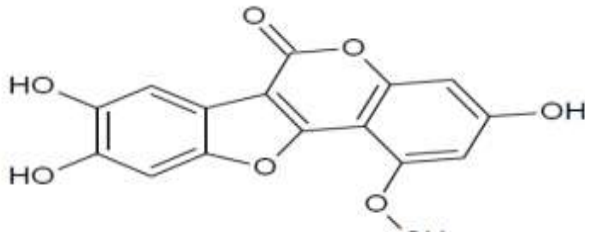
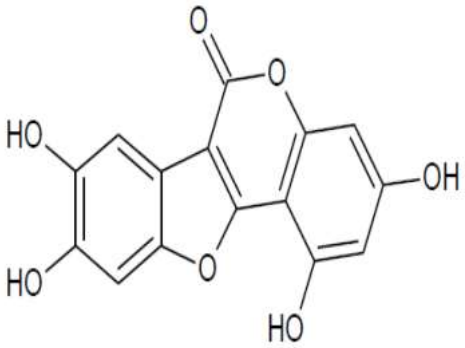
[10]It is a soft scabrous procumbent perennial herb with a strong camphor-like aroma and stunning growth. It is a perennial herb with a height of 0.3 to 0.9 m, a stem that is procumbent at the base, and roots at the lower nodes. The opposing, subsessile, lanceolate-oblong, 2.5-7.5 by 1-2.8 cm, whole or irregularly cenate-serrate, scabrous, with short white hairs, and tapering base leaves are also opposite. Flower heads are solitary, 2-3.2 cm in diameter, and have peduncles that are 2.5–15 cm long, upright, and somewhat thickened beneath the heads.

PHYTOCHEMISTRY

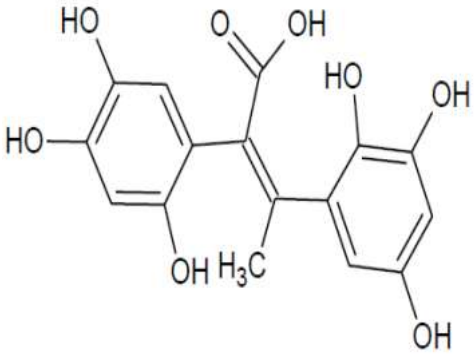
[6, 14]Isoflavonoids and wedelolactone (I) (0.05%) can be found in the leaves. The latter is the lactone of 5:6-dihydroxy-2-(2:6-dihydroxy-4methoxyphenyl) benzofuron-3-corboxylic acid and is structurally similar to coumestrol, an oestrogen from clover. The leaves also include wedelolactones, bisdesmosidic oleanolic acid saponins, and isoflavonoids. Additionally, norwedelolactone (II) was extracted from an alcoholic leaf extract. Norwedelic acid (III) (5,6 dihydroxy2(2',4',6 trihydroxyphenyl)benzofuran-3-carboxylic acid). Alkaloids, saponins, tannin, flavonoids, a lactone, wedelolactone, and nor-wedilic acid are all present in the plant. [4, 5, 11, 13, 17]Wedelia chinensis's expressed juice includes waxy substances, phytosterols, carotene, resin, and an oil-soluble black pigment. Inorganic salts, siliceous compounds, pectin, and mucin are also present in the plant.



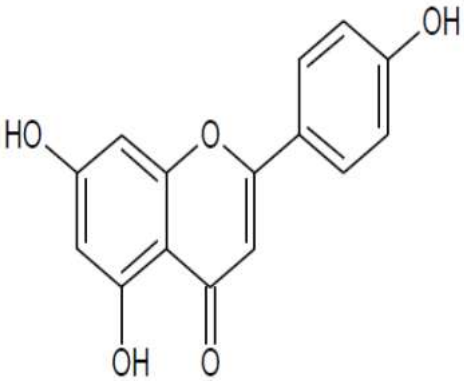
(I)Wedelolactone



(II) Nor-wedelolactone



(III) Nor-wedelic acid



(IV) Apigenin

MEDICINAL USES

[15]The fruits, leaves, and stem are traditionally used in childbirth, as well as in the treatment of infections, fevers, and bites and stings. The leaves are used to cure amenorrhea, colds, wounds, kidney problems and CNS activity. In the ayurvedic, siddha, and unani systems of medicine, Wedelia chinensis is a traditionally used medicinal herb. The leaf tonic is used for cephalagia and cough. The plant's decoction is used to treat skin conditions and menorrhagia. [7]The herb has also been effective in treating liver ailments, helminthic infections, inflammations, hepatoprotective activity. [15]The plant is said to have antioxidant properties, which suggests that it can help with mental problems like worry and stress.

II. MORPHOLOGICAL CHARACTERISTICS

[8]The plant was evaluated macroscopically by studying colour, odour, taste, size, shape, texture,etc.

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Table no 1: Macroscopic characters of Wedelia chinensis

Colour	Green
Odour	Characteristic
Taste	Bitter
Shape	Oblong to Oblong - lanceolate
Size	2-5 cm in length
Apex	Acute
Margin	Entire or serrate
Petiole	Absent
Base	Wedge-shape

III. MICROSCOPICAL EVALUATION

[8]In microscopic study, the transverse section and powdered plant material was evaluated for internal structure and cells of plant like type of vascular bundles, epidermis, stomata, xylem vessels, etc.

Transverse Section (Ts) Of Leaves Of Wedelia Chinensis: W. chinensis healthy fresh leaves were taken and soaked in water for 60 minutes. A razor blade was used to cut blank test cross sections. The transparent pieces were polished, decolored, placed on a clear glass slide, then coated with plate glass victimisation glycerol. Safranin was used to stain the material on a regular basis. A variety of sections were looked at under a microscope after being sliced into sections using a blank test sectioning technique.

Transverse section of leaves

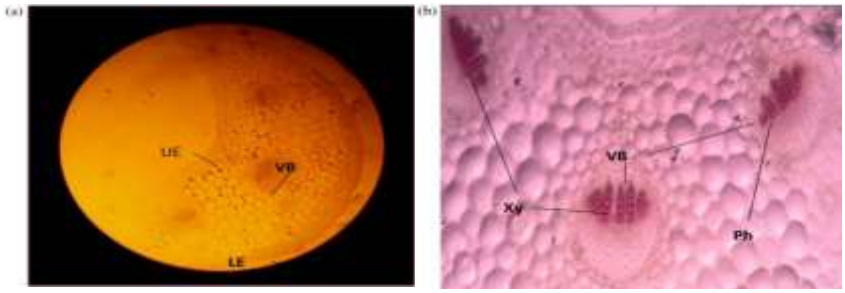

Fig no 2: TS of W. chinensis through midrib [10 and 45X], (a) UE: Upper epidermis, LE: Lower epidermis and (b) VB: Vascular bundle, Xy: Xylem, Ph: Phloem

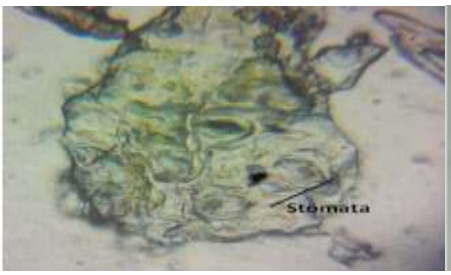

Fig no 3: Stomata **Fig no 4: Xylem vessels**

IV. PHYSICO-CHEMICAL ANALYSIS

[8] Physico-chemical analysis is done by determination of ash value, determination of extractive value, etc.

IV.I. DETERMINATION OF MOISTURE CONTENT (LOSS ON DRYING): First, a tared porcelain dish was filled with 3 g of dried powdered W. Chinensis. In an oven, the raw medication was cooked to a consistent weight between 100°C and 105°C. Calculate the weight loss in desiccators and record the moisture content. The amount of moisture in an air-dried material was calculated as follows:

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Moisture content (%) = $\frac{\text{Loss in weight of the sample on heating}}{\text{Weight of total amount of drug taken}}$ X 100

IV.II. ASH VALUE: Ash measurement was useful for identifying inferior goods, used up drugs, and much more than just sand or other earthy materials. When using crushed drugs, ash value assessment is very important. The following examples of ash value are provided.

DETERMINATION OF TOTAL ASH: First, weigh and ignite a flat, thin porcelain dish silica crucible. After that, add about 2 g of the drug that has been ground up into the crucible, and incinerate it at a temperature of 500–600 °C in a muffle furnace until carbon-free ash is obtained. Once the crucible has cooled, the weight and the yield percentage will be calculated in accordance with the standard. The following formula was used to calculate the total ash percentage w/w:

Total ash (w/w %) = $\frac{\text{Weight of ash}}{\text{Weight of sample}}$ X 100

DETERMINATION OF ACID -INSOLUBLE VALUE: Washing the ash from the plate using the method described above, add 25 mL of diluted hydrochloric acid to a 100 mL beaker. After that, boil for 5 minutes with wire gauze over a muffle furnace. Remainder should be filtered through ash-free filter paper and washed twice in hot water. Start the crucible in the flame, let it cool, and then weigh it. Then, immediately after adding the filter paper and residue, heat the crucible gently until the release of vapours stops, and then more vigorously until all the carbon can be extracted. Calculate the acid-insoluble ash of the crude drug using the weight of the residue after cooling it in a desiccator and using an air-dried sample of the drug.The percentage w/w of acid-insoluble ash was calculated as:

Acid insoluble ash (w/w %) = $\frac{\text{Weight of ash}}{\text{Weight of sample}}$ X 100

DETERMINATION OF WATER SOLUBLE ASH:Total ash was boiled for 5 minutes in 25 mL of water with insoluble material that was gathered on ash-free filter paper. After washing the mixture with water, it was ignited for 15 minutes at a moderate temperature of 450°C in a muffle furnace. The weight of the ash that is water soluble was determined by comparing the weights of the ash and the water insoluble materials. With reference to the air-dried powder drug, the proportion of water-soluble ash can be computed.
The percentage w/w of water soluble ash was calculated as:

Water soluble ash (w/w %) = $\frac{\text{Weight of ash}}{\text{Weight of sample}}$ X 100

DETERMINATION OF SULPHATED ASH:A platinum and silica crucible was heated for 10 minutes to redness, then allowed to cool in desiccators before being weighed. Unless otherwise stated in the relevant monograph, 1 g of the substance was transferred to the test crucible, and both the crucible and its contents were properly weighed. First, gently light the stuff until it has completely burned. The residue was then cooled, wet with 1 mL of sulfuric acid, gently heated until no longer emitting white vapours, then ignited at 80025EC until all of the black particles could be destroyed. The ignition took place in an area with shielded air currents. After allowing the crucible to cool, a few drops of sulfuric acid were added, heated, and then removed. Relight as previously, let it cool, then weigh. The process was continued until there was no more than a 0.5 mg difference between 2 successive weighs. The percentage w/w of sulphated ash was calculated as[8]:

Weight of sulphated ash (w/w %) = $\frac{\text{Weight of ash}}{\text{Weight of sample}}$ X 100

Table no 2:Physico-chemical analysis of W. chinensis

Parameters	**$^{W}/_{W}$ (%)**
Ash value	
Total ash	14.66
Acid insoluble ash	1.32
Water soluble ash	9.79
Sulphated ash	7.18
Loss on drying	8.25

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IV.III. DETERMINATION OF EXTRACTIVE VALUE

COLD MACERATION

ETHANOL SOLUBLE EXTRACTIVE: The extractive solubility in ethanol was helpful in evaluating crude drugs and provides information on the types of chemical components that are soluble in a given solvent. In a closed flask, 4 g of the air-dried leaves from W. chinensis were macerated with 100 mL of the specified strength of ethanol for 12 hours while being shaken frequently for the first 6 hours and left to stand for the remaining 18 hours. After that, filter it quickly and take safety measures to prevent ethanol loss. A 25 mL sample of the filtrate should be evaporated to dryness in a shallow dish with a flat bottom and tarred bottom, dried at 105°C, and weighed. The amount of ethanol-soluble extractive in the air-dried drug was then determined. The percentage of extractive value of air dried material is:

$$\text{Extractive value (\%)} = \frac{(\text{Final weight} - \text{Initial weight}) \times 4}{\text{Weight of drug}} \times 100$$

WATER SOLUBLE EXTRACTIVE: Water soluble extractives were helpful for assessing crude drugs and provided information on the kind of chemical components that were soluble in that specific solvent. 50 mL of water and 4 g of leavening agent should be added. Shake well, cool, add 2 g of kieselguhr, and filter. Then, 5 mL of the filtrate was transferred to a tarred evaporating disc with a diameter of 7.5 cm. The solvent was then evaporated on the water bath, drying continued for 30 min., and finally, the residue was dried in a steam oven for 2 hours before being weighed. With reference to the air dried drug, the percentage of water soluble extractive was determined. The percentage of extractive value of air dried material is:

$$\text{Extractive value (\%)} = \frac{(\text{Final weight} - \text{Initial weight}) \times 4}{\text{Weight of drug}} \times 100$$

HOT EXTRACTIVE

ETHANOL SOLUBLE: In a glass stoppered conical flask, four grams of coarsely powdered, precisely weighed, air-dried material were added. After adding 100 mL of ethanol and weighing the mixture, the flask's total weight was determined. Flask was properly shacked and left to stand for one hour. The flask was fitted with a reflux condenser, which gradually boiled for one hour, cooled, and weighed. To designate in the test procedure that the plant material was to be dreaded, the initial total weight with the solvent was revised. Shaken flask quickly filters through a dry filter. A 25 mL portion of the filtrate was transferred to a dish with a flat bottom and dried out on a water bath. Dried at 105°C for 6 hours, then cooled in a desiccator for 30 minutes before immediately weighing. In terms of mg g of air dried material, the extractable matter content was calculated. The percentage of extractive value of air dried material is:

$$\text{Extractive value (\%)} = \frac{(\text{Final weight} - \text{Initial weight}) \times 4}{\text{Weight of drug}} \times 100$$

WATER SOLUBLE: A conical glass flask with a glass stopper was filled with four gram of coarsely powdered, precisely weighed, air-dried material. Followed by the addition of 100 mL of water and a weight, the total weight including the flask was determined. Flask was well shook before being left standing for one hour. The flask had a reflux condenser connected, which gently boiled for one hour, cooled, and weighed the results. Shake well, then quickly run through a dry filter. A 25 mL sample of the filtrate was transferred to a flat-bottomed dish and dried on a water bath, dried at 105°C for 6 hours, chilled in a desiccator for 30 minutes, and immediately weighed. In mg per g of air dried material, the extractable matter content was estimated. The percentage of extractive value of air dried material is[8]:

$$\text{Extractive value (\%)} = \frac{(\text{Final weight} - \text{Initial weight}) \times 4}{\text{Weight of drug}} \times 100$$

Table no 3: Extractive values of W. chinensis

Extractive value	Method	$^{W}/_{W}$(%)
Ethanol soluble	Hot maceration	2
Water soluble	Hot maceration	7.4
Ethanol soluble	Cold maceration	2.75

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Water soluble	Cold maceration	4.25

V. PHYTOCHEMICAL SCREENING

[8]The investigation of the phytoconstituents that are present in the plant is investigated by phytochemical screening. It revealed the existence of phenols, flavonoids, tannins, steroids, and other chemicals.

Table no 4:Phytochemical screening

Sr. No.	Test	Petroleum ether extract	Chloroform extract	Ethyl acetate extract	Hydroalcoholic extract
1.	Carbohydrates	-	+	+	+
2.	Proteins	-	-	-	-
3.	Amino Acids	-	-	-	+
4.	Steroids	+	-	-	-
5.	Glycosides	-	-	+	+
6.	Saponins	-	+	+	+
7.	Flavonoids	-	+	+	+
8.	Tannins and Phenols	-	+	+	+
9.	Alkaloids	-	+	-	+

VI. THIN LAYER CHROMATOGRAPHY

[1]TLC studies were carried out by methodology of Wagner.TLC plate spotting was carried out using glass capillaries. A silica gel plate approximately 5 x 20 cm was taken, and a pencil mark was made on it. First, a straight line 1.5 cm from one end of the plate was drawn parallel to its short dimension. Second, the line was divided into two little marks that were made perpendicular to the line. The distance between the spots was 1.5 cm, while the spot's separation from the plant's edge was 1.0 cm. These symbols provided as a reference for where to place the plant extracts. As the adsorbent, silica gel G was used. On the dry, clean glass plates, it was dispersed in the form of a slurry using distilled water. These plates were given a 20–25 minute air drying period. A wing micropipette was used to apply spots (leaf extract) on the active plate, 2 cm from one end of the plate. The solvent front was allowed to climb to the second line as the plate developed. After then, the solvent was given time to entirely disappear from the area. On the same spot, a second deposit was made. Once more, the solvent was given time to entirely disappear. The spotted plates were positioned so that the loaded spot would not come in contact with the solvent in a chromatographic solvent chamber that contained a variety of solvent systems. A suitable lid was placed on the chamber, and it was then let to stand for a long enough period of time to reach the solvent phase. The solvent front was removed from the plate when it reached the second line and dried at room temperature. Specific spray reagents were used after phytochemical separation and let to dry. By using a specific reagent, the coloured spots that had formed on the stationary phase were marked, recognised, and their distances were quantified. The chromatographic behaviour of sample solutes is usually described using the term retention factor Rf. Each substance's Rfvalue is calculated by dividing its movement by the movement of the solvent front.The measurement point is typically taken at the middle of each place. Researching

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complex mixes qualitatively is made possible by comparing Rf values. A gauge for how much material is there is the size of the spot's surface.

$R_f$value is calculated by using the following formula: R_f value= Distance travelled by solute / Distance travelled by solvent

Table no 5: Thin Layer Chromatography

Phytoconstituents	Mobile phases	Spraying reagent	Spray colour	R_f value
Alkaloids	Chloroform: Methanol (12:2)	Dragendorff reagent	Orange	0.8
Flavonoids	Ethyl actate: Butanol: Formic acid(2.5:1.5:0.5)	$AlCl_3$ reagent	Orange	0.87
Phenols	Ethyl acetate: Toluene: Formic acid (2.2:1.1:1)	$FeCl_3$	Green	0.87
Tannins	Methanol: Water (6:4)	$FeCl_3$	Brownish grey	0.83

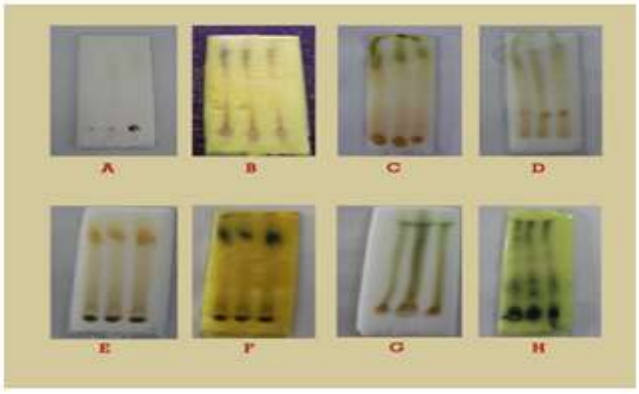

Fig no 5: TLC profile of leaf extract of Wedelia chinensis

A- Alkaloids - Before spraying; B – Alkaloids - After spraying; C- Flavonoids - Before spraying; D – Flavonoids - After spraying; E- Tannins - Before spraying; F – Tannins - After spraying; G- Phenols - Before spraying; H – Phenols - After spraying

VII. HIGH PERFORMANCE THIN LAYER CHROMATOGRAPHY

[1] HPTLC studies were carried out by method of Reich and Schibli. R_f values confirmed the presence of alkaloid (0.01 to 0.93). Flavonoids were present in the extracts, as indicated by the R_f value range of 0.97. With an R_f value ranging of 0.01 to 0.97, phenol was proven. The R_f value range of 0.01 to 0.94 indicated that the extract contained tannin. On the TLC plate, there were multiple distinct colour spots caused by these phytoconstituents in the methanolic extract (Plate II and III). Following the application of particular spraying reagents to the TLC plate, colourful spots visible between 254 and 366 nm under UV light indicated the presence of phytoconstituents. By experimenting with various solvent mixes of varied polarities, the composition of the mobile phase for TLC was optimised. By examining standards and samples, the method's specificity was established. According to spectral analyses, the peaks observed from the reference and test samples were similar.

High Performance Thin Layer Chromatography

Table no 6:HPTLC finger printing spectral values for the presence of flavonoids in W. chinensis

Peak	R_f Value	Height	Area	Assigned substance
1	0.01	41.3	666.7	Unknown
2	0.76	31.5	1209.3	Flavonoid 1
3	0.92	26.1	447.4	Unknown
4	0.97	86.4	1770.0	Unknown
1	0.87	47.5	1237.8	Apigenin standard

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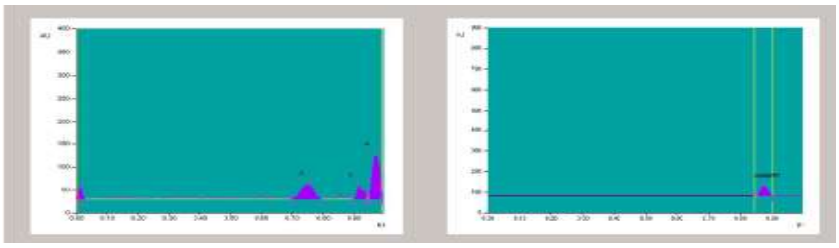
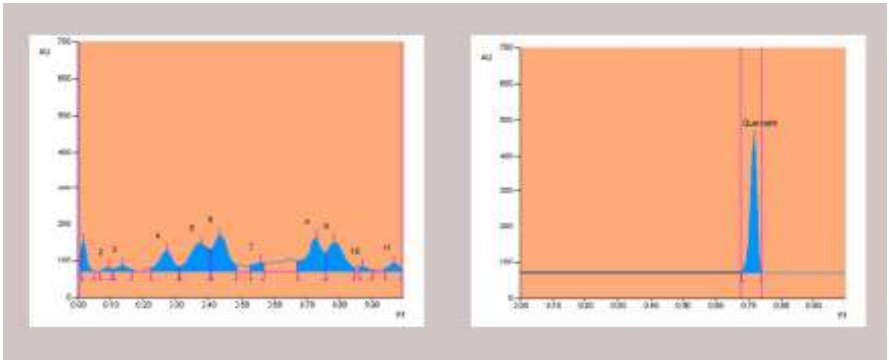


A – Plant sample B – Standard Apigenin

Fig no 6: HPTLC Chromatogram of leaf extract of W. chinensisconfirms thephytoconstituent flavonoid

Table no 7: HPTLC finger printing spectral values for the presence of phenols in W. chinensis

Peak	R_f Value	Height	Area	Assigned substance
1	0.01	82.6	1224.6	Unknown
2	0.10	10.4	216.6	Unknown
3	0.14	16.8	481.9	Phenolic 1
4	0.27	55.3	2154.1	Phenolic 2
5	0.38	76.0	3932.1	Phenolic 3
6	0.43	99.9	4124.0	Phenolic 4
7	0.56	25.1	676.7	Unknown
8	0.73	93.0	3856.6	Phenolic 5
9	0.79	82.1	3624.2	Phenolic 6
10	0.87	14.2	298.4	Unknown
11	0.97	23.1	606.3	Unknown
1	0.73	477.0	14623.4	Quercetin standard



A – Plant sample B – Standard Quercetin

Fig no 7: HPTLC Chromatogram of leaf extract of Wedelia chinensis confirms the phytoconstituent phenol

Table no 8: HPTLC finger printing spectral values for the presence of tannins in W. chinensis

Peak	R_f Value	Height	Area	Assigned substance
1	0.01	357.8	5267.4	Unknown
2	0.11	84.3	2473.0	Unknown
3	0,19	44.3	1071.9	Tannin 1
4	0.22	62.4	1964.7	Unknown
5	0.28	85.3	2603.8	Tannin 2
6	0.82	146.7	15622.6	Unknown
7	0.94	151.4	5983.8	Unknown
1	0.46	299.9	10430.9	Gallic acid standard

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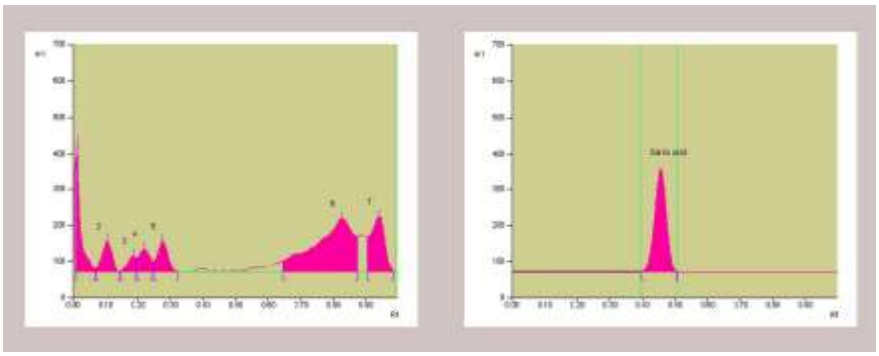

A – Plant sample B – Standard Gallic acid

Fig no 8: HPTLC Chromatogram of leaf extract of Wedelia chinensis confirms the phytoconstituent tannins

VIII. GC-MS ANALYSIS

[2] The GC-MS analysis of Wedelia chinensis leaf extract revealed the presence of phytochemical constituents. To identify various compounds in a test sample, a technique called gas chromatography mass spectrometry (GC-MS) combines the advantages of gas liquid chromatography with mass spectrometry. Applications of GC-MS include the detection of drugs, environmental analysis, the investigation of explosives, and the identification of unidentified materials. To find chemicals in luggage or on people, GC-MS can also be utilised in airport security. For the separation and detection of complex mixtures of phytochemicals, GC-MS approaches proven to be particularly sensitive and successful. There are 25 chemicals (phytochemical ingredients) in Wedelia chinensis leaf extract, according to the GC-MS study, which may be involved in the plant's potential medical benefits. Based on the peak area, retention period, and molecular formula, the identification of the phytochemical substances was verified. The active ingredients are listed together with their retention times (RT), molecular formulas, molecular weights (MW), and peak areas (in percentage). 2Tridecanone (CAS) was the first compound shown to have a shorter retention time (8.15min), whereas n-(methoxyphenylmethylene) carbamic acid, ethyl ester, had a longer retention time (33.19min). The phytochemicals identified using GC-MS analysis demonstrated a wide range of biological functions.

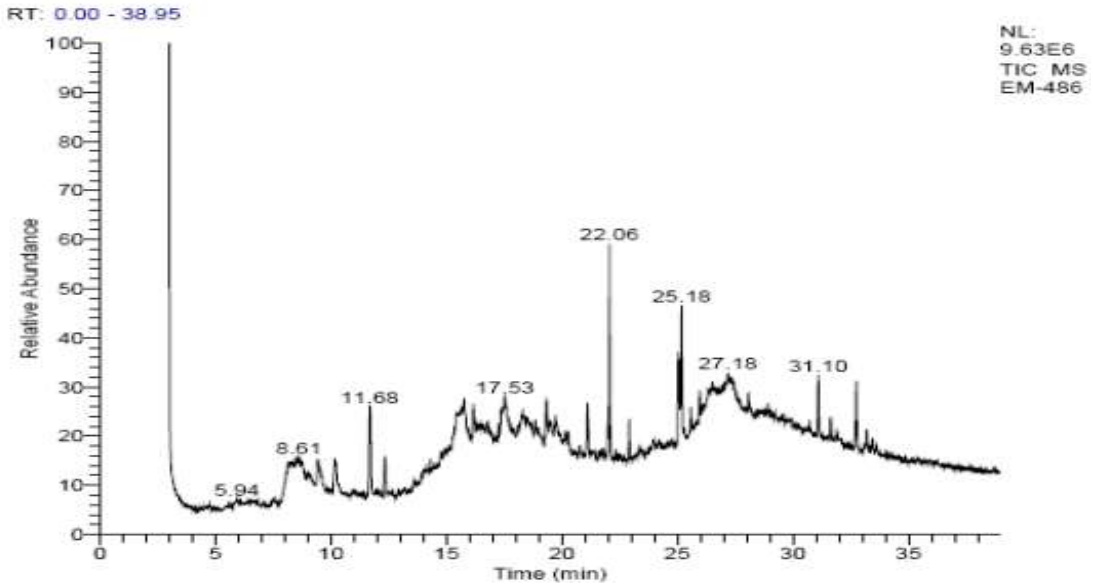

Fig no 9: GC-MS Analysis of Wedelia chinensis leaves

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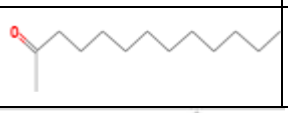
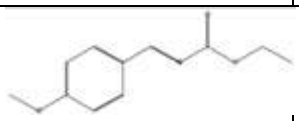
Table no 9:Components detected in Wedelia chinensis leaves

Sr. No.	Name of compound	Molecular Formula	Structure	Nature of compound	Activity
1.	2-Tridecanone (CAS)	$C_{13}H_{26}O$		Ketone	No activity reported
2.	n-(methoxyphenylmethylene) carbamic acid, ethyl ester	$C_{11}H_{13}NO_3$		Ester	Antimicrobial
3.	9,12,15-Octadecatrienoic acid, methyl ester, (Z,Z,Z)	$C_{19}H_{32}O_2$		Linolenic acid ester	Antiinflammatory,Hypocholesterolemic, Cancer preventive, Hepatoprotective, Nematicide Insectifuge, Antihistaminic

IX. CONCLUSION

Wedelia chinensis is a promising plant with antiulcer, antifungal, antidiarrheal, anti-diabetic, anti-microbial, antidepressive activity, and it has been demonstrated in several animal models, according to the review study. The pharmacognostic properties of W. Chinensis are demonstrated in this study. The primary active ingredients or marker chemicals contained in the raw medication or herbal product can be identified quantitatively and semi-quantitatively using sophisticated current standardising techniques like TLC and HPTLC. One of the several techniques for producing a chromatographic plant extract fingerprint is TLC. A diagnostic tool for the accurate identification of the plant is HPTLC fingerprint analysis. The medicinal value of a plant can be clearly seen through GC-MS analysis of the phytoconstituents of that plant. So, this kind of GC-MS analysis is the first step in figuring out the nature of the active components in this medicinal plant, and it will be useful for more in-depth research.

CONFLICT OF INTEREST STATEMENT

All authors declare no conflict of interest

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REFERENCES

[1]. Banu, R., & Nagarajan, N. (2014). TLC and HPTLC fingerprinting of leaf extracts of Wedelia chinensis (Osbeck) Merrill. Journal of Pharmacognosy and Phytochemistry, 2(6), 29-33.

[2]. Banu, R., & Nagarajan, N. (2013). GC-MS determination of bioactive components of Wedelia chinensis (Osbeck) Merrill. Journal of Chemical and Pharmaceutical Research, 5(4), 279-285.

[3]. Bhargava K.K, Krishnaswamy N.R, Seshadri T.R. Isolation of dimethyl wedelolactone and its glucoside from Eclipta alba. Indian Journal ofChemistry, 1970; 8: 664-665.

[4]. Ghani, A. Medicinal Plants of Bangladesh with chemical constituents and uses.2nd edition, Asiatic Society of Bangladesh, 5 old Secretariate road, Nimtali, Dhaka, Bangladesh, 2003.

[5]. Govindchari TR, Nagarajan K, Parthasarathy PC. Chemical examination of Wedelia calendulaceae-IV, Synthetic analogues of Wedelolactone. Tetrahedron, 1961; 15: 129-131.

[6]. Govindachari TR, Premila MS, The benzofuran norwedelic acid from Wedelia calendulaceae. Phytochemistry, 1985; 24: 3068- 3069.

[7]. Jalal A.A, Selvakumar. S, Nallathambi. R, Jeevaprakash. G, Dheivanai. S.L,

International Journal of Pharmaceutical Research and Applications
Volume 8, Issue 3 May-June 2023, pp: 587-597 www.ijprajournal.com ISSN: 2249-7781

Senthilvelan. S, Hepatoprotectiveactivity of Wedelia chinensis against carbon tetrachloride induced liver damage in rats, International Journal of Phytopharmacology., 2012; 3: 121-125.

[8]. Khandelwal, K.R., 2006. Practical Pharmacognosy. 19th Edition., Nirali Prakashan, India, pp: 9, 149-156, 158.

[9]. Kirthikar K.R, Basu B.D. Indian Medicinal Plants. Dehradun: International Book Distributors, 2006; 1324-45.

[10]. Koul S , Pandurangan A, Khosa R.L, Wedelia chinenis (Asteraceae) - An overview Asian Pacific Journal of Tropical Biomedicine, 2012; S1169-S1175.

[11]. Lalitharani, S., Mohan, V. R., Regini, G. S., & Kalidass, C. (2009). GC-MS analysis of ethanolic extract of Pothos scandens leaf. Journal of herbal medicine and toxicology, 3, 159-160.

[12]. Manjamlai. A, Jiflin G.J, Grace berlin V.M, Study on the effect of essential oil of Wedelia Chinensis against microbes and inflammation, Asian Journal of Pharmaceutical and Clinical Research., 2012; 5: 0974-2441.

[13]. Maruthupandian, A., & Mohan, V. R. (2011). GC-MS analysis of ethanol extract of Wattakaka volubilis (lf) stapf. Leaf. International Journal of Phytomedicine, 3(1), 59.

[14]. Masoodi M.H, Ahmad B, Wali A.F, Zargar B.A, Dar M.A, Recent developments in phytochemical and pharmacological studies of Wedelia calendulaceae-A review. Indian Journal of Natural Products, 2011; 27: 3-7.

[15]. Suresh. V, Kumar. R.M, Suresh. A, Kumar. N.S, Arunachalam. G, Umashankar. K, CNS Activity of Ethanol Extract of Wedelia chinensis in Experimental Animals,International Journal of Pharmaceutical Sciences and Nanotechnology, 2010; 3: 11.

[16]. Umashankar K, Suresh V, Kumar R.M, Suresh A, Arunachalam G, CNS activity of ethanol extract of Wedelia chinensis in experimentals animals, International journal of pharmaceutical sciences and nanotechnology, 2010; 3: 113-543.

[17]. Wallis, T.E., 2005. Textbook of Pharmacognosy. 4th Edition., CBS Publishers and Distributors Pvt. Ltd., New Delhi, India.