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GC-MS ANALYSIS OF PLANT LEAF EXTRACT OF *DATURA STRAMONIUM* IN DIFFERENT SOLVENT SYSTEM

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ABSTRACT
Datura stramonium is known as medicinal plant worldwide. Generally it is used as a traditional medicine due to its medicinal values. The objective of this present work is to identify the Phytochemical compounds by using GC-MS technique and its biological activity of *D. stramonium* plant leaf extracts of methanol and chloroform Solvent Systems. In methanolic leaf extract, 64 photochemical compounds were found, whereas in chloroform leaf extract 49 photochemical compounds were found. These compounds are found to have various biological activities such as anti-fungal, anti-diabetic, anti-inflammatory, anti-bacterial, and anti-cancer, etc.

KEY WORD: *Datura stramonium*, GC-MS, Phytochemical.

INTRODUCTION
A gradual increase is observed in these recent years in the use of medicinal plants, as they are recognised as potentially safe drugs and are of valuable importance in terms of natural resources.[1] For the biological, antimicrobial and hypoglycemic potential, these medicinal plants have been analysed and play a vital role in moldering medicine.[2,3] Depending upon the chemical compounds producing some specific physiological action on human body the medicinal value of these plants are identified.[4,5] Out of the total global population, around 60% uses medicinal plants for health care.[6] Belonging to the Solanaceae family, Datura, an annual plant basically a wild weed is known for it is healing properties, as it posses medicinal and toxic properties. The word Datura is derived from Sanskrit Dustura or Dahatura.[7] It is commonly known as Thorn apple.Various species of Datura such as *Datura stramonium, Datura inoxia, Datura metel, Datura wrightii* are well known and having various medicinal properties.[8]

Species of Datura are to be commonly found in South America, China, Asia, North America while one is to be native to Australia. Habitats including waste lands, rupicer banks, railway stock yards, irrigated lands and pastures are common to them.[9] To all of the four deserts of American southwest, the species *D. stramonium* is to be naturalized. The plant lives in sandy flats, plains, arroyos up to 2,500 feet above sea level, and amidst disturbed soils. In the Himalayas from Kashmir to Sikkim up to 2700m high and in the hilly districts of central and south India, the species of Datura are to be found.[10]

With great pharmacological potential, *Datura stramonium* is well known widely for wing plant possessing great utility and usage in folklore medicines and medicinal herbs. With the presence of several compounds such as alkaloids, tannins, carbohydrates and proteins, *D. stramonium* is used in medicine due to its analgesic and anti-asthamatic activities.[11] Datura emits an unpleasant odour because if the presence of tropane alkaloids; hyoscyamine, atropine and scopolamine.[12] It was determined that in the different stages of growth the quantities of scopolamine and atropine were different.[13] In leaves, the highest amount of scopolamine was found in the vegetative period while in roots during vegetative phase it was to be the smallest. These leaves are further used in treatment of asthma.[14] Also it was found that in the same vegetative phase, the quantity of atropine was to be greatest in petiole and smallest in the seed.[15] This compound atropine has been greatly use in treating Parkinson's Disease, peptic ulcers, diarrhea, and bronchial asthma.[16]

The seeds of *D. stramonium* are useful in treating acne and bronchitis.[17] Many other parts are used for treating defeats such as piles, diabetes and jaundice.[18] Datura seeds are also useful in treatment of animal or dog bites.[19]

Being a natural source of antioxidants and photochemicals, *D. stramonium* shows many antimicrobial activities. In addition a significant antimicrobial activity is seen against Staphylococcus aureus, Proteus vulgaris, Pseudomonas aeruginosa, Escherichia coli, Aspergillusniger and Fusarium species by the extracts of datura.[20] Considering the aspects mentioned above it becomes a worthwhile to have an insight for medicinal and toxic properties of Datura.

Gas Chromatography (GC) and Mass Spectroscopy (MS) works a powerful tool to have a deeper insight by identifying the various compounds present in the sample. Present study was focus on identification of compounds by using GC-MS technique and biological activities of identified compounds from plant leaf extract of *Datura stramonium* using Methanol and Chloroform solvent system.

MATERIAL AND METHODS

Collection of Plant Material

Mature plant leaf of *Datura stramonium* were collected from nursery and identified by Botany Department of D.A.V (PG) College, Roorkee, Uttarakhand.

Extract Preparation

Plant leaf extract of *Datura stramonium* are used for estimation of GC-MS analysis. To obtain sample, 5 g of dry plant leaf was macerated in methanol: water (90:10) and chloroform for 24 hour. The extract was then filtered and concentrated in a rotary evaporator for 15 min. Later it was dried in lyophilizer. Powder was dissolved into 1 ml methanol and Chloroform respectively.[21,22]

GC-MS analysis of the sample

GC-MS analysis of plant Leaf extracts was performed using a regular Perkin Elmer Auto System XL GC-MS analyzer. For GC-MS detection, an electron ionization energy system with ionization energy of 70eV was used. Helium gas (99.999%) was used as the carrier gas at a constant flow rate of 1.51 ml/min and an injection volume of 2µl was employed. Total GC running time was 22 min. Software adopted to handle mass spectra and chromatograms were Turbo Mass.

Identification of compounds was based on the molecular structure, molecular mass. Interpretation on mass spectrum GC-MS was conducted using the database of NIST (National Institute Standard and Technology) having more than 62,000 patterns and Wiley library. The name, molecular weight and structure of the components of the test material were ascertained by correlating with the library. The relative percentage amount of each component was calculated by comparing its average peak area to the total areas.[21,22]

RESULT AND DISCUSSION

GC-MS analysis of *Datura stramonium* leaf extract dissolved in methanolic and chloroform solvent system, *revealed* the presence of many phytochemical compounds in plant. In extract of Datura in methanol solvent system total 64 phytochemical compounds were identified such as Scopolamine (15.75%), 9,12,15-Octadecanoic acid(14.08%), Hexadecanoic acid (10.14%) and benzeneacetic acid (6.38%) with retention time 29.031, 26.199, 23.775 and 26.893 respectively (Table 1, Figure 1). Among these Scopolamine was most abundant. Compound such as 2Propenol (0.81%), Piracetam (0.44%), Pyridine (0.19%), Megastigmatrienone (0.15%), with retention time 6.036, 12.788, 15.800 respectively were found to be present in comparatively lesser amount into plant extract of Datura plant in methanol. On the other hand leaf extract prepared in chloroform solvent system was found 49 phytochemical compounds that contain Tetracontane (19.47%), 2,6,10- Tetramethyl,14 2-Hexadecen-1-ol,3,7,11,15-Tetranethyl-, [R-[R (4.52%), vitamin E (3.79%) and stigmasta-5,24(28)-dien-3-ol (3.36%) by way of retention time 40.516, 25.669, 39.030 and 40.960 respectively as the major compounds (Table 3, Figure 2). Compounds such as Heneicosane (0.29%), Docosane (0.23%), Cyclobutane, 2-hexyl1,1,4trimethyl (0.22%), Cyclohexane,1, 1[4(2Cyclohexylethyl (0.17%) with retention time 26.810, 28.051, 21.693 and 27.943 respectively were present in small amounts. The compounds identified were found to belong to different classes such as steroids, acid, phytosterols, alkaloids, ketones, ester, etc.

Irrespective of the amount or concentration (high or low) in which these compounds were found to be present, almost all these compound have been reported to possess some pharmacological or biological activity (Table 2 and Table 4). Almost all the compound identified have been reported to exhibit antibacterial, anti-fungal, antioxidant and antiviral activities against several pathogenic bacteria, fungal and viral species.[23,24,25,26] Beside antioxidant activity hexadecanoic is also reported to possess hypocholesterolemic and hemolytic activity.[27] Antioxidant property is one of the crucial properties possessed by plant, in the present study compounds such as 1-H- Indole, tetradecanoic acid, 2-Hexadecen-1-ol,3,7,11,15-tetramethyl, hexadecanoic acid, fucosterol, nonadecane, tetratetracontane identified to be present in both plant extract of *Datura stramonium* have been reported to possess potential antioxidant activity.[23,25,28,27,29,30,31] Identified compounds 1-H-Indole, tetradecanoic acid, stigmasta-5,24(28)-dien-3-ol, fucosterol, Eicosane, Squalene have been reported as Anticancer and antitumor agent.[23,25,28,29,32] Beside these Squalene is also utilized in treatment of skin and octanoic acid is anti-inflammatory in function.[28,33] It has been reported thatAnti-androgenic, and hypercholesterolemic activity possessed by Hexadecanoic acid works as a potent volatile flavour components.[27]

Table 1: Identified Compound, Area and Retention Time of Peak of *Datura stramonium* (Methanol Leaf Extract).

Peak	R.Time	Area	Area%	Name
1	6.036	1309694	0.81	2-Prope-1-ol
2	6.702	2492339	1.55	1-Butanamine,2-methyl-N-(2-methylbutylidene)-
3	7.051	962646	0.60	Alpha.-Amino-.gamma.-butyrolactone
4	7.925	8818945	5.48	2-Pyrrolidinone
5	8.792	283352	0.18	2-(Ethyl-1, 1-D2) Cyclopentanone
6	9.394	4686660	2.91	2,3-Dihydro-3,5-Dihydroxy-6-Methyl-4H-Pyran
7	11.238	4878071	3.03	2,3-Dihydro-Benzofuran
8	12.480	1917065	1.19	2-Pentanone, 5-Hydroxy-
9	12.620	419782	0.26	1H-Indole
10	12.788	714426	0.44	Piracetam
11	12.857	3127046	1.94	2-Methoxy-4-vinylphenol
12	14.264	1601286	0.99	5-Oxo-Pyrrolidine-2-Carboxylic AcidMethyl
13	14.719	535113	0.33	1-Ethylhexyl isopropylphosphonofluoridate
14	14.796	769948	0.48	2-Methylbutylidene2-PhenylethylAmine
15	15.800	305568	0.19	Pyridine, 4-phenyl-
16	16.278	732134	0.45	3-(1-Hydroxy-2-Isopropyl -5-Methylcyclohexyl)- 2-propanoic acid
17	17.493	1070843	0.67	4-Methyl-2,5-Dimethoxybenzaldehyde
18	17.782	246251	0.15	Megastigmatrienone
19	17.859	561588	0.35	3-Methyl-4-phenyl-1H-pyrrole
20	18.574	1109715	0.69	Megasrigmatrienone 2
21	19.332	1950531	1.21	4-(2-Hydroxy-2,6,6-Trimethyl-Cylcohexyl)-But-3-en-2-one
22	19.596	239868	0.15	3-Buten-2-ol, 4-(2,6,6-Trimethyl-1-Cyclohexen
23	19.726	219463	0.14	2,3-Dimethylquinolin-4(1H)-one
24	19.838	542944	0.34	1-Pentadecanamine, N,N-dimethyl-
25	19.981	272685	0.17	6,7-Dehydro-7,8-Dihydro-3-Oxo-.Alpha.-Ionol
26	20.387	338941	0.21	L-Proline, 1-Acetyl-
27	20.512	561102	0.35	2-Pentyl-cyclohexane-1,4-diol
28	20.773	234237	0.15	TetradecanoicAcid
29	20.968	763115	0.47	Undec-10-ynoic acid (furan-2-ylmethyl)-amide
30	21.319	892061	0.55	Pluchidiol
31	21.700	255446	0.16	Cyclobutane, 2-hexyl-1,1,4-trimethyl-, cis-
32	21.798	1204155	0.75	2,6,10-Trimethyl,14-Ethylene-14-Pentadecne
33	21.884	302852	0.19	Acetic acid, 3,7,11,15-tetramethyl-hexadecyl ester
34	22.166	392084	0.24	Z,E-2,13-Octadecadien-1-ol
35	22.437	471894	0.29	2-Hexadecen-1-ol,3,7,11,15-Tetramethyl-, [R-[R*,R*-(E)]]
36	22.833	225236	0.14	3-(2,5-Dimethoxyphenyl) PropanoicAcid
37	22.990	1868395	1.16	8-Azabicyclo[3.2.1]octan-3-ol, 6-methoxy-8-methyl-
38	23.103	4332353	2.69	2-(4,8-Dimethyl-3,7-Cyclodecadein-1-yl)-2-Propanol
39	23.192	298283	0.19	Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy -methyl ester
40	23.411	2003598	1.24	9,12,15-Octadecatrienoic acid, (Z,Z,Z)-
41	23.775	16329214	10.14	HexadecanoicAcid
42	24.459	270444	0.17	8-Azabicyclo[3.2.1]octane-3,6-diol, diacetate (ester)
43	24.848	403074	0.25	8-Azabicyclo[3.2.1]Octan-3-ol, 6 methoxy-8methyl acetate (ester)
44	25.418	433538	0.27	9,12-Octadecadienoic acid, methyl ester
45	25.505	2184311	1.36	3,6-OctadecadienoicAcid, MethylEster
46	25.666	9227508	5.73	2-Hexadecen-1-ol, 3,7,11,15-Tetramethyl
47	25.830	905982	0.56	Benzenacetaticacid, alpha- hydroxyl methy
48	26.199	22675362	14.08	9,12,15-Octadecatrien-1-ol
49	26.893	10269130	6.38	BenzeneaceticAcid, alpha-(hydroxymethyl)
50	27.498	2529045	1.57	3-Hydroxy-2-Phenyl-ProponoicAcid 8-Methyl-
51	27.862	626930	0.39	Octanoic acid, 2-dimethylaminoethyl ester
52	29.031	25356954	15.75	Scopolamine
53	30.086	1207322	0.75	Cyclohexaneethanamine, N,alpha.-Dimethy
54	30.600	1251907	0.78	Hexanoic acid, octadecyl ester
55	30.943	472773	0.29	Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester

56	32.789	1713449	1.06	Methyl (Z)-5,11,14,17-eicosatetraenoate
57	33.069	1540462	0.96	cis,cis,cis-7,10,13-Hexadecatrienal
58	37.571	347152	0.22	gamma.-Tocopherol
59	38.294	2197110	1.36	Stigmast-5-en-3-ol, (3.Beta.)-
60	38.990	1843132	1.14	Vitamin E
61	41.094	1118445	0.69	Ergost-5-en-3-ol, (3.beta.,24R)-
62	42.391	1014874	0.63	Stigmast-5,24(28)-dien-3-ol, (3.beta.)-
63	43.303	1969749	1.22	Stigmast-5-en-3-ol, (3.beta.,24S)-
64	43.732	986283	0.61	Fucosterol

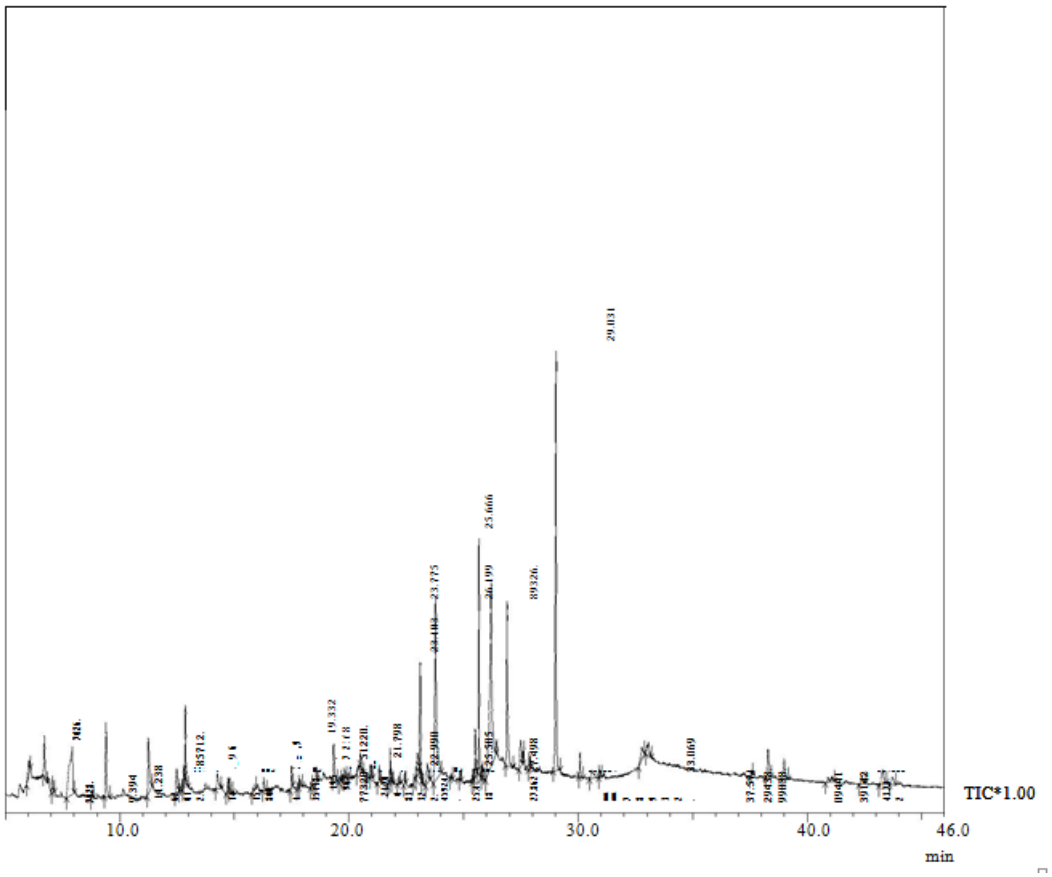

Figure 1: GC-MS Chromatogram of *Datura stramonium* (Methanol leaf Extract).

Table 2: Biological Activity of Identified Compound in *Datura stramonium* (Methanol Leaf Extract).

S.No.	Compound	Biological Activity	Reference
1	2,3-Dihydro-3,5-Dihydroxy-6-Methyl-4H-Pyran	Scavenged oxygen radicals	[34]
2	1H-Indole	Antifungal, Anti-inflammatory, Antimicrobial, antifungal, antihistamic, antidiabetic, antidepressant	[23]
3	2-Methoxy-4-vinylphenol	Flavor and Perfumery	[35]
4	5-Oxo-Pyrrolidine-2-CarboxylicAcidMethyl	Antiinflammatory, antiarthritis	[35]
5	Megastigmatrienone	Aroma	[36]
6	Megastigmatrienone 2	Aroma	[36]
7	2,3-Dimethylquinolin-4(1H)-one	Antimicrobial Anti-inflammatory	[24]
8	TetradecanoicAcid	Antioxidant, Lubricant,	[25]

		Hypercholesterolemic, Cancer-preventive, Cosmetic	
9	2,6,10-Trimethyl,14-Ethylene-14-Pentadecne	Antiproliferative	[37]
10	Acetic acid, 3,7,11,15-tetramethyl-hexadecyl ester	Acidulant, Antibacterial , AntisalmonellaAntivaginitic , Expectorant , Fungicide, KeratitigenicMucolytic, Osteolytic, Perfumery, Pesticide , Protisticide, Spermicide, Ulcerogenic and Verrucolytic activity, Anticancer activity	[26]
11	2-Hexandecen-1-ol, 3,7,11,15-Tetramethyl	Antituberculosis , Insecticidal, Anti-Inflammatory, Antioxidant, Antimicrobial	[28]
12	Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy	flavoring, food additives, spices, fragrance, and medicines as it acts as a fixative agent, or a preservative and maintain the original aroma quality of frozen foods.	[28]
13	9,12,15-Octadecatrienoic acid	Antiinflammatory, InsectifugeHypocholesterolemic, Cancer preventive, Nematicide, Hepatoprotective, Insectifuge, Antihistaminic, Antieczemic, Antiacne, 5-Alpha reductase inhibitor, Antiandrogenic, Antiarthritic, Anticoronary	[39]
14	HexadecanoicAcid	Antioxidant; Hypocholesterolemic Nematicide; Pesticide, Lubricant; Antiandrogenic Flavor; Hemolytic	[27]
15	9,12-Octadecadienoic acid, methyl ester	Anti-cancer	[40]
16	2-Hexadecen-1-ol, 3,7,11,15-tetramethyl	Antituberculosis , Insecticidal, Anti-Inflammatory, Antioxidant, Antimicrobial	[28]
17	BenzeneaceticAcid, .alpha.-(Hydroxymethyl)	No activity reported	[41]
18	9,12,15-Octadecatrienoic acid	Antiinflammatory, InsectifugeHypocholesterolemic, Cancer preventive, Nematicide, Hepatoprotective, Insectifuge, Antihistaminic, Antieczemic, Antiacne, Antiarthritic, Anticoronary	[39]
19	Hexanoic acid, octadecyl ester	Flavouring agents Antidiabetic activity, anticancer activity.	[26]
20	Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	Antioxidant Hypocholesterolemic Nematicide Pesticide Lubricant Antiandrogenic Flavor Hemolytic 5-Alpha reductase inhibitor	[42]
21	Methyl (Z)-5,11,14,17-eicosatetraenoate	Anti-bacterial, to treat dysentery and diarrhea	[43]
22	cis,cis,cis-7,10,13-Hexadecatrienal	Antioxidant activity	[44]
23	Gamma.-Tocopherol	Anticancer, antioxidant, antitumor, anti-inflammatory, hypocholesterolemic, cardioprotective	[45]
24	Stigmast-5-en-3-ol, (3.beta.)	Antihepatotoxic, Antiviral, Antioxidant, Cancer preventive, Hypocholesterolemic	[46]
25	Vitamin E	Antiageing, Analgesic, Antidiabatic, Antiinflammatory, Antioxidant, Antidermatitic, Antileukemic, Antitumor, Anticancer, Hepatoprotective, Hypocholesterolemic Antiulcerogenic, Vasodilator, Antispasmodic, Antibronchitic, Anticoronary	[27]
26	Ergost-5-en-3-ol	Antioxidant, hypocholesterolemic	[45]
27	Stigmast-5,24(28)-dien-3-ol	Antioxidant	[29]

		Antidiabetic Anticancer Cholesterol-lowering	
28	Stigmast-5-en-3-ol	Antihepatotoxic, Antiviral, Antioxidant, Cancer preventive, Hypocholesterolemic	[46]
29	Fucosterol	Antioxidant Antidiabetic Anticancer Cholesterol-lowering	[29]

Table 3: Identified Compound, Area and Retention Time of Peak of *Datura stramonium* (Chloroform Leaf Extract).

Peak	R.Time	Area	Area%	Name
1	21.693	542999	0.22	Cyclobutane, 2-hexyl-1,1,4-trimethyl-
2	21.811	24721247	9.90	2,6,10-Trimethyl,14-Ethylene-14-pentadecne
3	21.888	1111759	0.45	(2E)-3,7,11,15-tetramethyl-2-hexadecne#
4	22.168	4214830	1.69	2-Hexadecen-1-ol, 3,7,11,15-Tetramethyl-, [R-[R*,R*-(E)]]
5	22.442	7587553	3.04	3,7,11,15-Tetramethyl-,2-hexadecanoic-1-ol
6	22.738	545226	0.22	Nonadecane
7	23.094	2479970	0.99	2-(4,8-Dimethyl-3,7-Cyclodecadien-1-yo)-2 propanol
8	23.778	7045018	2.82	HexadecanoicAcid
9	24.157	938146	0.38	Nonadecne
10	25.511	1283786	0.51	Tricosane
11	25.669	11281471	4.52	2,6,10- Trimethyl, 14-ethylene 14pentadecne
12	26.168	1242792	0.50	2-Naphthelenol, decahydro-
13	26.810	736552	0.29	Heneicosane
14	26.872	1279205	0.51	Scopolamine
15	27.371	859269	0.34	Atropine
16	27.628	603669	0.24	2-Butenoic acid, 2-methyl-,8-methyl-6-(1-oxopropoxy)-8-azabicyclo[3.2.1] oct-3-yl ester, [1R-[1.alpha.. 3.beta.(E), 5.alpha., 6.alpha.]]
17	27.943	423392	0.17	Cyclohexane, 1,1'-[4-(2-cyclohexylethyl)-1,7-Heptanediyl]Bis
18	28.051	563876	0.23	Docosane
19	28.313	989991	0.40	1-(1-Heptadecynyl)Cyclopentanol
20	28.983	10071708	4.03	Scopolamine
21	29.270	988742	0.40	Eicosane
22	30.593	632428	0.25	Cyclopentane, 1,1'-[4-(3-cyclopentylpropyl)-1,7-heptanediyl
23	30.666	688853	0.28	2-methyloctacosane
24	31.151	2608928	1.04	1,2-BenzenedicarboxylicACID
25	31.993	1276891	0.51	Pentadecne,8-hexyl
26	33.024	2574817	1.03	Pentatriacotane
27	34.077	1546133	0.62	Celidoniol
28	34.215	1496167	0.60	Squalene
29	35.278	5252622	2.10	Tetratetracontane
30	36.702	2918270	1.17	Pentacosane
31	37.741	11577224	4.63	Celidoniol, deoxy-
32	38.303	1077549	0.43	Stigmast-5-en-3-ol, oleat
33	38.467	48628371	19.47	Hexatriacontane
34	39.030	9461457	3.79	Vitamin E
35	39.678	1540367	0.62	Nonacosane
36	39.923	2328220	0.93	Triacontane
37	40.516	7863895	3.15	Celidoniol
38	40.960	2921346	1.17	Stigmasta-5,2428)-dien-3-ol, (3.beta.)-
39	41.153	7361757	2.95	Ergost-5-en-3-ol, (3.beta.)-
40	41.758	4278194	1.71	Stigmasterol
41	42.077	8874675	3.55	Triacontane, 1-bromo-
42	42.447	8383302	3.36	Stigmasta-5,24(28)-dien-3-ol, (3.beta.,24E)-
43	43.102	12994607	5.20	Tetracontane
44	43.352	7582112	3.04	.gamma.-Sitosterol

45	43.796	10605912	4.25	Cholest-5-en-3-ol, 24-propylidene-, (3.beta.)-
46	46.263	1360888	0.54	Tetratriacontane
47	47.581	922036	0.37	.alpha.-Tocopheryl acetate
48	50.246	1310219	0.52	n-Hexatriacontane
49	52.461	2217483	0.89	Phytol

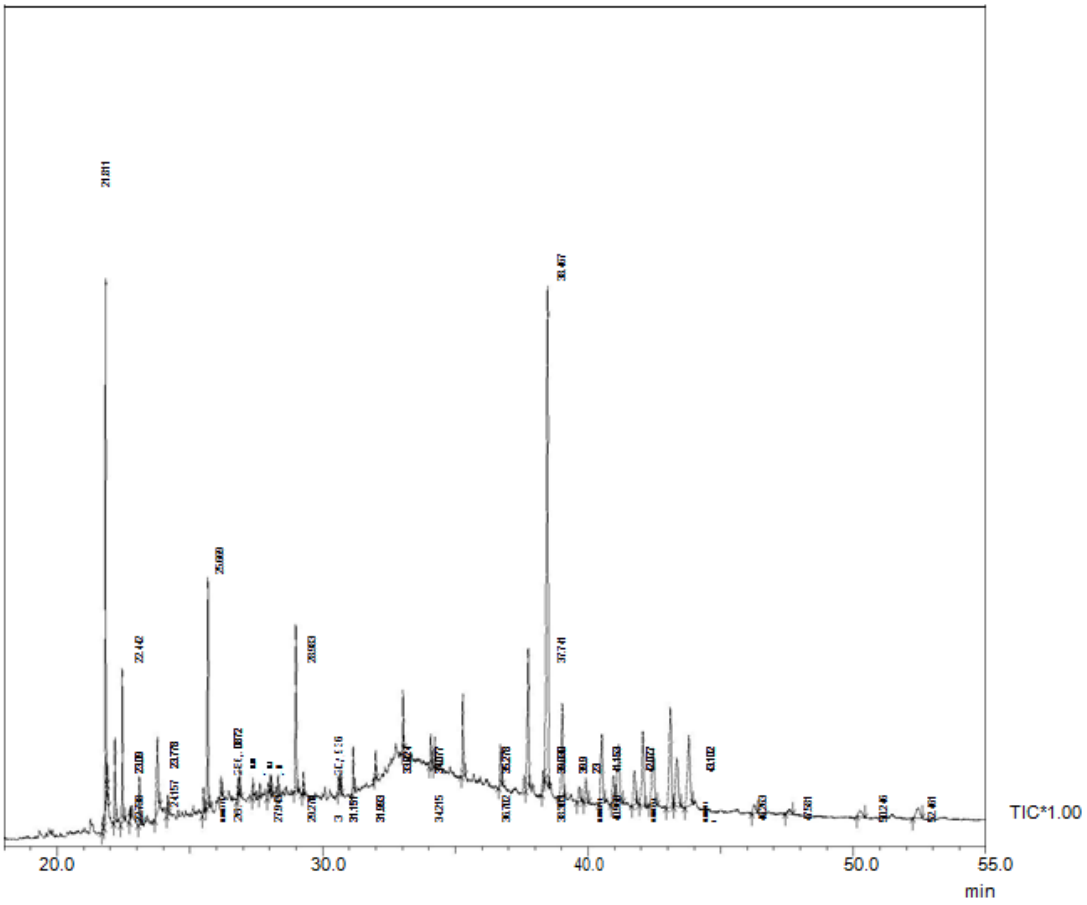

Figure 2: GC-MS Chromatogram of *Datura Stramonium*(Chloroform).

Table 4: Biological Activity of Identified Compound in *Datura stramonium* (Chloroform leaf Extract).

S.No.	Compound	Biological Activity	Reference
1	2,6,10-Trimethyl,14-Ethylene-14-Pentadecene	Anti-proliferative	[37]
2	(2E)-3,7,11,15-Tetramethyl-2-Hexadecene	Cancer-Preventive Antimicrobial anti-inflammatory anti-diuretic	[25]
3	2-Hexadecen-1-ol,	Anti-tuberculosis , Insecticidal, Anti-Inflammatory, Antioxidant, Antimicrobial	[28]
4	Nonadecane	Antioxidant	[30]
5	Hexadecanoic acid	Antioxidant; Hypocholesterolemic Nematicide; Pesticide, Lubricant; Antiandrogenic Flavor; Hemolytic	[27]
6	Tricosane	Antibacterial	[47]
7	2-Hexadecen-1-ol, 3,7,11,15-Tetramethyl-, [R-[R	Antituberculosis , Insecticidal, Anti-Inflammatory, Antioxidant, Antimicrobial	[28]
8	Heneicosane	Antibacterial	[48]
9	Docosane	No activity reported	[31]
10	Eicosane	Antibacterial, antitumor, antifungal, cytotoxic	[32]
11	1,2-BenzenedicarboxylicAcid	No activity reported	[31]

12	Pentatricontane	Antibacterial, Antiviral	[49]
13	Squalene	Antimicrobial, Antioxidant, Anticancer ,Neutralize different xenobiotics, Anti-Inflammatory, Anti-Atherosclerotic and Anti-Neoplastic, Role In Skin Aging And Pathology, and Adjuvant Activities	[28]
14	Tetratetracontane	Antioxidant	[50]
15	Stigmast-5-en-3-ol, oleat	Antimicrobial activity	[51]
16	Vitamin E	Antiageing, Analgesic, Antidiabatic, Antiinflammatory, Antioxidant, Antidermatitic, Antileukemic, Antitumor, Anticancer, Hepatoprotective, Hypocholesterolemic Antiulcerogenic, Vasodilator, Antispasmodic, Antibronchitic, Anticoronary	[27]
17	Nonacosane	Tetany, Anemia, Pulmonary edema.	[52]
18	Ergost-5-en-3-ol, (3.beta.)-	Antioxidant, hypocholesterolemic	[45]
19	Stigmasterol	Antioxidant, hypoglycemic and thyroid inhibiting properties, precursor of progesterone, antimicrobial, anticancer, antiarthritic, antiasthama, anti inflammatory, diuretic	[53]
20	Stigmasta-5,24(28)-dien-3-ol, (3.beta.,24E)-	Antioxidant Antidiabetic Anticancer Cholesterol-lowering	[29]
21	.gamma.-Sitosterol	No activity reported	[31]
22	Cholest-5-en-3-ol, 24-propylidene-, (3.beta.)-	Antibacterial, antioxidant	[54]
23	Phytol, acetate	Antimicrobial; Anti-inflammatory, Anticancer; diuretic	[27]

CONCLUSION

An insight into the active components of plants belonging to family solanaceae was obtained from the results generated. Also the several phytochemical compounds were being identified which were present in the methanolic and chloroformic plant leaf extract of *Datura stramonium* with several biological properties revealing immense medicinal potential of the plant.

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