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Gas Chromatography – Mass Spectrometry Analysis of Different Solvent Crude Extracts from the Coastal region of *Wedelia biflora.*L

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Abstract

To identify and characteristic the chemical composition from the leaves of wedelia biflora in coastal region by using GC-MS analysis. The dried leaves powder were extracted with non-polar to polar solvents by using soxhlet apparatus of W.biflora and the derived fractions of hexane, chloroform, ethyl acetate, methanol and aqueous were obtained The different crude extracts of W.biflora showed high and low molecular weight compound . The isolated compounds were identified by GC-MS analysis in the crude extracts of W.biflora and characteristic by spectroscopic method are biologically active molecules. The bioactive compounds of the leaves were used for various diseases.

Keywords: Wedelia biflora L, preparations crude extracts, Soxhlet extractor, GC-MS analyses.

Introduction

The research on traditional medicinal plant in the treatment of various diseases has been flourished in recent decades. Health is the essence of productive life, the greatest blessing that a man can enjoy an earth, the root cause for prosperity and success and its not the result of ever increasing expenditure on medical care. Disease and illness give one no comfort and peace of mind. The study of disease and their treatment must also have been contemporaneous with the of human intellect. Nowadays medicinal plants receive more attention to researchers because of their safety, which is due to the complex mixtures of secondary metabolites.

Wedelia biflora Linn. DC. is rambling, perennial, climbing shrubs, found near western sea-coasts. *Wedelia biflora* is a flowering plant genus in the sunflower family Astreaceae. They are one of the genera commonly called 'creeping oxeyes'. Traditional *Wedelia biflora* is a common herb found in long beaches of the tropical belt region. It has several medicinal properties. The leaves are used in treatment of poultice ulcers, sores, ring worms, and fungal infections. Stems are used in the treatment of appendicitis and acne vulgarizes. The Decoction of the leaves is given for bacillary dysentery infective hepatitis and hemorrhoids. The leaves contain a fair amount of protein, fiber and alkaloids. The leaf juice was taken as tonic after child birth, Peterson[1], Jacobson[2], Peters [3].

Drug resistance of human pathogenic bacteria has phytochemicals substances which have been reported in literature Sarac *etal* [4]. The side effects and the resistance that pathogenic microorganisms were against antibiotics, many scientists have focused their attention on biologically active compounds isolated from medicinal plant species for herbal medicines Essawi *etal* [5]. Now-a-days, people are interest in the antimicrobial screening of extracts and essential oils from plants to discover new antimicrobial agents.

Many reports were identify the characterization and determination of chemical composition and antimicrobial properties of crude extracts and essential oils of *Wedelia* species as well as their applications in various commercial preparations mainly as antimicrobial, anti fungal, anti-inflammatory and antioxidant agents Taddei *etal*[6], Howard Miles *etal* [7]. The variations in the chemical composition may be due to the geographical distribution, origin, the locality, the climate conditions, process and the harvest time of collected plant material on *Wedelia* medicinal and other medicinal plants Meena AK *etal*[8], Donghai Li *etal* [9].

This work report for the preparation of crude extracts and analysis by GC-MS. For this reason the aim of the work was to isolate, investigate and characterize the bioactive compounds in the organic and aqueous crude extracts by using GC-MS from *W. biflora.*

Material and Methods

Collection of plant samples: Leaves of *W. biflora* were collected in the coast of east India (costal region of Danushkodi). The plant were harvested and collected in the early morning session and packed in the polythene bags. The plants were transported to the lab and kept at room temperature for processing.

Preparations of samples: The leaves of plant samples were

washed with tap water and shade dried for few days. About 50g of leaves were ground using a grinder for 30 seconds. The dry samples were homogenized in a grinder for mesh size. The air – dried leaves of *W. biflora* were pulverized in to powered form.

Extraction procedure: The powder samples of *W. biflora* (50g) were extracted with hexane (500ml, 24hrs) at room temperature by using soxhlet extractor and then extracted successively with non –polar to polar by using hexane, chloroform, ethyl acetate, methanol and aqueous fractions respectively. The solvent was evaporated by vacuum evaporator to obtained viscous form. After fractionation of the hexane crude extract, chloroform, ethyl acetate, methanol and aqueous from the leaves of *W. biflora* analyses by GC-MS, to identification and characterization of different organic crude extracts.

Gas Chromatography – Mass Spectrometry Analysis (GC-MS): 100mg of aliquot was (extracted) grind under liquid nitrogen, the solvent 100mg /ml of isopropanol, acetonitrile, water is added in the ratio 3:3:2, then add 60µl of ribitol and kept in vortex mixture for 10sec, after centrifuge at 12,00rpm for 10min and clear super ant was taken and dried in speed vacuum evaporation then add 50µl of methoxyamine hydrochloride and shaking at 30^0C for 90minutes. Then the sample was added with TMS AT 37◦c for 30minutes by adding 100µl of MSTA. Then the 1µlwere injected to GC-MS split ratio 1:25

Results and Discussion

Physical Properties: The different organic crude extracts were different in colours. In hexane dark green in colour ; chloroform and methanol were blackish green in colour, ethyl acetate was pale green in colour and the aqueous extract was somewhat light green in colour

Chemical composition of different organic and aqueous crude extracts: The identification of compounds in hexane crude Shown in the table-1. The major chemical compounds in hexane crude extract were found in (figure-1 and table-1). as 1,2,3-propanetriol, 1-acetate was found to be the major constituent with peak area13.07% which present at the retention time 9.26 minutes, phytol with peak area .34% and retention time 31.93 minutes and 4,25-secoobscurinervan-4-ol, 22-ethyl-15,16-dimethoxy-, with the peak area 5.98% and retention time 36.28 minutes, followed by kaur-16-ene with the peak area 4.06% at retention time 30.62 minutes, stigmasterol with the peak area 2.05% retention time 48.99 minutes,2,6,10,14,18,22-tetracosahexaene, 2,6,10,15,19,23-hexamethyl with the peak area 1.52% retention time 43.97 minutes, octacosane with the peak area 1.50% retention time 41.38 minutes, 7-hexadecenal, (z)- has the peak area and 1.10% retention time 52.35 minutes, 2,6,10-trimethy l,14-ethylene-14-pentadecne with the peak area and 0.87% retention time 26.56 minutes cubedol and was found to be present in least quantity with the peak area 0.80 % at retention time respectively (give their retention time).

The chloroform extract were prepared the fractionation analyzed by using GC-MS had led to the identification and characterization. The major chemical constituents were found in chloroform extract (figure-2 and table-1) were 2,6,10-trimethyl,14-ethylene-14-pentadecne were found to be with the peak area 9.70% at retention time 26.5 minutes, E-14-Hexadecenal with the peak area 6.22% retention time 25.60 minutes phenol, 2,4-bis(1,1-dimethylethyl)-with the peak area 5.34% retention time 19.50 minutes, n-Hexadecanoic acid with the peak area 4.65% and retention time 29.3 minutes , 1-docosene with the peak area 4.18% and retention time 29.58 minutes, Phytol with the peak area 3.70% and retention time 31.8 minutes, The compounds 3,7,11,15-Tetramethy l-2-Hexadecen-1-ol has the peak area 3.6% and retention time 27.4 minutes, Tetradecanoic acid with the peak area 3.03% and retention time 25.3 minutes, 1-Octadecene with the peak area 2.89% and retention time 33.31 minutes, Tetratetracontane has the peak area 2.70% and retention time 47.7 minutes, followed by Iron Iodide Complex I with the peak area2.22% and retention time 49.5 minutes, followed by 4,4,6a,6b,8a,11,11,14b-Octamethyl-1,4,4a,5,6,6a,6b,7,8,8a with the peak area2.07% and retention time 50.2 minutes, followed by Hexacosane has the peak area1.99 % and retention time 41.3 minutes, Cyclohexane, Eicosyl has the peak area1.87% and retention time 35.75 minutes, Trifluoroacetoxy Hexadecane and 2-Hexadecen-1-ol, 3,7,11,15-Tetramethyl-, [r-[r*,with the peak area1.83% and retention time 36.57 and 27.6 minutes. The Vitamin E obtained has the peak area1.71% and retention time 48.0 minutes followed by 1,2-Benzenedicarboxylic acid, Bis(2-ethylpropyl and Stigmasta-5,22-dien-3-ol with the peak area1.53% and retention time 29.12 and 48.9 minutes. Docosane with peak area1.42 % and retention time 43.2 minutes, Gamma. Sitosterol with has peak area1.24% and retention time 49.3 minutes, E-11-Hexadecenal with the peak area1.18% and retention time 36.5minutes, 7, 9,12-Octadecadienoic Acid (z,z)-, Methyl Ester , 2-Hexadecene, 3,7,11,15-Tetramethyl was found to be least quantity with the peak area 0.20% and retention time 50.07 minutes respectively.

The viscous semi solid form of ethyl acetate extract were prepared and analyzed by using GC-MS studies had led to the identification of the compound. The chemical constituents were found in the ethyl acetate extract (figure-3 and table-1) were Octadecane was found to be major constituent has the peak area 13.36% and retention time 25.78 minutes, were 2,6,10-trimethyl,14-ethylene-14-pentadecne were found to be the major constituent with the peak area 9.70% at retention time 26.5 minutes, 1,2,3-Propanetriol, 1-Acetate has the peak area 13.08% retention time 9.26 minutes, 3-Methyl, Henicosane has the peak area 8.26% and retention time 29.73 minutes, Tetracosane with has peak area4.59% and retention time 33.34 minutes, were found to be in least quantity with the peak area 0.35% and retention time 20.60 minutes.

The semi dry methanol extract was isolated from and analyses by GC-MS analysis of compounds. The major chemical

constituents were found in methanol extract (figure-4 and table-1) were cis-vaccenic acid was found to be the major constituent with the peak area12.87% and retention time 32.79 minutes, followed by p-dodecyloxybenzaldehyde with the peak area 6.85% and retention time 33.15 minutes 4h-pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl with has peak area 3.71% and retention time 10.20 minutes, followed by benzeneethanol, alpha,alpha-dimethyl-, acetate with the peak area 3.69% and retention time 8.40 minutes. Beta-sitosterol has the peak area 3.19% and retention time 47.80 minutes, followed by hexadecanoic acid, methyl ester with the peak area 2.16% and retention time 28.34 minutes, (-)-spathulenol has the peak area 1.58% and retention time 30.12 minutes, (-)-5-oxatricyclo [8.2.0.0(4,6)] dodecane, 12-trim with the peak area1.43% and retention time27.87minutes trans-cinnamic acid has the peak area 1.42% and retention time 18.65minutes, followed by indole with the peak area1.40% and retention time 14.24 minutes, 9,12,15-octadecatrienoic acid, methyl ester, (z,z,z)- has the peak area 1.46% and retention time 31.65 minutes, 2,6,10-trimethyl,14-ethylene-14-pentadecne with the peak area 1.24% and retention time 26.22 minutes, followed by stigmasta 5, 22-dien-3-ol, (3.beta.,22e) with the peak area1.03% and retention time 48.94 minutes .This is followed by , 4-nitrosophenyl-.beta.-phenylpropionate has the peak area 1.00% and retention time 15.97 minutes. Naphthalene, etc were found to be in least quantity with the peak area 0.90% and retention time 40.60 minutes.

Finally, the aqueous extract was isolated and analyses by GC-MS methods the compounds were identified. The chemical constituents were found in aqueous extract (figure-4 and 1) were Phytol has the peak area 2.3% and retention time 31.8 minutes, ethyl oleate was found to be the major constituent with the peak area 45.22% and retention time 19.249 minutes, 2,6,10-trimethyl,14-ethylene-14-pentadecne with the peak area 1.24% and retention time 26.22 minutes, D-sorbitol, hexakis (trimethylsilyl) ether has the peak area 4.28% and retention time 17.338 minutes, octadecanoic acid, ethyl ester with the peak area 4.26% and retention time 19.45 minutes, methyl commate c with the peak area 2.51% and retention time 36.915 minutes, followed by 3,8-dioxa-2,9-disiladecane, 2,2,9,9-tetramethyl- with the peak area 2.27 % and retention time 17.178 minutes and finally1-hexadecanol with the peak area 1.02% and retention time 15.549 minutes., 1-tridecene, 9-octadecene, (e)-, Silane, trimethyl [(3,7,11-trimethy l-2,6,10-dodecatrienyl) oxy, cholest-5-en-3-ol, (3.beta.)-carbonochloridate, etc. were found to be in least quantity with the peak area 0.90% and retention time 30.60 minute.

The plant extracts were obtained from the leaves of *Wedelia biflora* the chemical compounds were mentioned in GC-MS analysis. In all Five crude extracts 2,6,10-trimethyl,14-ethylene-14-pentadecne and Phytol were obtained, at different concentrations. The hexane plant crude extract contains few active chemical constituents such as Phytol, 2,6,10-rimethy l,14-ethylene-14-pentadecne, Verbenol, Bicyclo [3.1.1]hept-2-ene, 2,6,6-trimethyl-Stigmasterol, Kaur-16-ne, Urs-12-ene,4,25-Secoobscurinervan-4-ol, 22-ethyl-15, 16-dimethoxy, hexadecanoic acid, Gamma tocopherol etc. Chloroform plant contains active chemical constituents. Phytol, 2,6,10-trimethyl, 14-ethylene-14-pentadecne, hexadecanoicacid, 2-hydroxy-1-(hydroxymethyl) ethyl. 3,6,10-cyclotetradecatetraene etc. Ethyl acetate plant crude extract contains very few chemical compounds such as Phytol, 2,6,10-trimethyl,14-ethylene-14-pentadecne, 1,2,3-propanetriol, 1-acetate, Gamma.-sitosterol, 9-octadecenoic acid (z)-, naphthalene, etc. The methanol plant crude extract contains active chemical constituents such as Phytol, 2,6,10-trimethyl, 14-ethylene-14-pentadecne, Hexadecanoic acid, methyl ester, er, 9,12,15-octadecatrienoic acid, methyl ester, (z,z,z)- 9-octadecenoic acid (z)-, 2,3-dihydroxypropyl ester, stigmasta-5,22-dien-3-ol, acetate, (3.beta.)- beta-sitostero,

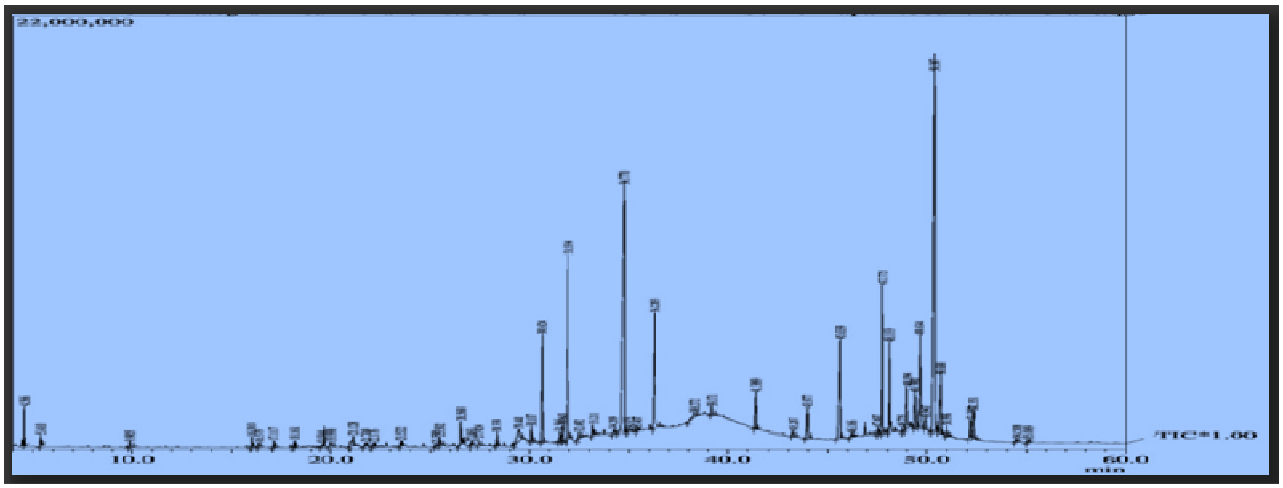

Figure-1
GC-MS of hexane extract of *Wedelia biflora*

Table-1
Phytocomponents identified in the different solvents leaf extracts of *Wedelia biflora* by GC-MS

Extracts	Name of the Compound	Molecular Formula	Rention Time	Peak %
Hexane Extract	Cubedol		19.5	0.15
	2,6,10-Trimethyl,14-Ethylene-14-Pentadecne	$C_{20}H_{38}$	26.5	0.87
	Kaur-16-Ene	$C_{20}H_{32}$	30.6	4.06
	Urs-12-Ene	$C_{30}H_{50}$	49.9	0.64
	Phytol	$C_{20}H_{40}$	31.9	8.34
	2,6,10,14,18,22-Tetracosahexaene, 2,6,10,15,19,23-Hexamethyl	$C_{30}H_{50}$	43.9	1.52
	Stigmasterol	$C_{29}H_{48}O$	48.9	2.05
	(-)-5-Oxatricyclo[8.2.0.0(4,6)]Dodecane,,12-Trimethyl-9- Methylene-,	$C_{15}H_{24}O$	21.1	0.80
	4,25-Secoobscurinervan-4-Ol, 22-Ethyl-15,16-Dimethoxy-,	$C_{29}H_{40}N_2O_7$	36.2	5.98
	Andrographolide		34.7	18.09
	Octacosane	$C_{28}H_{58}$	41.389	1.50
	7-Hexadecenal, (Z)-	$C_{16}H_{30}$	52.351	1.10
	2,6,10,14,18,22-Tetracosahexaene, 2,6,10,15,19,23-Hexamethyl	$C_{30}H_{50}$	43.977	1.52
	Hexacosane	$C_{26}H_{54}$	45.6	5.08
	Gamma.-Sitosterol	$C_{29}H_{50}O$	49.3	1.70
	Dl-.Alpha.-Tocopherol	$C_{29}H_{50}O_2$	48.1	2.80
	Tetratetracontane	$C_{44}H_{90}$	47.1	3.71
	Phytol Acetate		52.2	0.67
Chloroform Extract	1-Pentadecene	$C_{15}H_{30}$	16.71	0.47
	Heptadecane	$C_{17}H_{36}$	18.8	0.25
	Phenol, 2,4-Bis(1,1-Dimethylethyl)-	$C_{14}H_{22}O$	19.5	5.34
	Hexadecane	$C_{16}H_{34}$	23.7	0.47
	E-14-Hexadecenal		25.60	6.22
	2-Hexadecen-1-Ol, 3,7,11,15-Tetramethyl-, [R-[R*,	$C_{20}H_{40}O$	27.6	1.83
	Phytol	$C_{20}H_{40}$	31.8	3.70
	3,7,11,15-Tetramethyl-2-Hexadecen-1-Ol	$C_{20}H_{40}O$	27.4	3.6
	1,2-Benzenedicarboxylic Acid	$C_8H_6O_4$	27.2	0.28
	Vitamin E	$C_{29}H_{50}O_2$	48.0	1.71
	Trifluoroacetoxy Hexadecane	$C_{18}H_{33}F_3O_2$	36.57	1.83
	2-Nonadecanone	$C_{19}H_{38}O$	50.43	0.48
	Stigmasta-5,22-Dien-3-Ol	$C_{29}H_{48}O$	48.9	1.53
	.Gamma.-Sitosterol		49.3	1.24
	4,4,6a,6b,8a,11,11,14b-Octamethyl-,4,4a,5,6,6a,6b,7,8,8a	$C_{30}H_{48}O$	50.2	2.07
	Iron Iodide Complex I		49.5	2.22
	2,6,10-Trimethyl,14-Ethylene-14-Pentadecne	$C_{20}H_{38}$	26.5	9.70
	Cyclohexane, Eicosyl	$C_{26}H_{52}$	35.7	1.87
	Nonadecane	$C_{19}H_{40}$	36.6	0.64
	Hexacosane	$C_{26}H_{54}$	41.3	1.99
	Nonacosane	$C_{29}H_{60}$	42.4	0.32
	Docosane	$C_{22}H_{46}$	43.2	1.42
	Tetratetracontane	$C_{44}H_{90}$	47.7	2.70
	1,2-Benzenedicarboxylic Acid, Bis(2-Methylpropyl)	$C_{16}H_{22}O_4$	29.1	1.53
Ethyl Acetate Extract	1,2,3-Propanetriol, 1-Acetate	$C_5H_{10}O_4$	9.2	13.07
	Phytol	$C_{20}H_{40}$	31.8	2.30

Extracts	Name of the Compound	Molecular Formula	Rention Time	Peak %
	Tetradecane	$C_{14}H_{30}$	16.5	3.80
	Octadecane	$C_{18}H_{38}$	25.7	13.36
	Tetracosane	$C_{23}H_{48}$	33.3	4.59
	Benzonitrile, M-Phenethyl-	$C_{15}H_{13}N$	37.5	1.44
	2-Tert-Butyl-4,6-Bis(3,5-Di-Tert-Butyl-4-Hydro	$C_{15}H_{22}O_2$	51.1	1.08
	Naphthalene	$C_{10}H_8$	10.9	1.18
	2,6,10-Trimethyl,14-Ethylene-14-Pentadecne	$C_{20}H_{38}$	26.5	9.70
	4,4,6a,6b,8a,11,11,14b-Octamethyl-,4,4a,5,6,6a,6b,7,8,8a	$C_{30}H_{48}O$	50.2	0.79
Methanol Extract	2,4-Dihydroxy-2,5-Dimethyl-3(2h)-Furan-3-One	$C_6H_8O_4$	5.7	0.33
	Benzene, Methyl(1-Methylethyl)-	$C_{10}H_{14}$	6.6	1.49
	Benzeneethanol, .Alpha.,.Alpha.-Dimethyl-, Acetate	$C_{12}H_{16}O_2$	8.4	3.69
	Indole	C_8H_7N	14.2	1.40
	4-Nitrosophenyl-.Beta.-Phenylpropionate	$C_{15}H_{13}NO_4$	15.9	1.00
	Benzenepropanoic Acid, .Beta.-Hydroxy-, Methyl Ester	$C_{10}H_{12}O_3$	17.4	1.29
	Hexadecanoic Acid, Methyl Ester	$C_{17}H_{34}O_2$	28.3	2.16
	Ttrimethyl-Tetrahydronaphthalene	$C_{13}H_{18}$	14.6	0.77
	Trans-Cinnamic Acid	$C_9H_8O_2$	18.6	1.42
	9,12,15-Octadecatrienoic Acid, Methyl Ester, (Z,Z,Z)-	$C_{19}H_{34}O_2$	31.6	1.46
	3-Buten-2-Ol, 4-(2,6,6-Trimethyl-1-Cyclohexen-1-Yl)-	$C_{13}H_{22}O$	23.1	2.06
	4h-Pyran-4-One, 2,3-Dihydro-3,5-Dihydroxy-6-Methyl-	$C_6H_8O_4$	10.2	3.71
	2,6,10-Trimethyl,14-Ethylene-14-Pentadecne	$C_{20}H_{38}$	26.2	1.24
	oxatricyclo[8.2.0.0(4,6)]Dodecane,,12-Trim		27.8	1.43
	Phytol	$C_{20}H_{40}$	31.8	0.58
	Cis-Vaccenic Acid	$C_{18}H_{34}O_2$	32.7	12.87
	(-)-Spathulenol	$C_{15}H_{24}O$	30.1	1.58
	P-Dodecyloxybenzaldehyde	$C_{19}H_{30}O_2$	33.1	6.85
	.Beta.-Sitosterol	$C_{29}H_{50}O$	47.8	3.19
	Stigmasta-5,22-Dien-3-Ol, (3.Beta.,22e)-	$C_{29}H_{48}O$	48.9	1.03
Aqueous Extract	3,8-Dioxa-2,9-Disiladecane, 2,2,9,9-Tetramethyl-5,6-Bis[(Trimethylsilyl)	$C_{10}H_{26}O_2Si_2$	17.1	2.2
	2,6,10-Trimethyl,14-Ethylene-14-Pentadecne	$C_{20}H_{38}$	16.0	0.19
	1-Tridecene	$C_{13}H_{26}$	10.7	0.59
	9-Octadecene, (E)-	$C_{18}H_{36}$	13.2	0.72
	Ethyl 9-Hexadecenoate	$C_{18}H_{34}O_2$	17.4	7.56
	D-Sorbitol, Hexakis(Trimethylsilyl) Ether	$C_{24}H_{62}O_6Si_6$	17.3	4.28
	Phytol	$C_{20}H_{40}O$	18.7	0.27
	Hexadecanoic Acid, Ethyl Ester	$C_{18}H_{36}O_2$	17.6	21.37
	Ethyl Oleate	$C_{20}H_{38}O_2$	19.2	45.2
	Octadecanoic Acid, Ethyl Ester	$C_{20}H_{40}O_2$	19.4	4.2
	Androstan-17-One, 3-Ethyl-3-Hydroxy-, (5.Alpha.)-	$C_{21}H_{34}O_2$	20.5	0.57
	Stigmasterol	$C_{29}H_{48}O$	31.7	0.47
	Cholest-5-En-3-Ol(3.Beta.)-, Carbonochloridate	$C_{28}H_{45}ClO_2$	25.8	0.56
	Methyl Commate C	$C_{31}H_{50}O_4$	36.9	2.51
	Isopimaric Acid, TMS	$C_{23}H_{38}O_2Si$	21.2	0.66

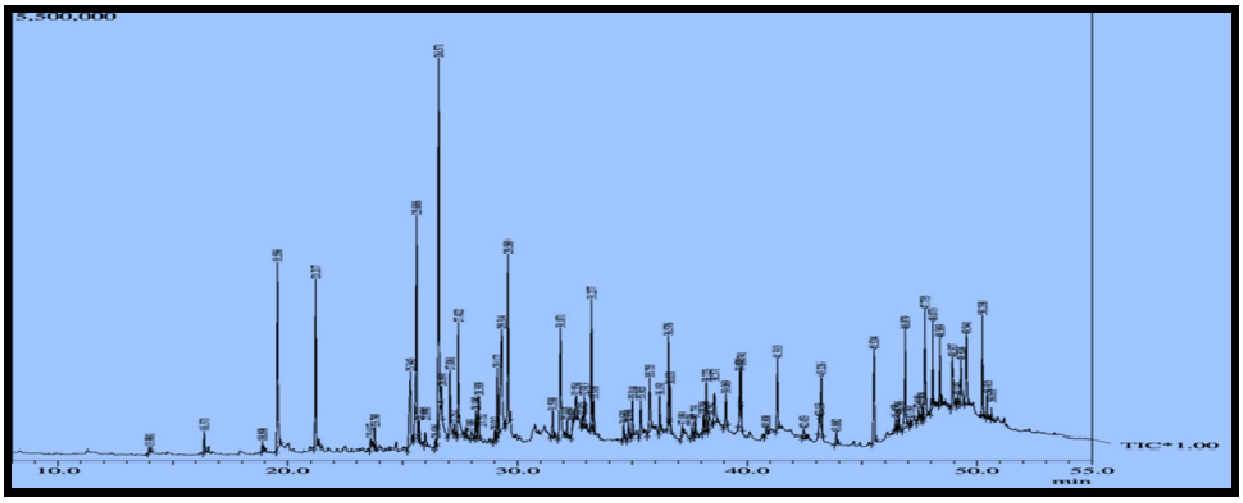

Figure-2
GC-MS of chloroform extract of *Wedelia biflora*

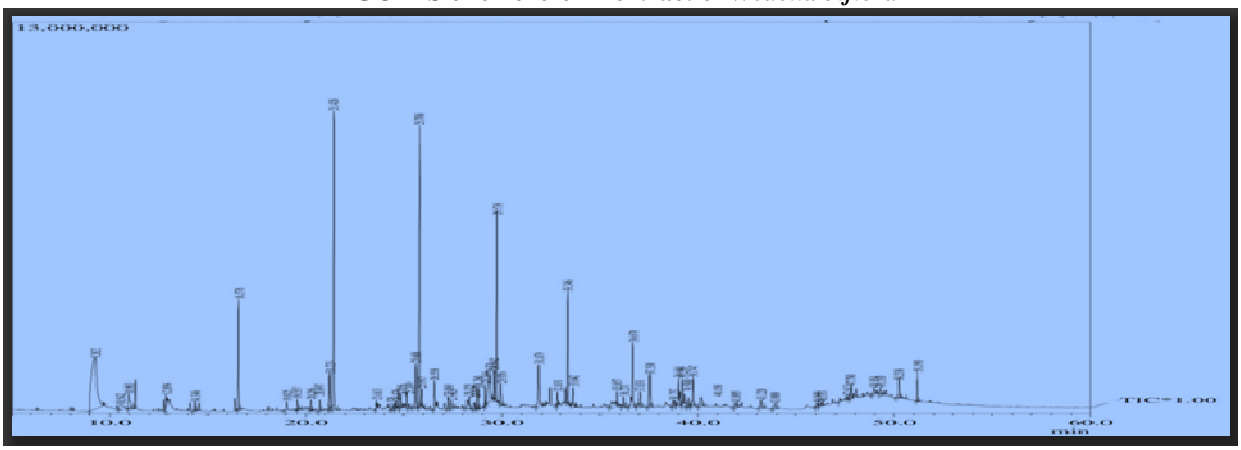

Figure-3
GC-MS of ethyl acetate extract of *Wedelia biflora*

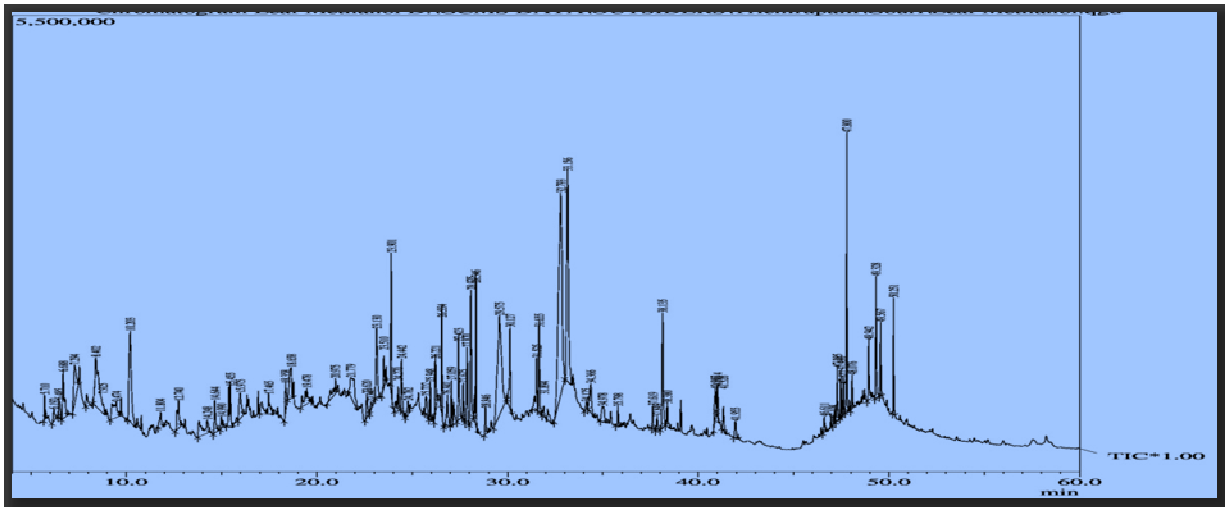

Figure-4
GC-MS of methanol extract of *Wedelia biflora*

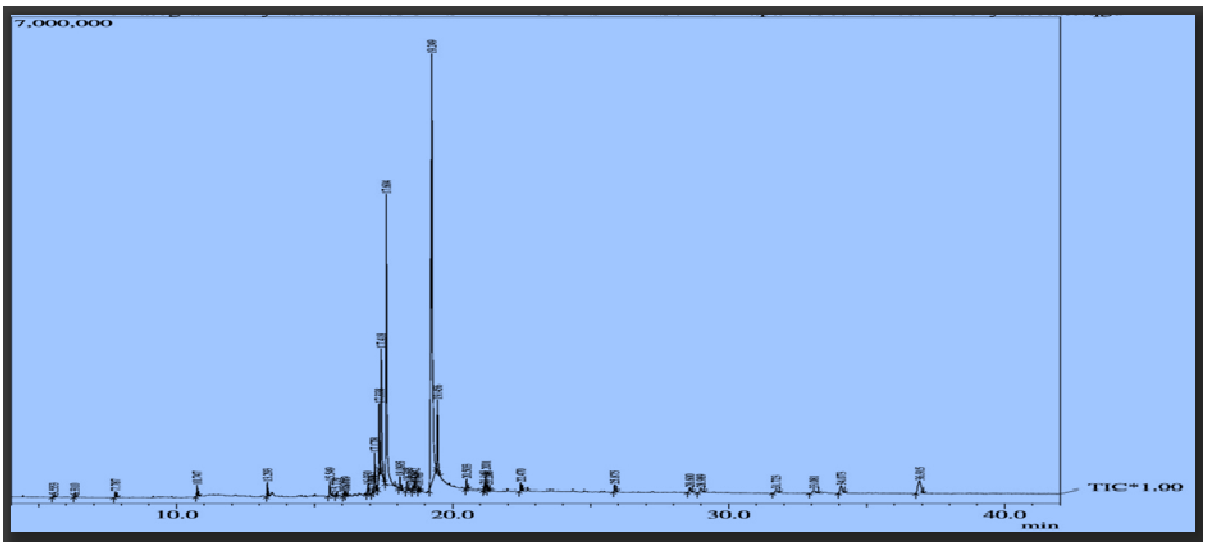

Figure-5
GC-MS of aqueous extract of *Wedelia biflora*

Cis-vaccenicacid,(-)-spathulenol,4h-pyran-4-one,2,3-dihydro-3,5-dihydroxy-6-methyl- 4,4,6a,6b,8a,11,11, 14b-Octamethyl-Hexadecanoic acid, methyl ester etc. The aqueous plant crude extract contains chemical constituents such as Phytol, 2, 6, 10-trimethyl, 14-ethylene-14-pentadecne, 9-octadecene, (e)- ethyl oleate,, octadecanoic acid, ethyl ester, 4,25-secoobscurinervan-4-ol, 22-ethyl-15,16-dimethoxy-, 25-27, stigmasterol,cholest-5-en-3-ol (3.beta.)-, carbonochloridate isopimaric acid, TMS, Methyl Comate C,etc Anumber of major compounds were identified from different crude extracts were biologically active molecules. . Now they are considered to be a part of plant which have been included in a large group of projective molecules found in plants named 'phytoanticipins "or "phytoprotectants "Howard Miles *etal* [10], Rehana Banu and Nagarajan [11], Hossain *etal* [12] .The identification of number of compounds from different crude extracts of *Wedelia biflora* by using GC-MS analysis.

Conclusion

From the present study, it is concluded that most of the biologically active phytochemicals were present in the various extracts of *Wedelia biflora* leaves; the results confirmed the presence of therapeutically potent compound in leaf extract of *Wedelia biflora*, and further using of this plant extract in pharmaceutical industry

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