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EI-GC-MS analysis and antidiabetic activity of *Pedalium murex* seed oil

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Abstract: The pulverized manifestation of *Pedalium murex* seeds, excerpted by Soxhlets apparatus after treating with n-hexane. Oil sample was well scrutinized by EI-GC-MS, utilizing the full scan technique within mass ranges lies from 40-700 m/z. 73compounds were recognized among them, 63 compounds were identified and 10 were marked as unidentified (8, 22, 27, 43, 47, 61, 62, 64, 68 and 69). The method was executed by the conventional system of Mass spectroscopy and the data interpreted by considerable match factor ≥95 inspected by NIST library. Antidiabetic activity was carried out by Accu-Chek glucometer. Healthy albino mice were selected to perform antidiabetic activity of seed oil at 100mg/Kg and 200mg/Kg with a standard drug glibenclamide at 5mg/Kg. Antidiabetic activity was observed on 1st, 7th,14th, 21th,27th and 30th days. Statistical calculations and significant outcomes were obtained by One-way and Two-way analysis of variance, followed by Tuckey's test. The phytochemical n-hexadecanoic acid (19.53%) might be responsible for antidiabetic activity of the seed oil.

Keywords: *Pedalium murex*, GCMS-EI, antidiabetic activity.

INTRODUCTION

Phytochemistry is a massive accumulation of various pharmacological and therapeutically active constituents that functions against significant diseases and disorders (Hasler and Blumberg 1999). *Pedalium murex* belongs to the Family *Pedaliaceae* and is found nearly every year along with the seashore near Ceylon, Srilanka, Africa, South India, and Mexico. During the seasonal rainfall of the summer, its production is more intense in some parts of Andhra Pradesh (Subramanian and Nair 1972). *Pedalium murex* contains a range of active constituents, such as soluble proteins, sapogenin, and flavonoids (Harborne 1998, Mukherjee 2002). The extract obtained with cold water from different parts like fruit, stem and leaves is more effective for certain UTIs, dysuria and gonorrhea and has also exhibited diuretic and demulcent characteristics (Chopra, Nayar *et al*. 1956, Sermakkani and Thangapandian 2010). *Pedalium murex* is well known for various substantial activities such as antioxidant, analgesic and antipyretic (Pietta 2000). The decoction mixture of the fruit constituted antispasmodic, diuretic, demulcent, and aphrodisiac properties. The decoction mixture of roots possesses anti-biliary properties (Murugesan, Vasuki *et al*. 2023). It has been reported so far that the plant itself is a vulnerable asset to several biologically active components, and further research would help explore new findings and therapeutic effects. The plant can be used as a prestigious fertility-enhancing medicine and a powerful biopesticidal agent (Prasad and Sastry 1989). Pharmacognosy indicates that the herb and spices of the medicinal plants render a significant consideration when determining these tissue cultures of plant materials. Histologically, the plant can recognize the infinitesimal presentation of cells and tissues (Dickison 2000).

For instance, EI-GC-MS is considered the most authoritative specification that provides significant productive outcomes. It is found in the manufacturing of pharmaceutical drugs and medicinal regions (Jousse and Pujos-Guillot 2013). The purpose of the study was to identify the phytochemicals of the seed oil and to evaluate which phytochemical(s) may be responsible for the antidiabetic activity of the oil.

MATERIALS AND METHODS

Accumulation of plant sample

The plant extract was significantly procured from the Hakim & Sons, Karachi. The sample was authenticated

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and substantiated by Dr. M. Mohtasheemul Hasan, Department of Pharmacognosy, Faculty of Pharmacy and Pharmaceutical Sciences, University of Karachi, Karachi, Pakistan.

Oil extraction method

About 45gm of Pedalium murex seeds were crushed into a pulverized refined powder by grinding. The material was under-treated with n-hexane as a definite solvent and processed through the Soxhlets apparatus. At 70°C, the system rotated multiple times and there was noticeable oil extraction. The oil (sample) is obtained after the solvent has been completely removed, ideally using a rotating evaporator (Balamurugan *et al*., 2010).

Chemicals

Specifically, n-hexane is preferable and directly obtained from Merck Pharmaceuticals for extraction. Alloxan monohydrate and glibenclamide (Sigma chemicals, USA), 5% dextrose and normal saline (0.9%) for antidiabetic activity.

Animals and housing

About 28 Male and female healthy albino mice weighing 20-24g were selected for this work. All animals were housed in separate cages under standard laboratory prescriptions (12 hours darkness and 12 hours light at temperature 21-23ºC). During the experimental period, a regular diet and a welcoming environment were provided (Kaleeswaran *et al*., 2019) This study was conducted, on the premises of the Department of Pharmacology, Faculty of Pharmacy and Pharmaceutical Sciences, University of Karachi, Karachi, Pakistan, under the inspection of a legally authoritative ethical committee.

Induction of diabetes

Experimental diabetes was induced in the animals by injecting a single dose (120mg/KgBW) of Alloxan monohydrate with the intraperitoneal route and diluted with normal saline according to the BW of each animal, the glucose level of 150mg/Kg was assured. Blood glucose level was detected after 72 hours of intake of Alloxan monohydrate. The diabetic animals were selected with a blood glucose level of 250mg/dl (Luka *et al*., 2013).

Grouping of animals and blood glucose level determination

The 28 animals were randomized into 4 groups (A, B, C, and D) with 7 animals in each group. Normal control (Group A) and diabetic control groups (Group B, C, and D) received normal saline daily. Two diabetic groups (Group C and D) received oil samples of 100mg/kg and 200mg/kg respectively and one diabetic group (Group B) received glibenclamide 5mg/Kg. The treatment products were administered orally once per day for 30 days. Glucometer was significantly used to estimate the appropriate blood glucose level of each animal at regular intervals of the 1st, 7th, 14th, 21st, 27th and 30th days (Kujur *et al*. 2010).

Electron ionization gas chromatography-mass spectrometry (EI-GC-MS)

The sample was run into Triple Quadrupole aligned with a specific detector Agilent-HP-5MS (30m, 250um, .25um phase thickness). The oven temperature was set at 50˚C for 2 min, then 7˚C/min to 200˚C for 20 min, and further 10˚C/min to 300˚C for 25 min. Injector temperature was mentioned at 260˚C selectively normal injector mode. MSD worked collectively with EI mode at 70ev and analyzed full scan data (m/z 40-700) (Schlag *et al*., 2022). The flow rate of carrier gas He was 15.419 mL/min. This process is well-equipped and performed at HEJ Research Institute of Chemistry, University of Karachi, Karachi, Pakistan (Mujtaba *et al*., 2020).

Ethical approval

The study was carried out with the ethical approval No. ASRB/No./04289/Pharm dated February 19, 2019.

STATISTICAL ANALYSIS

The mean result and standard error of mean were determined with the help of SPPS software (version 22), and the post hoc Tuckey's t-test. P <0.05 gives better output for each dose administration.

RESULTS

The chromatogram and detail of analysis obtained by EI-GC-MS of the sample are shown in fig.1 and table 1.

Table 1: Detail of analysis obtained by EI-GC-MS of the sample

Peak No.	Retention Time (RT)	Area	Area %	Area Sum%
1	4.005	806403	2.95	0.55945083
2	4.585	4818866	17.65	3.343140568
3	4.625	795718	2.91	0.552037995
4	5.084	308417	1.13	0.21396764
5	5.605	98611	0.36	0.068412451
6	6.417	587813	2.15	0.407801646
7	6.663	647022	2.37	0.448878532
8	6.805	619436	2.27	0.429740445
9	7.917	833209	3.05	0.578047783
10	8.295	372226	1.36	0.258235826
11	8.502	163511	0.6	0.11343753
12	8.794	823735	3.02	0.572038194
13	9.011	2675230	9.8	1.857798611
14	9.154	325376	1.19	0.225955556
15	9.82	448064	1.64	0.311155556
16	10.259	723474	2.65	0.5024125
17	10.323	555439	2.03	0.385721528
18	10.622	380847	1.39	0.264477083
19	11.06	1446363	5.3	1.00441875

Peak No.	Retention Time (RT)	Area	Area %	Area Sum%
20	11.135	414607	1.52	0.287921528
21	11.342	5014560	18.36	3.482333333
22	11.837	263199	0.96	0.182777083
23	13.405	288085	1.05	0.200059028
24	13.491	2017564	7.39	1.401086111
25	14.26	1071962	3.93	0.744418056
26	14.367	340562	1.25	0.236501389
27	14.449	309991	1.14	0.215271528
28	14.681	3800522	13.92	2.639251389
29	14.738	346801	1.27	0.240834028
30	15.358	2207966	8.09	1.533309722
31	15.436	1141982	4.18	0.793043056
32	15.75	242062	0.89	0.168098611
33	15.793	187533	0.69	0.13023125
34	16.288	2589444	9.48	1.798225
35	16.474	1947447	7.13	1.35239375
36	16.691	4982662	18.25	3.460181944
37	16.915	470704	1.72	0.326877778
38	17.343	972367	3.56	0.675254861
39	17.61	915557	3.35	0.635803472
40	17.927	295630	1.08	0.205298611
41	18.024	276785	1.01	0.192211806
42	19.136	1343966	4.92	0.933309722
43	20.689	312488	1.14	0.217005556
44	20.825	515335	1.89	0.357871528
45	22.432	435797	1.6	0.302636806
46	22.432	435797	1.6	0.302636806
47	22.696	1041641	3.81	0.723361806
48	24.756	391249	1.43	0.271700694
49	25.116	324821	1.19	0.225570139
50	26.36	3463575	12.68	2.405260417
51	27.931	27309337	100	18.96481736
52	28.049	2132148	7.81	1.480658333
53	31.513	5153575	18.87	3.578871528
54	32.5	1753803	6.42	1.21791875
55	34.368	3334477	12.21	2.315609028
56	35.48	7360034	26.95	5.111134722
57	35.69	1374307	5.03	0.954379861
58	48.302	746019	2.73	0.51806875
59	49.853	1922590	7.04	1.335131944
60	51.827	790872	2.9	0.549216667
61	53.709	2184384	8	1.516933333
62	54.265	370877	1.36	0.257553472
63	55.096	380344	1.39	0.264127778
64	55.638	3901478	14.29	2.709359722
65	55.638	3901478	14.29	2.709359722
66	55.741	803584	2.94	0.558044444
67	56.76	1580827	5.79	1.097796528
68	58.197	10758785	39.4	7.471378472
69	59.07	1741622	6.38	1.209459722
70	59.662	2417004	8.85	1.678475
71	60.082	1286069	4.71	0.893103472
72	60.681	815691	2.99	0.566452083
73	61.633	6330164	23.18	4.395947222

DISCUSSION

Table 1 represents the retention time (RT), Area%, and Area sum % of the peaks obtained in the chromatogram of EI-GC-MS (fig. 1). This information helps us to know the % composition of the phytochemicals present in the given sample. The greater the composition of the phytochemicals in the sample more is the contribution to its biological activity. Table 2 denotes ion fragments in m/z and the % intensity of each peak/compound in order to identify the compound.

The resulting outcome of EI-GC-MS comprises 73 total peaks or 73 compounds (tables 1 & 2). Out of 73 compounds, 63 were identified, and 10 (8, 22, 27, 43, 48, 62, 63, 66, 70, and 71) were not identified.

The identified compounds listed in table 4 with the classical interpretation of the ions fragments and the spectral interpretation and analyses of different compounds are well scrutinized and verified by the NIST 14 library.

On the basis of chemical structures the identified compounds are classified into following groups:

Group-A (Open chain, branched or linear, saturated and unsaturated hydrocarbons):
Compound No. 3, 23, 31, 33, 38, 42, 44, 45, 46, 60, 61, 64, 65, 67, 68 and 73 (table 4).

Group-B (Cyclic, non-cyclic, saturated and unsaturated alcohols):
Compound No.1, 5, 11, 18, 19, 20, 29, 30, 34 and 39 (table 4).

Group-C (Saturated and unsaturated aldehydes):
Compound No. 2, 7, 9, 13, 16, 21, 24, 26, 28, 32 and 36 (table 4).

Group-D (Cyclic and non-cyclic ketones):
Compound No. 6, 25, 35 and 47 (table 4).

Group-E (Saturated and unsaturated carboxylic acids):
Compound No. 14, 15, 37, 41, 49, 51 and 56 (table 4).

Group-F (Cyclic, non-cyclic, saturated and unsaturated esters):
Compound No. 4, 10, 50, 52, 53, 54, 55, 57, 58 and 59 (table 4).

Group-G (Steroidal Constituents):
Compound No. 69 and 72 (table 4).

Group-H (Miscellaneous):
Compound No. 12, 17 and 40 (table 4).

Presence of steroidal constituents and low composition of unsaturated fatty acids in seed oil of the plant have been reported (Patel *et al*., 2011), but EI-GC-MS of the seed oil of the plant was not carried out previously to identify the phytochemicals of the seed oils. In our study most of the phytochemicals such as, fatty acids and fatty acid esters were found common, but compound No.12, 20, 33 and 39 were found uncommon.

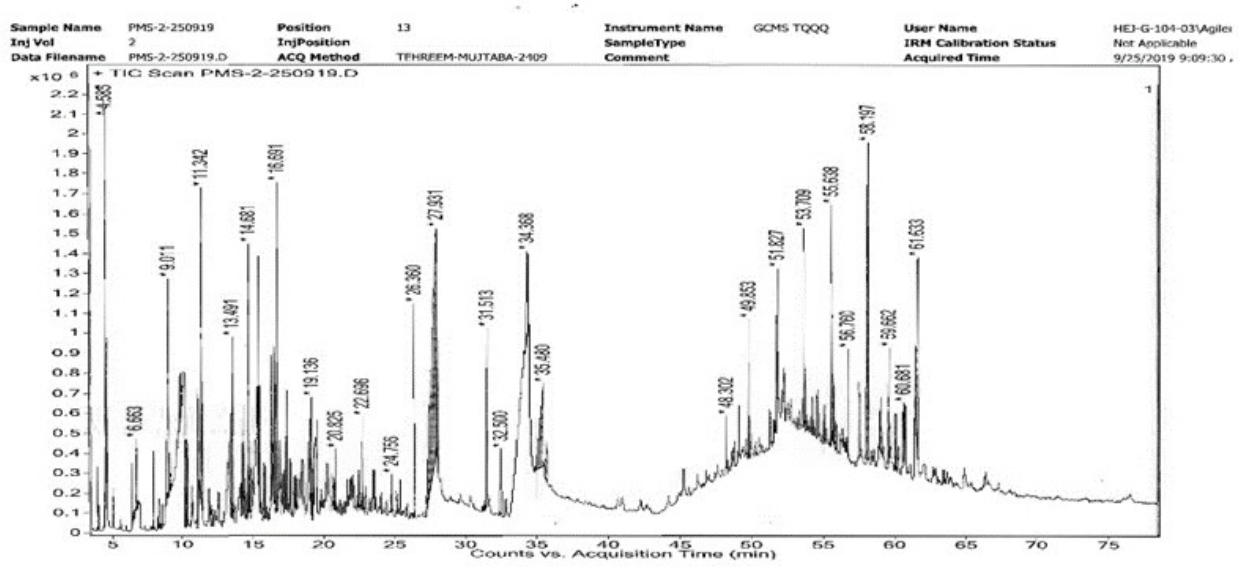


Fig. 1: EI-GC-MS Chromatogram of the sample

Table 2: Fragmentation of ions m/z (% intensity) of the Phytochemicals obtained by EI-GC-MS analysis of the sample

Peak	
1	95 (1), 91 (1), 87 (2), 83 (1), 79 (1), 73 (1), 70 (75), 67 (2), 60 (4), 57 (26), 53 (5), 45 (6), 42 (48).
2	100 (2), 85 (1), 82 (28), 72 (32), 69 (4), 67 (20), 56 (100), 53 (9), 44 (63), 41 (47).
3	114 (20), 98 (1), 85 (100), 82 (11), 77 (1), 71 (53), 67 (10), 65 (1), 57 (75), 53 (10), 43 (72), 41 (40).
4	110 (2), 101 (1), 87 (15), 82 (3), 73 (8), 70 (100), 63 (1), 59 (5), 57 (16), 55 (98), 53 (6), 42 (43).
5	110 (3), 98 (18), 83 (30), 72 (67), 69 (28), 57 (46), 43 (100).
6	124 (1), 114 (15), 109 (1), 99 (9), 96 (2), 91 (1), 85 (8), 81 (3), 71 (35), 69 (2), 58 (100), 55 (10), 43 (79), 41 (9).
7	126 (2), 114 (3), 99 (4), 96 (17), 86 (22), 81 (32), 70 (100), 60 (32), 55 (67), 44 (45).
8	114 (1), 104 (1), 99 (1), 91 (1), 87 (6), 81 (1), 73 (18), 71 (58), 69 (42), 67 (3), 60 (32), 57 (15), 55 (32), 43 (100), 41 (31).
9	112 (7), 97 (15), 94 (10), 83 (100), 79 (11), 69 (55), 65 (5), 55 (80), 51 (8), 41 (34).
10	128 (1), 117 (4), 105 (1), 98 (6), 89 (2), 83 (12), 70 (100), 56 (76), 43(27).
11	133 (1), 117 (2), 110 (1), 103 (1), 99 (10), 89 (1), 85 (14), 81 (8), 72 (19),57 (100), 43 (15).
12	138 (22), 123 (2), 109 (4), 95 (8), 87 (3), 81 (100), 73 (7), 67 (5), 60 (11), 53 (14), 41 (6).
13	138 (3), 128 (2), 117 (1), 110 (17), 100 (25), 84 (98), 81 (58), 69 (64), 60 (22), 57 (100), 43 (60).
14	138 (3), 110 (1), 101 (27), 87 (17), 83 (75), 73 (50), 69 (8), 60 (88), 55 (100), 41 (20).
15	138 (1), 126 (8), 111 (33), 97 (14), 93 (2), 87 (20), 83 (10), 73 (62), 69 (13), 60 (100), 55 (68), 43 (24).
16	133 (1), 125 (2), 114 (2), 108 (10), 97 (23), 95 (11), 93 (16), 91 (4), 83 (77), 79 (14), 73 (10), 70 (100), 67 (30), 65 (5), 60 (4), 57 (54), 55 (98), 41 (38).
17	130 (4), 114 (1), 107 (1), 99 (100), 81 (3), 71 (62), 60 (2), 55 (17), 43 (52).
18	112 (3), 97 (8), 84 (60), 70 (75), 60 (6),56 (100), 43 (40).
19	141 (1), 127 (1), 113 (1), 95 (5), 83 (3), 71 (100), 60 (6), 55 (18), 41 (12).
20	140 (1), 127 (1), 111 (1), 101 (27), 96 (6), 87 (12), 83 (73), 69 (21), 60 (28), 55 (100), 43 (26).
21	142 (1), 124 (7), 114 (13), 109 (6), 98 (48), 95 (30), 82 (42), 70 (48), 57 (100), 41 (42),
22	142 (2), 128 (2), 119 (1), 112 (10), 99 (17), 87 (11), 84 (68), 73 (30), 70 (90), 60 (8), 56 (100), 43 (40).
23	170 (10), 154 (1), 141 (4), 127 (7), 113 (9), 98 (10), 85 (90), 71 (65), 60 (13), 57 (100), 43 (45).
24	168 (1), 156 (1), 138 (6), 128 (10), 123 (2), 112 (38), 95 (34), 82 (61), 71 (60), 57 (100), 43 (47).
25	168(1), 154 (2), 139 (4), 125 (96), 121 (2), 110 (8), 98 (84), 83 (76), 70 (52), 55 (100), 43 (37).
26	154 (3), 133 (2), 121 (5), 110 (25), 97 (13), 83 (100), 70 (89), 55 (54), 43 (19).
27	180 (1), 154 (5), 125 (6), 111 (10), 97 (100), 85 (22), 71 (20), 57 (45), 43 (16).
28	162 (1), 153 (1), 136 (6), 125 (5), 121 (12), 110 (21), 98 (32), 83 (74), 70 (100), 55 (90), 41 (40).
29	177 (1), 165 (1), 154 (24), 141 (2), 127 (66), 111 (76), 98 (100), 83 (30), 70 (46), 55 (80), 43 (30).
30	182 (1), 158 (2), 150 (30), 141 (1), 135 (100), 129 (13), 121 (5), 115 (28), 107 (11), 98 (10), 91 (20), 83 (9), 77 (11), 73 (31), 69 (12), 60 (30), 55 (20), 41 (10).
31	184 (12), 174 (1), 155 (3), 141 (22), 127 (8), 112 (10), 99 (14), 91 (2), 85 (50), 71 (74), 60 (10), 57 (100), 43 (38).
32	196 (1), 176 (1), 152 (15), 137 (1), 123 (7), 109 (8), 95 (16), 81 (100), 67 (18), 55 (20), 41 (12).
33	192 (1), 180 (1), 163 (1), 152 (3), 142 (100), 125 (6), 115 (40), 109 (10), 97 (12), 83 (15), 69 (24), 55 (26), 43 (15).
34	176 (1), 154 (1), 136 (3), 125 (55), 111 (6), 99 (21), 84 (100), 71 (13), 55 (64), 43 (30).
35	168 (1), 149 (1), 140 (2), 127 (16), 109 (31), 99 (31), 95 (9), 86 (40), 81 (18), 71 (33), 67 (19), 57 (100), 43 (34).
36	193 (1), 179 (2), 167 (1), 150 (5), 139 (14), 121 (26), 111(16), 97 (30), 83 (82), 70 (100), 55 (81), 41 (45).
37	212 (1), 197 (1), 183 (5), 172 (8), 155 (3), 143 (13), 129 (61), 115 (18), 97 (17), 85 (30), 73 (100), 57 (94), 43 (50).

Continue.…

38	207 (1), 198 (11), 169 (2), 155 (3), 141 (6), 127 (7), 113 (10), 99 (15), 85 (55), 71 (75), 57 (100), 43 (35).
39	204 (40), 189 (29), 175 (10), 156 (39), 141 (31), 129 (25), 119 (18), 110 (29), 101 (50), 83 (40), 73 (100), 69 (53), 55 (83), 43 (52).
40	220 (1), 207 (1), 191 (1), 174 (5), 156 (90), 141 (70), 128 (15), 116 (58), 98 (100), 83 (16), 71 (70), 55 (57), 43 (50).
41	208 (12), 193 (32), 173 (3), 167 (17), 151 (44), 137 (13), 131 (8), 123 (18), 109 (22), 99 (100), 91 (15), 83 (45), 69 (41), 55 (72), 43 (33).
42	212 (9), 193 (1), 183 (2), 168 (4), 155 (7), 141 (7), 127 (8), 113 (10), 99 (17), 85 (60), 71 (80), 57 (100), 43 (40).
43	220 (1), 210 (2), 184 (5), 171 (25), 166 (5), 152 (75), 143 (14), 124 (28), 111 (39), 97 (40), 83 (71), 74 (80), 69 (50), 55 (100), 43 (32).
44	226 (8), 197 (1), 183 (3), 169 (6), 155 (9), 141 (7), 127 (8), 113 (12), 99 (18), 85 (58), 71 (82), 57 (100), 43 (39).
45	240 (10), 211 (2), 196 (3), 183 (4), 169 (7), 155 (5), 141 (9), 127 (11), 113 (13), 99 (25), 85 (60), 71 (84), 57 (100), 43 (42).
46	240 (12), 221 (2), 211 (2), 196 (6), 183 (6), 169 (8), 152 (7), 141 (9), 127 (13), 113 (15), 99 (25), 85 (57), 71 (78), 57 (100), 43 (40).
47	239 (1), 218 (100), 210 (2), 203 (15), 195 (5), 189 (13), 175 (40), 161 (30), 147 (41), 133 (35), 119 (30), 105 (31), 91 (36), 77 (18), 69 (14), 55 (20), 41 (10).
48	268 (3), 250 (15), 225 (5), 210 (7), 191 (5), 179 (10), 165 (12), 151 (8), 137(12), 124 (25), 109 (45), 95 (45), 85 (48), 71 (76), 58 (100), 43 (83).
49	281 (2), 254 (3), 242 (26), 225 (2), 213 (8), 199 (25), 183 (17), 171 (14), 157 (15), 141 (60), 129 (45), 113 (25), 99 (72), 83 (47), 73 (92), 55 (100), 43 (72).
50	270 (16), 239 (11), 227 (18), 213 (5), 199 (10), 185 (10), 171 (10), 157 (5), 143 (23), 129 (12), 115 (6), 97 (11), 87 (85), 83 (12), 74 (100), 55 (25), 43 (18).
51	281 (1), 256 (54), 239 (1), 227 (13), 213 (40), 199 (12), 185 (24), 171 (25), 157 (5), 143 (14), 129 (62), 115 (22), 97 (31), 83 (36), 73 (100), 60 (71), 55 (62), 43 (40).
52	284 (16), 267 (1), 256 (8), 241 (15), 227 (5), 213 (12), 199 (7), 185 (8), 171 (6), 157 (20), 143 (10), 129 (14), 115 (12), 101 (62), 88 (100), 73 (32), 69 (20), 55 (30), 43 (18).
53	296 (10), 278 (1), 264 (39), 235 (7), 222 (25), 194 (5), 180 (16), 166 (10), 152 (11), 137 (14), 123 (21), 111 (30), 97 (58), 83 (65), 74 (60), 69 (75), 55 (100), 43 (34).
54	298 (20), 280 (1), 267 (7), 255 (17), 241 (5), 227 (3), 213 (6), 199 (13), 185 (8), 171 (4), 157 (6), 143 (27), 129 (14), 111 (8), 97 (13), 87 (76), 74 (100), 55 (30), 43 (20).
55	310 (5), 282 (4), 264 (34), 235 (5), 222 (16), 193 (5), 180 (12), 166 (9), 151 (11), 137 (15), 123 (20), 111 (35), 97 (70), 83 (78), 69 (85), 55 (100), 41 (28).
56	284 (65), 255 (10), 241 (40), 227 (14), 213 (10), 199 (15), 185 (37), 171 (16), 157 (8), 143 (13), 129 (65), 111 (20), 97 (45), 83 (52), 73 (100), 55 (85), 43 (48).
57	312 (20), 284 (15), 269 (16), 241 (13), 227 (10), 213 (15), 199 (10), 185 (11), 171 (10), 157 (25), 143 (12), 129 (19), 111 (17), 101 (65), 88 (100), 83 (37), 73 (44), 55 (56), 43 (30).
58	401 (1), 352 (6), 312 (5), 284 (10), 264 (35), 241 (5), 222 (14), 180 (13), 125 (22), 111 (38), 97 (65), 83 (72), 69 (78), 55 (100), 43 (50).
59	355 (1), 327 (1), 312 (1), 279 (14), 256 (1), 239 (1), 213 (1), 185 (1) 167 (38), 149 (100), 129 (3), 113 (11), 83 (12), 71 (18), 57 (22), 43 (10).
60	489 (1), 461 (1), 412 (1), 380 (4), 355 (1), 337 (2), 309 (2), 281 (3), 264 (14), 239 (5), 221 (4), 197 (6), 169 (7), 141 (10), 113 (18), 97 (30), 85 (68), 71 (84), 57 (100), 43 (39).
61	504 (1), 463 (1), 429 (1), 408 (6), 365 (2), 337 (3), 309 (3), 281 (5), 253 (5), 225 (5), 197 (7), 169 (10), 141 (14), 113 (22), 99 (35), 85 (76), 71 (91), 57 (100), 43 (38).
62	535 (1), 503 (1), 461 (1), 429 (2), 394 (25), 376 (12), 355 (7), 327 (4), 281 (15), 264 (10), 241 (10), 207 (28), 171 (10), 147 (14) , 129 (28), 117 (38), 83 (65), 69 (78), 55 (*100), 43 (40).
63	535 (1), 503 (2), 461 (1), 429 (5), 392 (42), 369 (26), 355 (23), 341 (12), 295 (35), 281 (40), 253 (13), 221 (73), 207 (62), 147 (55), 129 (42), 117 (56), 97 (53), 83 (84), 55 (100), 43 (40).
64	503 (1), 475 (1), 436 (6), 407 (1), 397 (2), 351 (3), 309 (3), 281 (7), 239 (6), 197 (7), 169 (10), 141 (14), 113 (21), 99 (30), 85 (76), 71 (87), 57 (100), 43 (35).
65	503 (1), 475 (1), 436 (6), 407 (2), 379 (3), 351 (3), 309 (4), 281 (8), 239 (7), 198 (9), 169 (10), 141 (15), 113 (22), 99 (30), 85 (75), 71 (87), 57 (100), 43 (35).
66	503(1), 474 (1), 429 (2), 394 (100), 379 (6), 355 (8), 275 (20), 264 (5), 253 (12), 221 (8), 177 (11), 135 (72), 117 (53), 95 (46), 69 (55), 55 (64), 43 (42).
67	503 (1), 475 (1), 450 (3), 429 (2), 407 (1), 379 (2), 351 (2), 309 (2), 281 (9), 239 (4), 207 (12), 169 (10), 141 (12), 113 (20), 99 (30), 85 (70), 71 (87), 57 (100), 43 (30).
68	464 (3), 421 (1), 393 (2), 351 (2), 309 (2), 281 (4), 253 (4), 225 (6), 197 (7), 169 (10), 141 (12), 113 (20), 99 (26), 85 (70), 71 (90), 57 (100), 43 (35).
69	503 (1), 464 (2), 429 (9), 414 (38), 396 (67), 381 (22), 355 (18), 341 (12), 329 (20), 303 (17), 281 (21), 269 (14), 255 (21), 207 (58), 187 (32), 174 (72), 147 (47), 107 (48), 95 (62), 81 (80), 69 (73), 55 (100), 43 (54).
70	503 (1), 478 (3), 435 (), 408 (10), 365 (5), 323 (3), 295 (2), 69 (11), 225 (5), 207 (12), 169 (10), 141 (13), 113 (20), 99 (32), 85 (70), 71 (90), 57 (100),.
71	503 (1), 475 (1), 454 (1), 424 (5), 396 (100), 381 (25), 355 (10), 313 (8), 281 (18), 255 (16), 239 (8), 207 (22), 161 (18), 147 (41), 95 (40), 81 (44), 69 (35), 55 (45), 43 (30).
72	504 (1), 477 (1), 449 (1), 429 (1), 410 (70), 395 (12), 368 (6), 297 (1), 281 (10), 269 (20), 253 (6), 227 (8), 207 (21), 187 (30), 174 (100), 161 (32), 147 (12), 119 (14), 81 (21), 55 (30), 43 (20).
73	492 (3), 463 (1), 435 (2), 407 (2), 379 (2), 337 (2), 309 (2), 281 (5), 253 (4), 211 (5), 183 (8), 155 (10), 127 (16), 113 (21), 99 (34), 85 (75), 71 (92), 57 (100), 43 (32).

Table 3: Comparison of antidiabetic activity of seed oil of *Pedalium murex* (100mg/kg and 200mg/kg) with standard Glibenclamide (5mg/kg).

Group	Blood glucose level (mg/dl)					
Control	Day1	Day7	Day14	Day21	Day27	Day30
	89±4.76	83±3.11	75.2±2.85	76.4±2.08	80±2.88	79±3.2
Glibenclamide (5mg/kg)	198±2.7	172±2.62	116.2±2.54	105.6±2.36	100±1.42	98.6±1.09
Sample (100mg/kg)	507.42±32.6	463.28±34.9	411.28±37.15	356.57±36.7	305.71±37.16	245.42±37.8
Sample (200mg/kg)	526±22.03	460.14±62.6	405.71±61	354.28±61.62	302.14±64.8	285.71±44.45

Data obtained are expressed as mean±SEM, significant at $P<0.05$ when compare to control.

Table 4: Identified and unidentified compounds of the sample by EI-GC-MS

Compound No. or Peak No.	RT	Molecular Formula	Molecular Weight	Fragmentation interpretation	Identified/ Unidentified compound
1	4.005	$C_5H_{12}O$	88	87[M-H]+,70[M-H2O]+	1-Pentanol
2	4.585	$C_6H_{12}O$	100	100[M]+,85[M-CH3]+, 56[M-CH2-CHO]+	Hexanal
3	4.625	C_8H_{18}	114	114[M]+,89[M-CH3]+, 85[M-CH2-CH3]+	Octane
4	5.084	$C_6H_{12}O_2$	116	116[M not found], 70[M-COOH]	Formic acid, pentyl ester
5	5.605	$C_6H_{12}O_2$	116	116 [M not found],110[M-CH3]+, 98[M-H2O]+,	1,2-cyclopentanediol,3-methyl
6	6.417	$C_7H_{14}O$	114	114[M]+, 71[M-COCH3]+	2-Heptanone
7	6.663	$C_7H_{14}O$	114	114[M]+, 85[M-CHO]+	Heptanal
8	6.805	$C_6H_{14}O$	102	unidentified	unidentified
9	7.917	$C_7H_{12}O$	112	112[M]+, 83[M-CHO]+	2-Heptenal
10	8.295	$C_8H_{16}O_2$	144	144[M not found], 98[M-COOH}+	Formic acid, heptyl ester
11	8.502	$C_8H_{16}O$	128	128 [M not found],110[M-H2O]+	1-Octen-3-ol
12	8.794	$C_9H_{14}O$	138	138[M]+, 67[M-C5H11]+	Furan,2-pentyl
13	9.011	$C_8H_{16}O$	128	128[M]+, 110[M-H2O]+	Octanal
14	9.154	$C_9H_{18}O_2$	158	158[M not found],	4-Methyloctanoic acid
15	9.820	$C_7H_{14}O_2$	130	130[M not found], 87[M-COOH]+	Heptanoic acid
16	10.259	$C_8H_{14}O$	126	126[M]+, 97[M-CHO]+	2-Octenal
17	10.323	$C_{12}H_{22}O_3$	214	214[M not found], 99 [M-O-CO-CH(CH3)-CH2-CH2-CH3]+, 71[CH3-CH2-CH2-CH(CH3)-]+ 43[CH3-CH2-CH2-]+	Pentanoic acid,2-methyl,anhydride
18	10.622	$C_8H_{18}O$	130	130[M not found].112 [M-H2O]+	1-Octanol
19	11.060	$C_7H_{14}O$	114	113[M-H]+, 95[(M-H)-H2O]+	3-Methyl-1-hexen-3-ol
20	11.135	$C_8H_{16}O_2$	144	144[M not found], 127[M-H2O]+, 101[M-C3H6]+	1-Propanol,2-methyl-1-[1-(hydroxymethyl) cyclopropyl)]
21	11.342	$C_9H_{18}O$	142	142[M]+, 114[M-CHO]+	Nonanal
22	11.837	$C_{11}H_{20}O_2$	184	unidentified	unidentified
23	13.405	$C_{12}H_{26}$	170	170[M]+, 154[M-CH3]+,141[M-CH2-CH3]+	Dodecane
24	13.491	$C_{10}H_{20}O$	156	156[M]+, 127[M-CHO]+	Decanal
25	14.260	$C_{10}H_{18}O$	154	154[M]+, 98[M-C(CH3)3]+	2-Sec-Butylcyclohexanone
26	14.367	$C_{10}H_{18}O$	154	154[M]+, 83[M-(CH2)3-CHO]+	2-Decenal
27	14.449	$C_{17}H_{31}C_{l3}O_2$	372	unidentified	unidentified
28	14.681	$C_{10}H_{18}O$	154	154[M]+, 83[M-(CH2)3-CHO]+	2-Decenal
29	14.738	$C_{10}H_{18}O$	154	154[M]+111[M-CH2-CH2-CH3]+,98[M-(CH2)3-CH3]+	(2H)-Napthalenol, octahydro, trsns

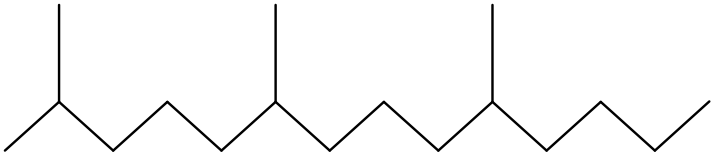
Continue……

30	15.358	$C_{10}H_{14}O$	150	150[M]+,135[M-CH3]+, 107[M-C(CH3)2]+	Thymol
31	15.436	$C_{13}H_{28}$	184	185[M+H]+, 155[M-CH2-CH3]+	Tridecane
32	15.750	$C_{10}H_{16}O$	152	152[M]+, 123[M-CHO]+	2,4-Decadienal
33	15.793	$C_{11}H_{10}$	142	142[M]+, 115[M-CH2=CH2]+	Bicyclo [4,4,1] undeca-1,3,5,7,9-pentaene
34	16.288	$C_9H_{16}O$	140	140[M not found], 125[M-CH3]+, 84[M-CH2=CH(CH3)-CH2-]+	4,4,6-Trimethyl-cyclohex-2-en-1-ol
35	16.474	$C_{11}H_{22}O$	170	168[M-2H]+, 140[M-C2H5]+,127[M-CH2-CH2-CH3]+, 109[M-CO-CH2CH2CH2]+	4-Nonanone,7-ethyl
36	16.691	$C_{11}H_{20}O$	168	167[M-H]+, 150[M-H2O]+, 139[M-CHO]+	2-Undecenal
37	16.915	$C_{10}H_{20}O_2$	172	172[M]+, 155[M-OH]+,85[M-(CH2)3-COOH]+	n-Decanoic acid
38	17.343	$C_{14}H_{30}$	198	198[M]+, 169[M-CH2-CH3]+	Tetradecane
39	17.610	$C_{15}H_{26}O$	222	222[M not found], 204[M-H2O]+,189[204-CH3]+, 174[204-2CH3]+,	1,4-Methanoazulen-3-ol
40	17.927	$C_{12}H_{12}$	156	156[M]+, 141[M-CH3]+	Napthalene, 1,3-Dimethyl
41	18.024	$C_{13}H_{24}O_2$	212	208[M-4H]+,193[208-CH3]+167[M-COOH]+	Tridecanoic acid-2-ene
42	19.136	$C_{15}H_{32}$	212	212[M]+, 183[M-CH2-CH3]+	Pentadecane
43	20.689	$C_{10}H_{18}O_4$	202	unidentified	unidentified
44	20.825	$C_{16}H_{34}$	226	226[M]+ 197[M-CH2-CH3]+, 183[M-CH2-CH2-CH3]+	Hexadecane
45	22.432	$C_{17}H_{36}$	240	240[M]+, 211[M-C2H5]+, 155[M-CH(CH3)-C4H9]+	Tetradecane ,2,6,10-trimethyl
46	22.432	$C_{17}H_{36}$	240	240[M]+, 211[M-C2H5]+, 155[M-CH(CH3)-C4H9]+	Tetradecane ,2,6,10-trimethyl
47	22.696	$C_{15}H_{22}O$	218	218[M]+, 161[M-CH2-CO-CH3]+	2(1H)Napthalenone
48	24.756	$C_{18}H_{36}O$	268	unidentified	unidentified
49	25.116	$C_{15}H_{30}O_2$	242	242[M]+,225[M-OH]+, 183[M-CH2-COOH]+	Pentadecanoic acid
50	26.360	$C_{17}H_{34}O_2$	270	270[M]+, 239[M-OCH3]+	Hexadecanoic acid, methyl ester
51	27.931	$C_{16}H_{32}O_2$	256	256[M]+, 255[M-OH]+	n-Hexadecanoic acid
52	28.049	$C_{18}H_{36}O_2$	284	284[M]+, 227[M-C2H5]+	Hexadecanoic acid, ethyl ester
53	31.513	$C_{19}H_{36}O_2$	296	296[M]+, 264[M-OCH3]+	9-Octadecenoic acid, methyl ester
54	32.500	$C_{19}H_{38}O_2$	298	298[M]+, 267[M-OCH3]+	Octadecanoic acid, methyl ester
55	34.368	$C_{20}H_{38}O_2$	310	310[M]+, 264[M-O-C2H5]+	Ethyl Oleate
56	35.480	$C_{18}H_{36}O_2$	284	284[M]+, 227[M-CH2-COOH]+	Octadecenoic acid
57	35.690	$C_{20}H_{40}O_2$	312	312[M]+, 267[M-O-C2H5]+	Octadecanoic acid, ethyl ester
58	48.302	$C_{22}H_{42}O_2$	338	338[M not found], 264[M-OC4H9]+	Butyl 9-Octadecenoate
59	49.853	$C_{24}H_{38}O_4$	390	390[M not found],279 [M-(CH2)5-CH(CH3)2]+,167[M-2(alkyl chain)]+,149[M-(alkyl chain)-(O-alkyl chain]+	1,2-Benzenedicarboxylic acid, disooctyl ester
60	51.827	$C_{27}H_{56}$	380	380[M]+337[M-CH2-CH2-CH3]+	Heptacosane
61	53.709	$C_{29}H_{60}$	408	408[M]+, 365[M-CH2-CH2-CH3}+	Nonacosane
62	54.265	$C_{24}H_{31}FO_6$	434	unidentified	unidentified
63	55.096	$C_{27}H_{52}O_4Si_2$	496	unidentified	unidentified
64	55.638	$C_{36}H_{74}$	506	503[M-3H]+, 475 [M-C2H5]+	Hexatriacontane
65	55.638	$C_{36}H_{74}$	506	503[M-3H]+, 475 [M-C2H5]+	Hexatriacontane
66	55.741	$C_{31}H_{52}O_3$	472	unidentified	unidentified
67	56.760	$C_{36}H_{74}$	506	503[M-3H]+, 475 [M-C2H5]+	Hexatriacontane
68	58.197	$C_{33}H_{68}$	464	464[M]+, 421[M-C3H7]+, 397[M-C5H11]+	Tritriacontane
69	59.070	$C_{29}H_{50}O$	414	414[M]+, 396[M-H2O}+, 381[M- alkyl chain]+,m/z 273 due to C-12-C20 cleavage and m/z 255[273-H2O]+	β-sitosterol
70	59.662	$C_{36}H_{74}$	506	unidentified	unidentified
71	60.082	$C_{47}H_{82}O_2$	678	unidentified	unidentified
72	60.681	$C_{29}H_{46}O$	410	410[M]+, 269[M-alkyl chain]+ and base peak m/z 174.	Stigmasta-3,5-dien-7-one
73	61.633	$C_{35}H_{72}$	492	492[M]+, 463[M-C2H5]+ 435[M-C4H9]+	Pentatriacontane

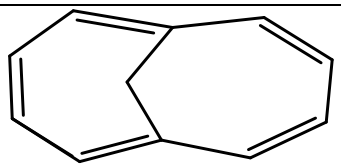
Structures of the identified Phytochemicals

Group-A: Compound No. 3, 23, 31, 33, 38, 42, 44, 45, 46, 60, 61, 64, 65, 67, 68 and 73.

n = 4, compound 3 (C_8H_{18}, Octane).
n = 8, compound 23 ($C_{12}H_{26}$, Dodecane).
n = 9, compound 31 ($C_{13}H_{28}$, Tridecane).
n = 10, compound 38 ($C_{14}H_{30}$, Tetradecane).
n = 11, compound 42 ($C_{15}H_{32}$, Pentadecane).
n = 12, compound 44 ($C_{16}H_{34}$, Hexadecane).
n = 23, compound 60 ($C_{27}H_{56}$, Heptacosane).
n = 25, compound 61 ($C_{29}H_{60}$, Nonacosane).
n = 32, compound 64, 65 and 67 ($C_{36}H_{74}$, Hexatriacontane).
n = 29, compound 68 ($C_{33}H_{68}$, Tritriacontane).
n = 31, compound 73 ($C_{35}H_{72}$, Pentatriacontane).

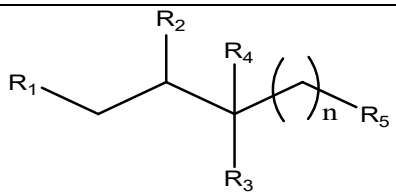


Compound No. 45 and 46 ($C_{17}H_{36}$, Tetradecane-2,6,10 tri methyl)

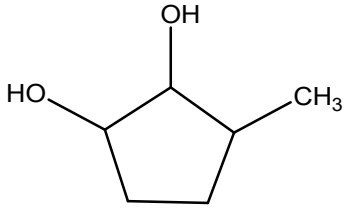


Compound No. 33 ($C_{11}H_{10}$, Bicyclo[4,4,1] undeca-1,3,5,7,9- pentaene)

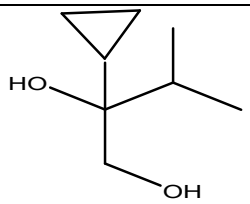
Group-B: Compound No. 1, 5, 11, 18, 19, 20, 29, 30, 34 and 39.



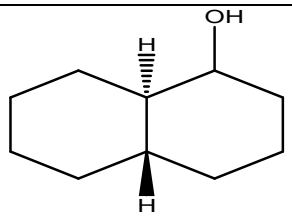
n = 1, R_1 = OH, R_2 = H, R_3 = H, R_4 = H, R_5 = CH_3 compound 1 ($C_5H_{12}O$, 1-Pentanol)
n = 4, R_1 = R_2 = Δ, R_3 = OH, R_4 = H, R_5 = CH_3 compound 11 ($C_8H_{16}O$, 1-Octen-3-ol)
n = 4, R_1 = OH, R_2 = H, R_3 = H, R_4 = H, R_5 = CH_3 compound 18 ($C_{18}H_{18}O$, 1-Octanol)
n = 2, R_1 = R_2 = Δ, R_3 = OH, R4 = CH3, R_5 = CH_3 compound 19 ($C_7H_{14}O$, 3-Methyl-1-hexen-3ol)



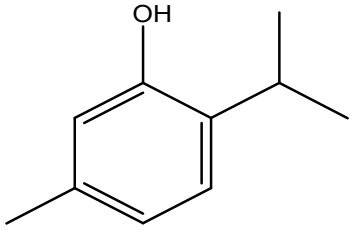
Compound 5 (C_6H_{12} O_2, 1,2-cyclopentanediol-3-methyl)



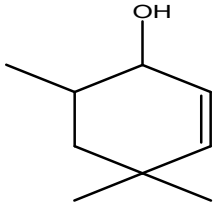
Compound 20 ($C_8H_{16}O_2$, 1-propanol-2-methyl-1-[1-hydroxy methyl cyclopropyl)



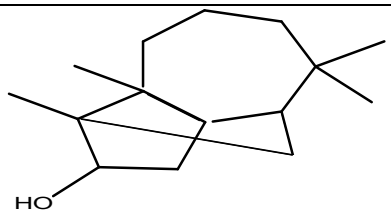
Compound 29 $C_{10}H_{18}O$,(2H) Napthalenol octahydro (trans)



Compound 30 ($C_{10}H_{14}O$, Thymol)

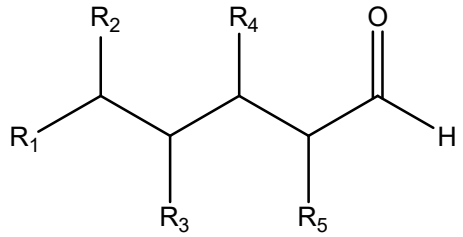


Compound 34 ($C_9H_{16}O$, 4,4,6-trimethyl cyclohex-2-ene-1-ol)



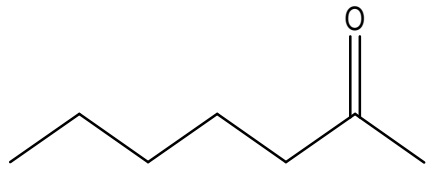
Compound 39 ($C_{15}H_{26}O$,1,4-Methanoazulen-3-ol)

Group-C: Compound No. 2, 7, 9, 13, 16, 21, 24, 26, 28, 32 and 36.

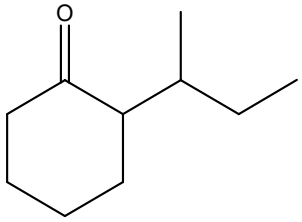


$R_1 = CH_3$, $R_2 = H$, $R_3 = H$, $R_4 = H$, $R_5 = H$, compound 2 ($C_6H_{12}O$, Hexanal)
$R_1 = C_2H_5$, $R_2 = H$, $R_3 = H$, $R_4 = H$, $R_5 = H$, compound 7 ($C_7H_{14}O$, Heptanal)
$R_1 = C_2H_5$, $R_2 = H$, $R_3 = H$, $R_4 = R_5 = \Delta$, compound 9 ($C_7H_{12}O$, 2-Heptenal)
$R_1 = C_3H_7$, $R_2 = H$, $R_3 = H$, $R_4 = H$, $R_5 = H$, compound 13 ($C_8H_{16}O$, Octanal)
$R_1 = C_3H_7$, $R_2 = H$, $R_3 = H$, $R_4 = R_5 = \Delta$, compound 16 ($C_8H_{14}O$, Octenal)
$R_1 = C_4H_9$, $R_2 = H$, $R_3 = H$, $R_4 = H$, $R_5 = H$, compound 21 ($C_9H_{18}O$, Nonanal)
$R_1 = C_5H_{11}$, $R_2 = H$, $R_3 = H$, $R_4 = H$, $R_5 = H$, compound 24 ($C_{10}H_{20}O$, Decanal)
$R_1 = C_5H_{11}$, $R_2 = H$, $R_3 = H$, $R_4 = R_5 = \Delta$, compound 26 and 28 ($C_{10}H_{18}O$, 2-Decenal)
$R_1 = C_5H_{11}$, $R_2 = R_3 = \Delta$, $R_4 = R_5 = \Delta$, compound 32 ($C_{10}H_{16}O$, 2, 4-Decadienal)
$R_1 = C_6H_{13}$, $R_2 = H$, $R_3 = H$, $R_4 = R_5 = \Delta$, compound 36 ($C_{11}H_{20}O$, 2-Undecenal)

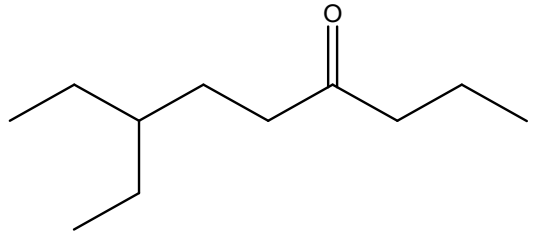
Group-D: Compound No. 6, 25, 35 and 47.



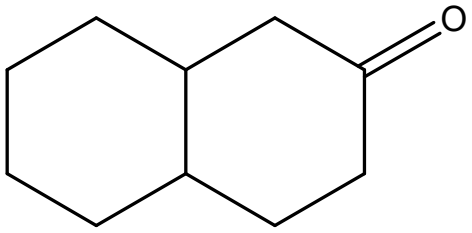
Compound 6 ($C_7H_{14}O$, 2-Heptanone)



Compound 25 ($C_{10}H_{18}O$, 2-Sec-butyl cyclohexanone)

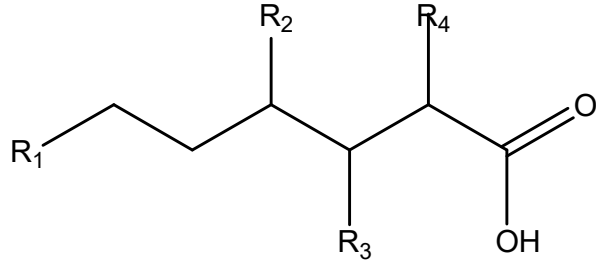


Compound 35 ($C_{11}H_{22}O$, 4-Nonanonane-7-ethyl)



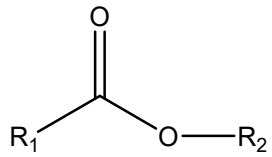
Compound 47 ($C_{15}H_2$2O, 2-(1H) Napthalenone)

Group E: Compound No. 14, 15, 37, 41, 49, 51 and 56

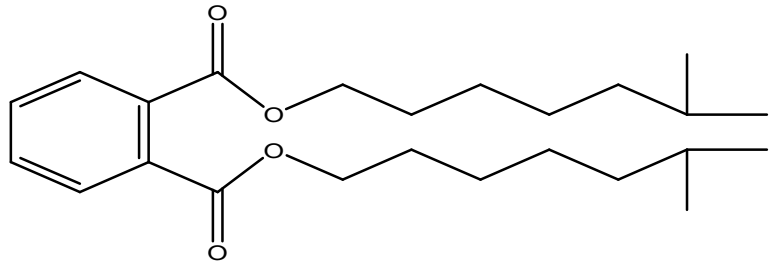


$R_1 = C_2H_5$, $R_2 = CH_3$, $R_3 = H$, $R_4 = H$ compound 14 ($C_9H_{18}O_2$, 4-methyl Octanoic acid)
$R_1 = CH_3$, $R_2 = H$, $R_3 = H$, $R_4 = H$ compound 15 ($C_7H_{14}O_2$, Heptanoic acid)
$R_1 = C_4H_9$, $R_2 = H$, $R_3 = H$, $R_4 = H$ compound 37 ($C_{10}H_{22}O_2$, n-Decanoic acid)
$R_1 = C_7H_{15}$, $R_2 = H$, $R_3 = R_4 = \Delta$ compound 41 ($C_{13}H_{24}O_2$, Tridecanoic acid-2-ene)
$R_1 = C_9H_{19}$, $R_2 = H$, $R_3 = H$, $R_4 = H$ compound 49 ($C_{15}H_{30}O_2$, Pentadecanoic acid)
$R_1 = C_{10}H_{21}$, $R_2 = H$, $R_3 = H$, $R_4 = H$ compound 51 ($C_{16}H_{32}O_2$, n-Hexadecanoic acid)
$R_1 = C_{12}H_{25}$, $R_2 = H$, $R_3 = H$, $R_4 = H$ compound 56 ($C_{18}H_{36}O_2$, Octadecanoic acid)

Group F: Compound No. 4, 10, 50, 52, 53, 54, 55, 57, 58 and 59

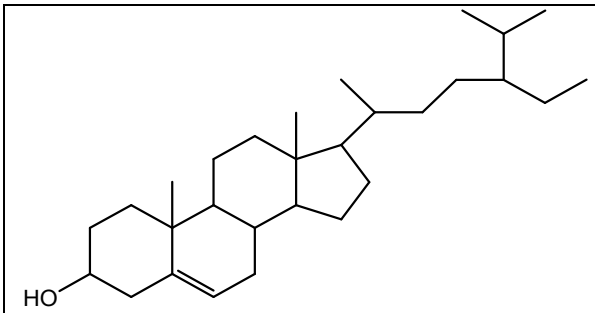


R_1 = H, R_2 = C_5H_{11} compound 4 ($C_6H_{12}O_2$, Formic acid, pentyl ester)
R_1 = H, R_2 = C_7H_{15} compound 10 ($C_8H_{16}O_2$, Formic acid, heptyl ester)
R_1 = $C_{15}H_{31}$, R_2 = CH_3 compound 50 ($C_{17}H_{34}O_2$, Hexadecanoic acid, methyl ester)
R_1 = $C_{15}H_{31}$, R_2 = C_2H_5 compound 52 ($C_{18}H_{36}O_2$, Hexadecanoic acid, ethyl ester)
R_1 = C_8H_{17}-CH=CH-C_7H_{15}, R_2 = CH_3 compound 53 ($C_{19}H_{36}O_2$, 9-Octadecenoic acid, methyl ester)
R_1 = $C_{17}H_{35}$, R_2 = CH_3 compound 54 ($C_{19}H_{38}O_2$, Octadecanoic acid, methyl ester)
R_1 = C_8H_{17}-CH=CH-C_7H_{15}, R_2 = C_2H_5 compound 55 ($C_{20}H_{38}O_2$, ethyl Oleate)
R_1 = $C_{17}H_{35}$, R_2 = C_2H_5 compound 57 ($C_{20}H_{40}O_2$, Octadecanoic acid, ethyl ester)
R_1 = C_8H_{17}-CH=CH-C_7H_{15}, R_2 = C_4H_9 compound 58 ($C_{22}H_{42}O_2$, Butyl-9-Octadecenoate)

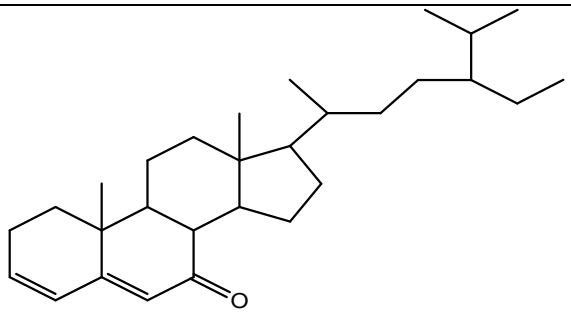


Compound 59 ($C_{24}H_{38}O_4$, 1,2-Benzene dicarboxylic acid, diisoocyl ester)

Group-G: Compound No. 69 and 72

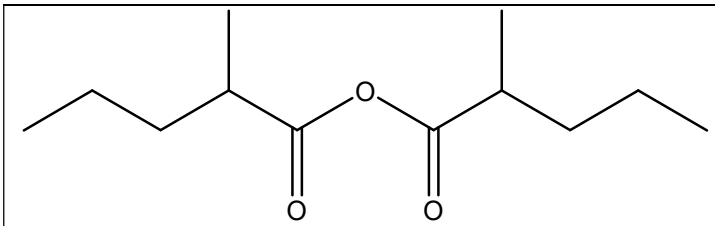


Compound 69 ($C_{29}H_{50}O$, β-Sitosterol)

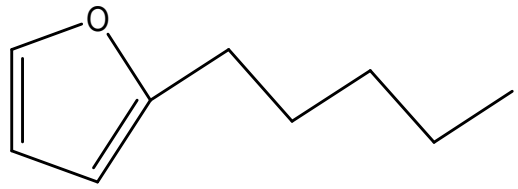


Compound 72 ($C_{29}H_{46}O$, Stigmasta-3,5-dien-7-one)

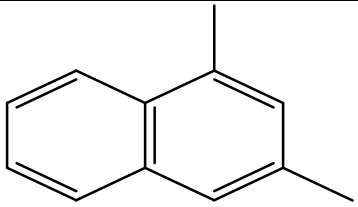
Group-H: Compound No. 12, 17 and 40



Compound 17 ($C_{12}H_{22}O_3$, Pentanoic acid-2-methyl anhydride)



Compound 12 (C_9H_14O, Furan-2-pentyl)



Compound 40 ($C_{12}H_12$, Napthalene-1,3-dimethyl)

The phytochemical study of the seed oil revealed the presence of several constituents (table 4). The oil contains about 19.53% of n-Hexadecanoic acid (compound 51), which might be responsible for the anti-diabetic activity of the seed oil (Dwivedi *et al*., 2021). As compared to the drug (Glibenclamide), the seed oil results were not significant ($P < 0.05$). However, a gradual decrease in glucose level was observed from day 1 to day 30 (table 3). The oil is a source of n-hexadecanoic acid, and by increasing the concentration of an acid in the oil, the anti-diabetic activity of the oil may increase.

CONCLUSION

The EI-GC-MS of *Pedalium murex* seed oil exhibited the fundamental medicinal attribute and classified the existence of enormous therapeutically active plant components. Compounds like hydrocarbons, fatty acids, aldehydes, fatty acids ester and thymol are found abundantly by the phytochemical screening and evaluation of plant constituents. However, seed oil possesses magnificent features that can subsequently speculate for future studies. The oil has non-significant antidiabetic activity, but the presence of antidiabetic bioactive compounds in the oil needs further investigation *in vivo* and *in vitro* to obtain significant results.

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