

Supplementary Materials

Phytochemical Profiling of *Garcinia rostrata*, *Garcinia dryobalanosides* and *Garcinia cuneifolia* and Their Antibacterial Activity

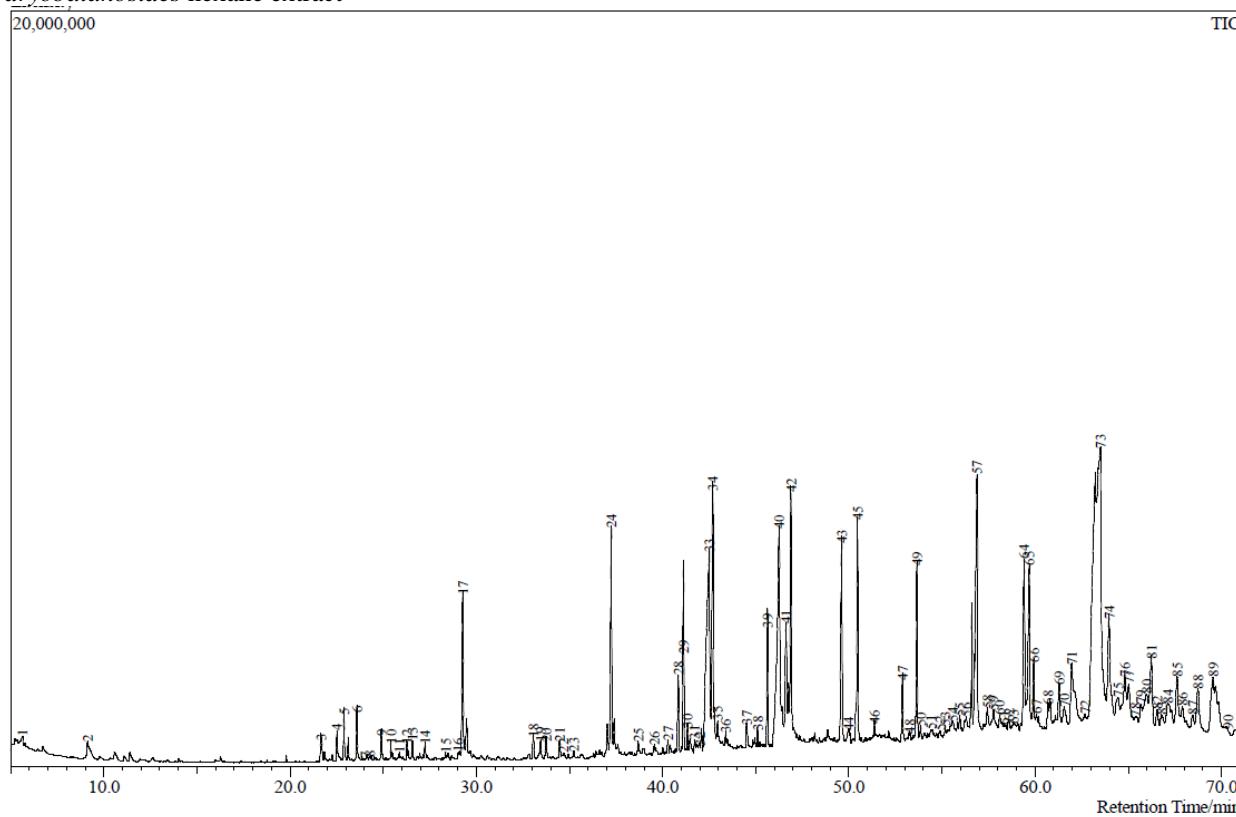
NOR HISAM ZAMAKSHSHARI^{1*}, NUR FAZLIN ZAFIRAH ZAIN¹, DAYANG NURUL ANISA ABANG HEILMAN¹, AINAA NADIAH ABD HALIM¹, SURISA PHORNVILLAY¹, YEO KAI WEI¹, VIVIAN JONG YI² & FASIHUDDIN BADRUDDIN AHMAD¹

¹ Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia

² Fakulti Sains Gunaan, Universiti Technology Mara Sarawak, Kampus Samarahan 2, 94300 Kota Samarahan, Sarawak

*Corresponding authors: znhisam@unimas.my

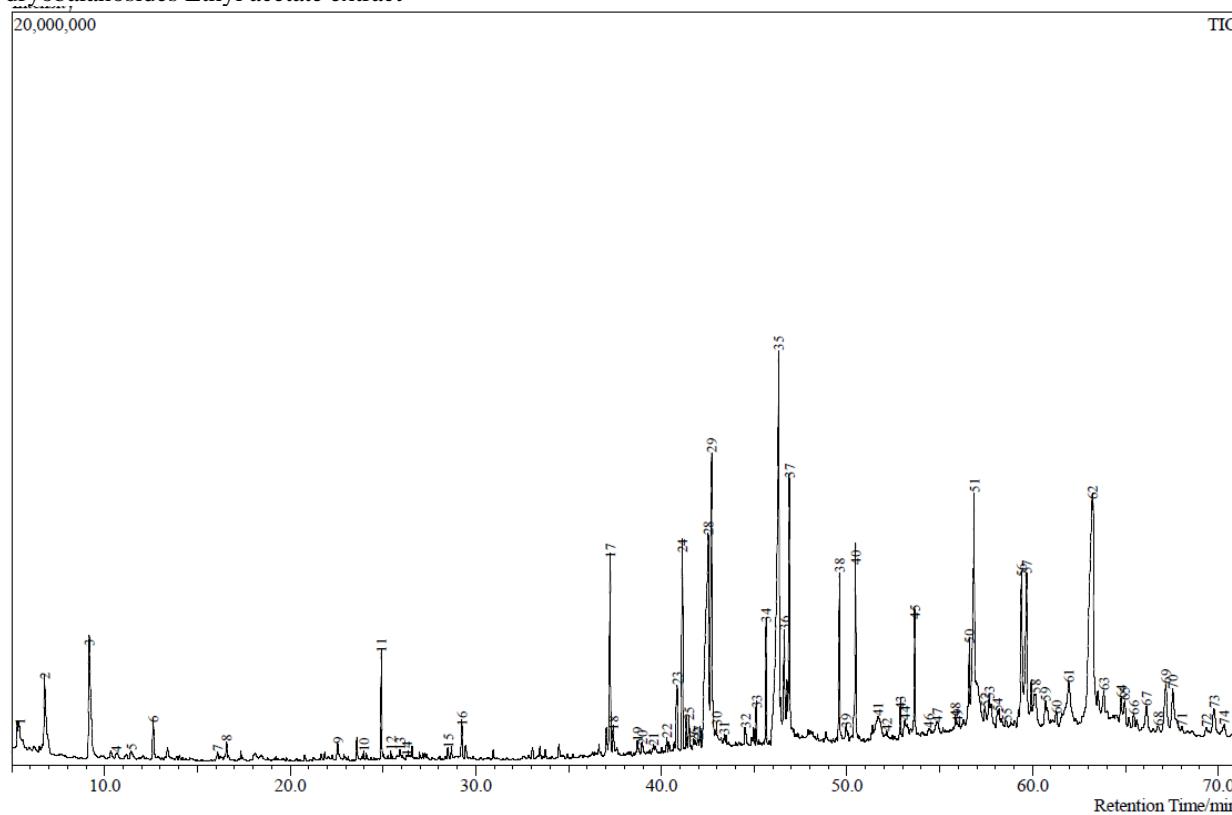
S.D 1 GC-MS chromatogram and information on the chemical constituents analyzed by GCMS of *Garcinia dryobalanosides* hexane extract



RT (min)	Compounds	SI	(%)
5.644	Butanoic acid	96	0.18
9.145	5-Hepten-2-one	87	0.56
22.515	Propanoic acid	96	0.52
22.905	1-Pentadecene	96	0.74
23.6	3H-3a,7-Methanoazulene	94	0.67
24.045	Undecanoic acid,	89	0.16
24.285	Phosphorous dichloride	84	0.20
24.91	5,9-Undecadien-2-one	94	0.35
25.425	2,5-di-tert-Butyl-1,4-benzoquinone	88	0.32
25.875	Bicyclo[2.2.2]octane	91	0.16
26.28	Pentadecane	95	0.29
26.565	beta.-Guaiene	91	0.21
27.25	2,6,10-Dodecatrien-1-ol	85	0.43
28.36	Hexadecane	82	0.15
29.025	9-Nonadecene	89	0.08
29.275	1-Nonadecene	97	2.68
33.07	Phenol	83	0.30
33.46	8-Isopropyl-1,5-dimethyltricyclo[4.4.0.02,7]dec-4-en-3-one	83	0.32
33.765	Hexadecane	95	0.30
34.475	(3aR,4R,7R)-1,4,9,9-Tetramethyl-3,4,5,6,7,8-hexahydro-2H-3a	90	0.04
34.695	Pentadecanal	92	0.11

35.235	1,4-Benzenediol	85	0.07
37.255	1-Nonadecene	98	4.05
39.57	1,2-Benzenedicarboxylic acid	92	0.19
40.3	Heneicosane	96	0.35
40.85	7,9-Di-tert-butyl-1-oxaspiro(4,5)deca-6,9-diene-2,8-dione	93	0.93
41.345	Benzene propanoic acid	81	0.44
41.715	Glutaric acid	83	0.10
42.015	Cyclopentane	84	0.22
42.5	n-Hexadecanoic acid	95	6.71
42.695	1-Nonadecene	96	3.38
43.395	4,6-di-tert-Butyl-m-cresol	80	0.52
45.105	9-Octadecenoic acid	93	0.30
45.64	Methyl stearate	95	1.24
46.265	(Z)-18-Octadec-9-enolide	95	6.61
46.635	Octadecanoic acid	90	2.05
46.895	1-Hexacosanol	95	3.60
49.62	2-Propenoic acid	97	2.80
49.98	2-Methyl-2-docosene	83	0.29
51.375	Hexadecanoic acid	81	0.80
52.89	Bis(2-ethylhexyl) phthalate	96	0.63
53.265	3-Methyldotricontane	87	0.13
54.415	Heptacosyl heptafluorobutyrate	85	0.47
55.185	Tetrapentacontane	92	0.19
55.575	9-Hexadecenoic acid	83	0.89
56.885	Octabenzone	92	7.26
57.44	alpha.-Tocospiro A	87	1.02
57.77	alpha.-Tocospiro B	91	1.15
58.845	4,8,13-Cyclotetradecatriene-1,3-diol	80	0.89
59.685	2,6,10,14-Hexadecatetraen-1-ol	90	3.22
59.93	1-Hexacosanol	93	1.19
60.71	Senkyunone	83	1.42
61.975	(R)-2,8-Dimethyl-2-((3E,7E)-4,8,12-trimethyltrideca-3,7,11-trien-1-yl)chroman-6-ol	90	3.74
62.685	beta.-Sitosterol acetate	87	0.88
63.5	1,6,10,14,18,22-Tetracosahexaen-3-ol	85	22.82
64.45	9,19-Cyclolanost-24-en-3-ol	83	1.50
65.025	(R)-2,8-Dimethyl-2-((3E,7E)-4,8,12-trimethyltrideca-3,7,11-trien-1-yl)chroman-6-ol	92	1.79
66.565	9,19-Cyclolanost-24-en-3-ol	80	0.67
66.805	Ergost-5-en-3-ol	89	0.70
67.63	Stigmasterol	85	1.70
68.47	1H-3a,7-Methanoazulene	80	0.67
69.555	Ergost-25-ene-6,12-dione	80	3.69

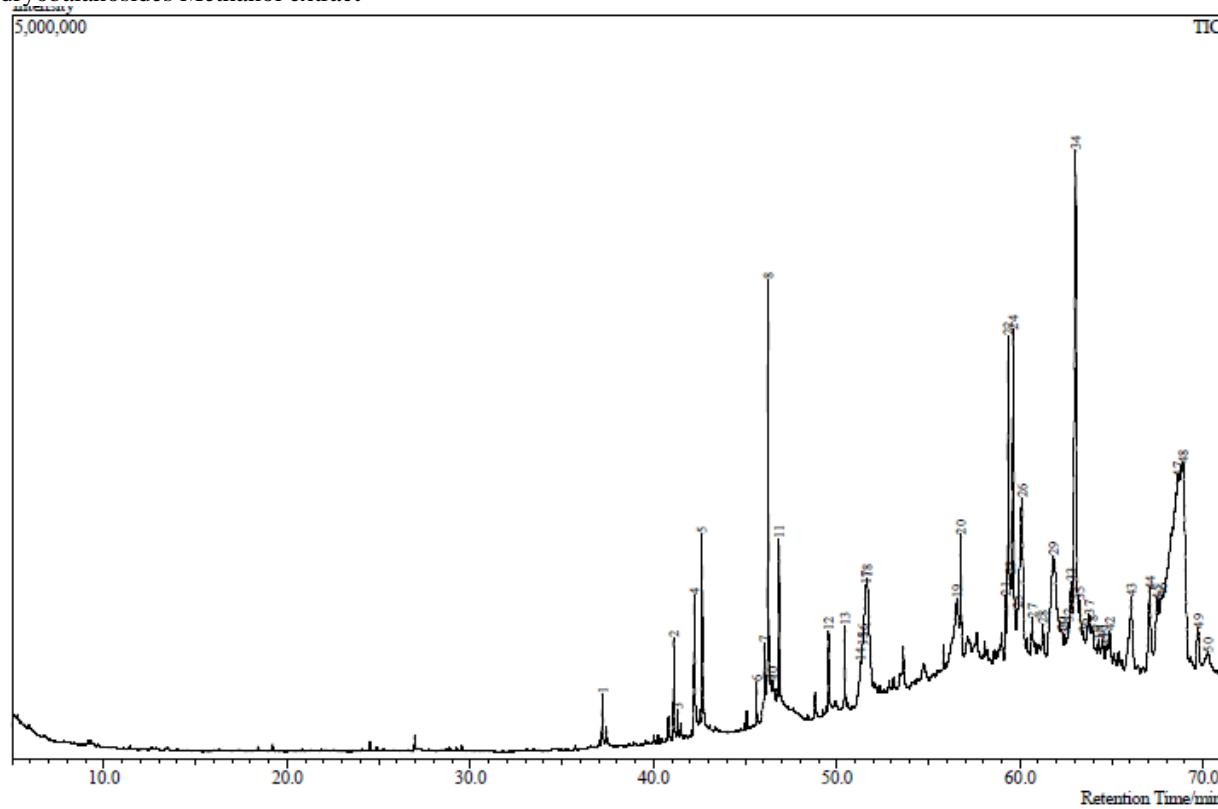
S.D 2 GC-MS chromatogram and information on the chemical constituents analyzed by GCMS of *Garcinia dryobalanosides* Ethyl acetate extract



RT (min)	Compounds	SI	Area (%)
5.305	2-Pentanone	94	1.32
9.19	5-Hepten-2-one	93	3.48
10.635	D-Limonene	85	0.25
11.45	1,6-Heptadiene	84	0.24
12.635	2-Butoxyethyl acetate	92	0.68
16.09	Octanoic acid	94	0.33
24.92	5,9-Undecadien-2-one	94	1.37
25.425	2,5-di-tert-Butyl-1,4-benzoquinone	87	0.17
25.935	Bergamotol	82	0.35
28.51	1H-2-Benzopyran-1-one	92	0.21
29.26	1-Nonadecene	96	3.60
39.585	1,2-Benzenedicarboxylic acid	91	0.40
40.305	Eicosane	96	0.28
40.855	7,9-Di-tert-butyl-1-oxaspiro(4,5)deca-6,9-diene-2,8-dion	93	1.59
41.14	Hexadecanoic acid	95	2.82
41.5	Cyclopentadecanone	94	0.99
41.745	Glutaric acid	83	0.14
42.52	n-Hexadecanoic acid	96	9.27
42.705	1-Nonadecene	96	5.31
45.125	9-Octadecenoic acid	95	0.79
45.645	Methyl stearate	95	1.46
46.33	(Z)-18-Octadec-9-enolide	97	12.86
46.63	Octadecanoic acid	89	2.21

46.9	1-Hexacosanol	95	4.67
49.595	2-Propenoic acid	97	2.52
49.965	cis-9-Hexadecenal	85	0.47
50.47	1-Hexacosanol	95	2.75
51.68	alpha.-Amyrin	92	1.90
52.155	Tetrapentacontane	90	0.21
52.89	Bis(2-ethylhexyl) phthalate	97	0.52
53.66	1-Hexacosanol	95	1.94
54.405	17-Pentatriacontene	83	0.24
54.865	gamma.-Sitostenone	89	0.53
56.595	1-Hexacosanol	93	1.96
56.86	Octabenzone	92	8.31
57.44	alpha.-Tocospiro B	92	0.61
59.41	2,6,10,14-Hexadecatetraen-1-ol	90	3.85
60.155	Friedelan-3-one	90	2.27
63.22	1,6,10,14,18,22-Tetracosahexaen-3-ol,	85	13.95
64.965	(R)-2,8-Dimethyl-2-((3E,7E)-4,8,12-trimethyltrideca-3,7,11-trien-1-yl)chroman-6-ol	94	0.56
66.77	Campesterol	86	0.18
67.565	Stigmasterol	83	1.90
70.335	beta.-Amyrone	92	0.53

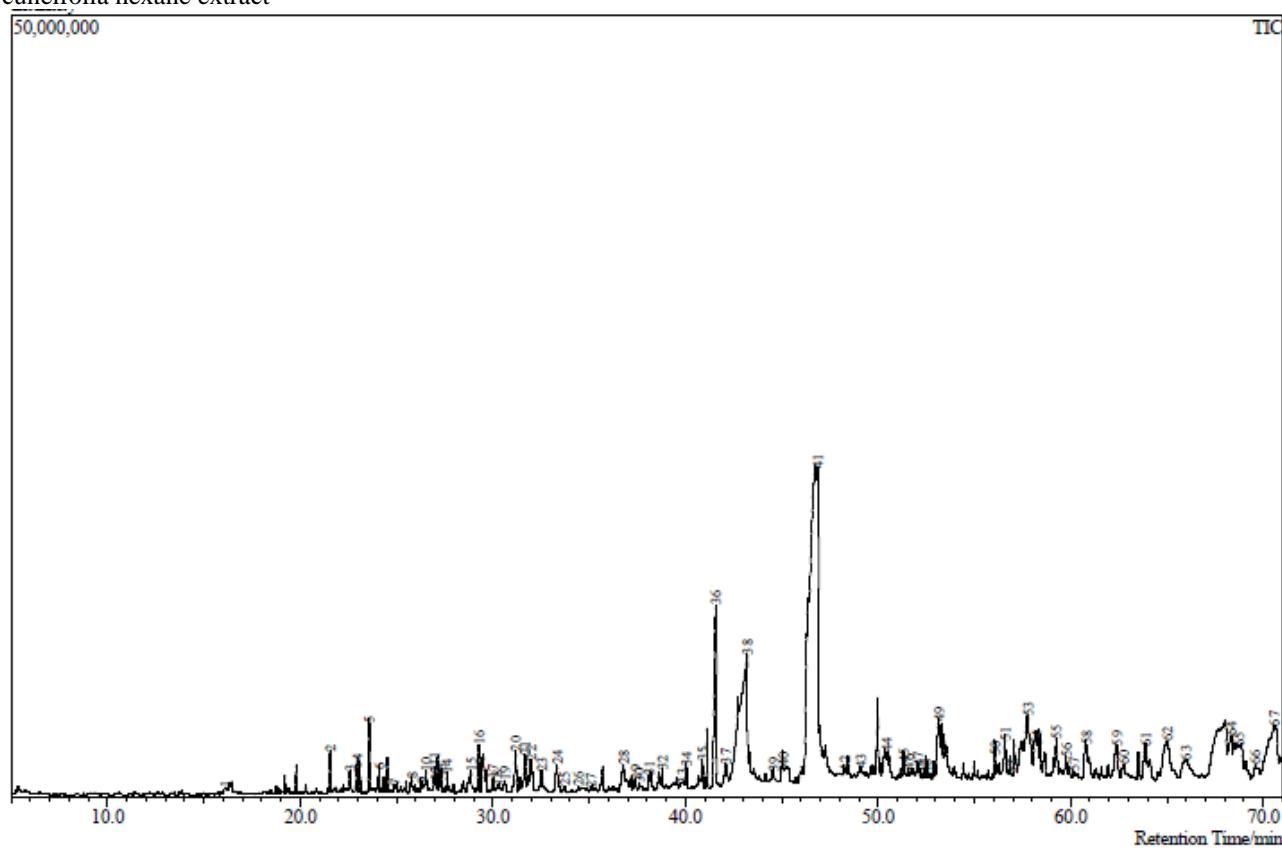
S.D 3 GC-MS chromatogram and information on the chemical constituents analyzed by GCMS of *Garcinia dryobalanosides* Methanol extract



RT (min)	Compounds	SI	Area (%)
37.21	1-Nonadecene	97	0.85
41.105	Hexadecanoic acid	96	1.61
41.32	Benzene propanoic acid	81	0.45
45.62	Methyl stearate	96	0.52
46.05	9-Octadecenoic acid	93	1.48
46.25	(Z)-18-Octadec-9-enolide	98	8.21
46.415	(E)-9-Octadecenoic acid ethyl ester	83	0.57
46.5	Octadecanoic acid	91	0.68
46.85	1-Heptacosanol	96	2.26
49.555	2-Propenoic acid	95	1.12
51.6	alpha.-Amyrin	90	3.69
51.645	24-Norursa-3,12-diene	87	4.66
56.565	Z,Z-6,28-Heptatriacontadien-2-one	83	1.90
56.765	Octabenzone	94	2.20
59.36	Linoleic acid	92	6.72
60.105	Friedelan-3-one	94	8.88
62.445	1-Naphthalene propanol	81	0.66
62.64	beta.-Sitosterol acetate	80	1.09
63.035	1,6,10,14,18,22-Tetracosahexaen-3-ol	86	18.37
64.295	Thunbergol	82	0.67
64.9	(R)-2,8-Dimethyl-2-((3E,7E)-4,8,12-trimethyltrideca-3,7,11-trien-1-yl)chroman-6-ol	92	0.95
67.485	Stigmasterol	81	3.78

68.6	Tricyclo[20.8.0.0(7,16)]triacontane	84	28.68
------	-------------------------------------	----	-------

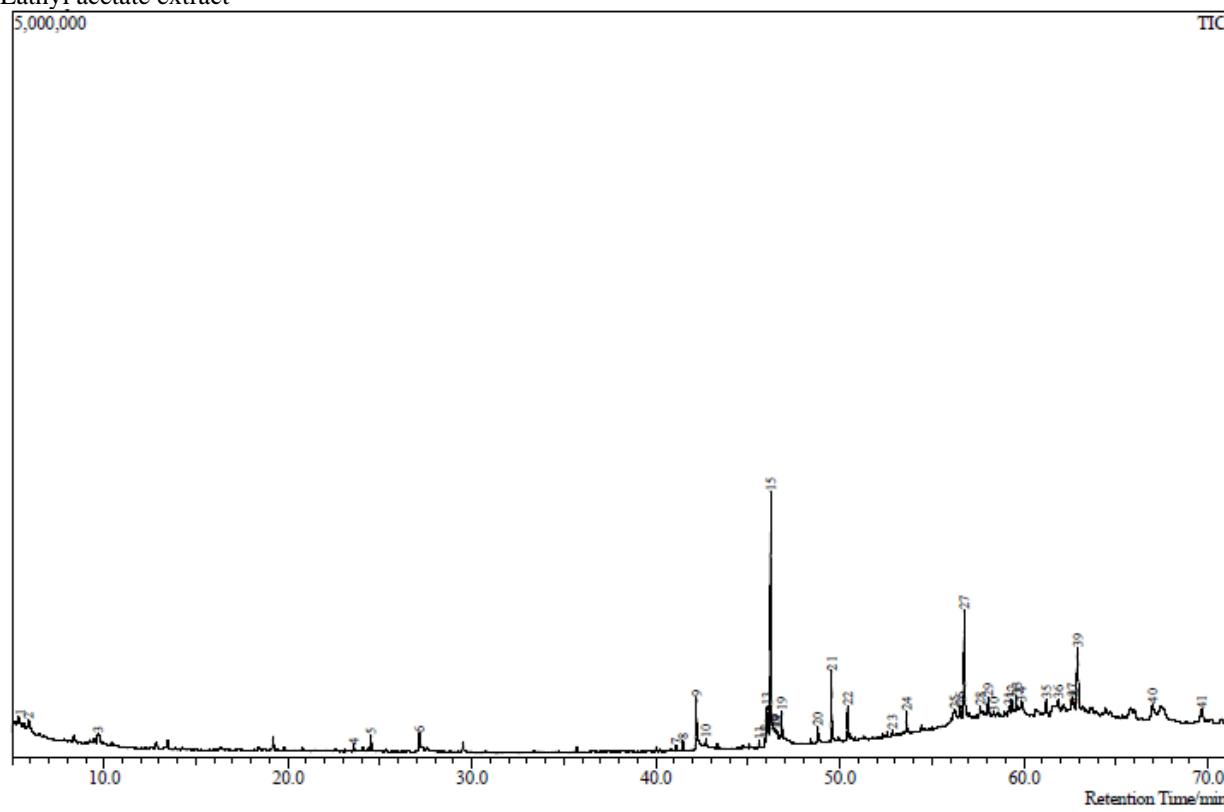
S.D 4. GC-MS chromatogram and information on the chemical constituents analyzed by GCMS of *Garcinia cuneifolia* hexane extract



RT (min)	Compounds	SI	Area (%)
16.095	Octanoic acid	86	0.15
21.565	alpha.-Cubebene	96	0.65
22.585	Copaene	91	1.02
22.97	Germacrene D	94	0.96
23.595	3H-3a,7-Methanoazulene	95	1.26
24.095	Caryophyllene	95	0.68
25.805	gamma.-Muurolene	93	0.81
26.355	Cycloheptane	87	0.39
26.545	Naphthalene,	83	0.65
26.955	2,4-Di-tert-butylphenol	92	0.42
27.345	cis-Calamenene	92	0.93
28.875	Dodecanoic acid	95	0.90
29.275	Caryophyllenyl alcohol	94	0.97
30.015	1H-Cyclopropa[a]naphthalene	81	0.40
30.225	Isoaromadendrene epoxide	82	0.36
30.64	1,1,6-trimethyl-3-methylene-2-(3,6,10,13,14-pentamethyl-3-ethenyl-pentadec-4-enye)cyclohexane	80	0.37
31.195	4a(2H)-Naphthalenol,	96	1.02
31.68	Benzophenone	97	1.40
31.975	alpha.-Cadinol	91	1.47
32.545	1H-3a,7-Methanoazulen-5-ol	82	0.92

34.455	(E)-2-((8R,8aS)-8,8a-Dimethyl-3,4,6,7,8,8a-hexahydronaphthalen-2(1H)-ylidene)propanal	83	0.57
36.785	Tetradecanoic acid	93	1.35
38.145	1-Naphthalenol,	92	0.68
38.795	2-Pentadecanone	90	0.70
40.885	7,9-Di-tert-butyl-1-oxaspiro(4,5)deca-6,9-diene-2,8-dione	91	0.96
41.585	Cyclopentadecanone	92	5.38
42.095	Palmitoleic acid	84	1.16
43.2	n-Hexadecanoic acid	95	17.33
44.57	Oleic Acid	92	1.49
45.075	Ascorbic acid 2,6-dihexadecanoate	84	2.52
46.875	(Z)-18-Octadec-9-enolide	97	45.26
50.455	9-Hexacosene	83	6.26
56.09	Cyclopentadecanone	88	0.61

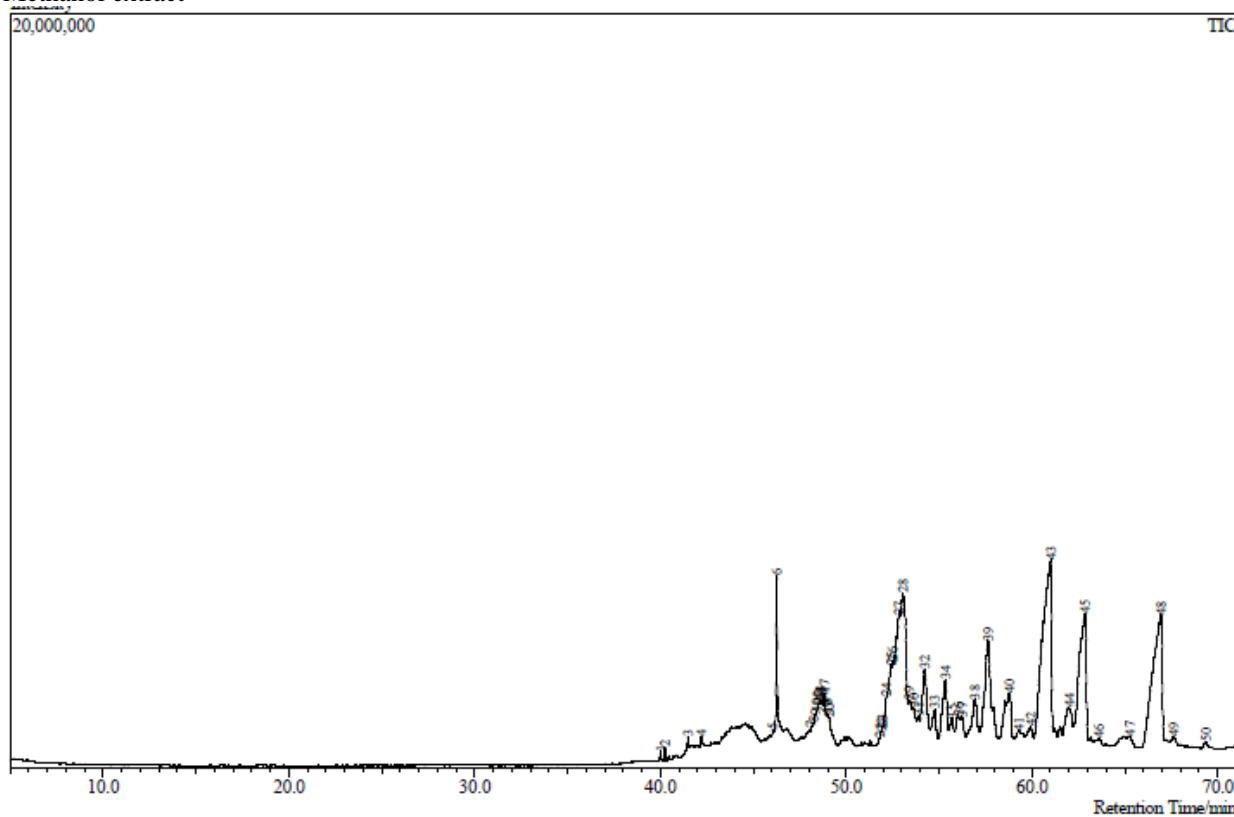
S.D 5 GC-MS chromatogram and information on the chemical constituents analyzed by GCMS of *Garcinia cuneifolia* Eethyl acetate extract



RT (min)	Compounds	SI	Area (%)
5.35	Cyclopentanol	93	0.75
5.9	1-Butanol	95	1.46
9.68	Phenol	97	2.18
23.57	1H-Cycloprop[e]azulene	91	0.64
27.13	D-Allose	94	2.51
41.09	Pentadecanoic acid	95	0.43
41.465	Heptadecanolide	94	1.07
42.195	n-Hexadecanoic acid	95	6.41
42.715	Hexadecanoic acid	92	0.64
45.605	Methyl stearate	95	0.65
45.925	11,14-Eicosadienoic acid	93	0.78
46.03	Oleic Acid	90	4.72
46.23	(Z)-18-Octadec-9-enolide	98	27.01
46.405	Ethyl Oleate	87	1.22
46.475	Octadecanoic acid	92	1.35
46.575	2-Propenoic acid	87	0.69
46.835	1-Nonadecene	97	2.18
49.54	2-Propenoic acid	96	6.47
50.42	1-Heptacosanol	97	2.56
52.855	Bis(2-ethylhexyl) phthalate	93	0.42
53.625	1-Heptacosanol	96	1.77
56.235	28-Norolean-17-en-3-one	80	1.72
56.55	1-Heptacosanol	92	0.98
56.755	Octabenzone	94	10.48

59.185	9,19-Cycloergost-24(28)-en-3-ol	82	1.43
59.32	1,6,10,14,18,22-Tetracosahexaen-3-ol	92	1.42
59.59	Linoleic acid	91	1.40
59.875	cis-1-Chloro-9-octadecene	85	1.10
61.21	Stigmaster-5,22-dien-3-ol	85	1.67
61.87	(E)-3-Methyl-5-((1R,4aR,8aR)-5,5,8a-trimethyl-2-methylenedecahydronaphthalen-1-yl)pent-2-enoic acid	81	1.27
62.62	beta.-Sitosterol acetate	82	1.97
62.915	1,6,10,14,18,22-Tetracosahexaen-3-ol	88	10.66

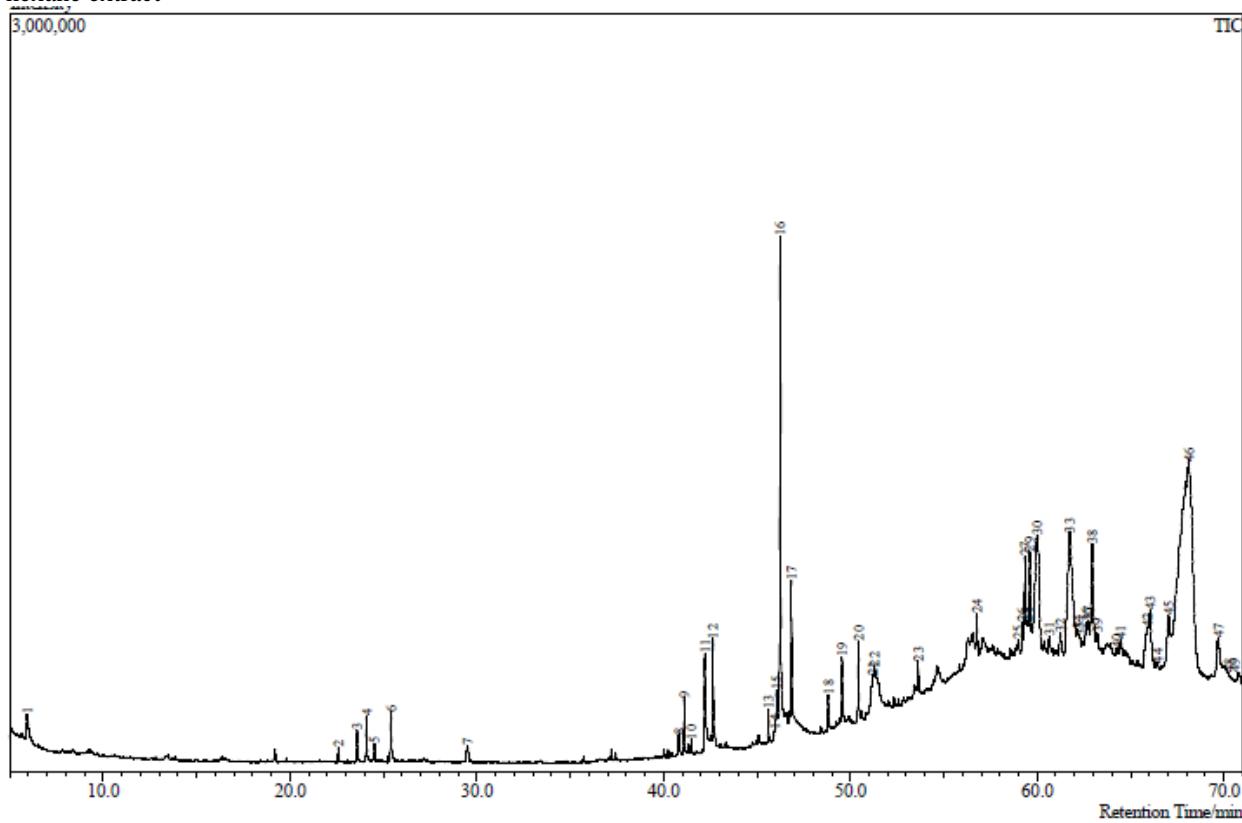
S.D 6 GC-MS chromatogram and information on the chemical constituents analyzed by GCMS of *Garcinia cuneifolia* Methanol extract



RT (min)	Compounds	SI	Area (%)
41.475	Cyclopentadecanone	95	0.29
42.205	n-Hexadecanoic acid	95	0.23
46.035	9-Octadecenoic acid	87	0.19
46.26	(Z)-18-Octadec-9-enolide	96	5.04
48.095	beta.-Amyrone	84	0.64
48.33	24-Noroleana-3,12-diene	81	0.32
48.45	Acetic acid,	81	0.69
48.615	Lup-20(29)-en-3-one	80	0.97
51.885	alpha.-Amyrin	81	23.26
53.645	Glutinol	87	3.42
54.215	Stigmastera-3,5-diene	88	9.65
54.77	Olean-12-en-3-ol	94	3.60
55.355	gamma.-Sitostenone	94	7.97
55.7	Lupeol	86	2.60

57.635	Friedelan-3-one	83	32.99
59.275	A-Friedooleanan-3-ol	87	2.55
63.61	Ursolic aldehyde	91	0.92
65.26	Stigmastane-3,6-dione	80	3.25
69.375	9,19-Cyclolanostan-3-ol	80	1.44

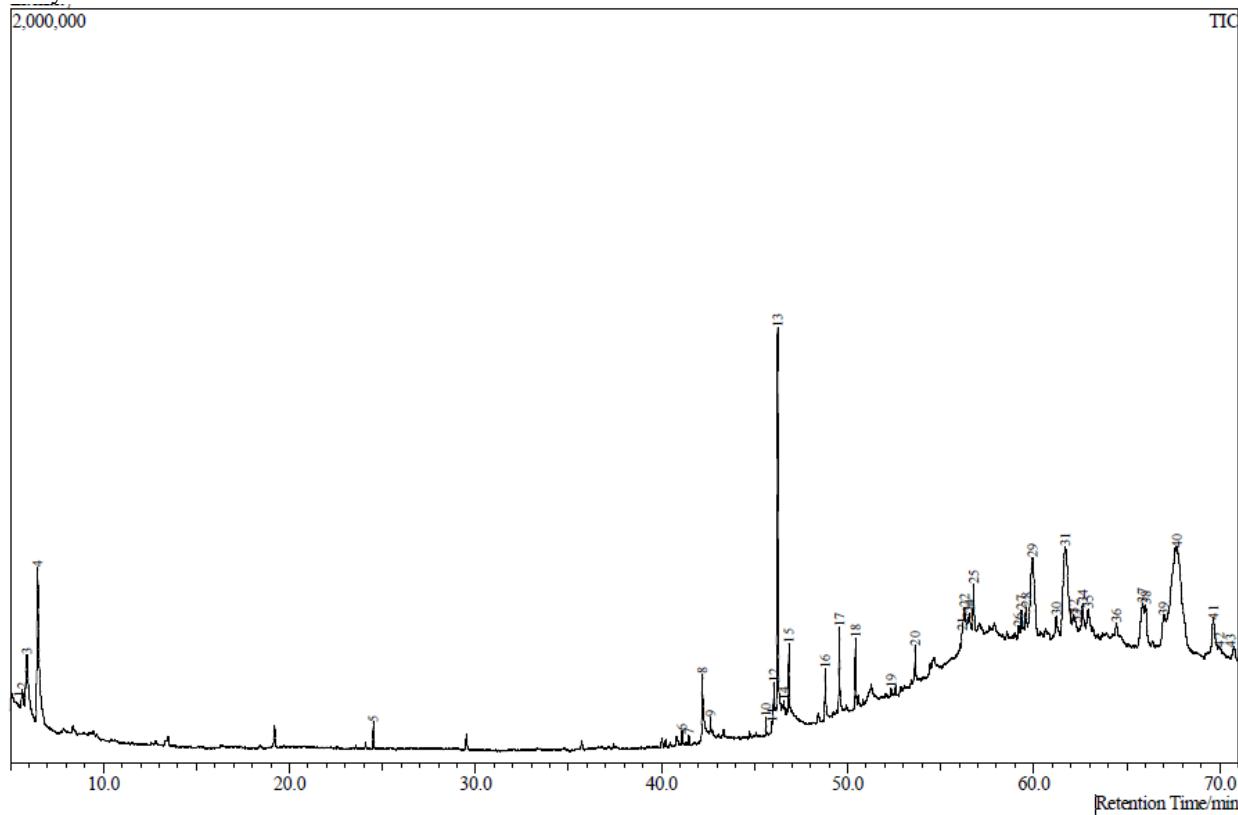
S.D 7 GC-MS chromatogram and information on the chemical constituents analyzed by GCMS of *Garcinia rostrata* hexane extract



No	RT (min)	Compounds	SI	Area (%)
5.93		1-Butanol	97	0.76
22.595		Copaene	91	0.22
23.585		3H-3a,7-Methanoazulene	92	0.54
24.095		Caryophyllene	93	0.79
25.405		Aromandendrene	94	0.80
40.81		7,9-Di-tert-butyl-1-oxaspiro(4,5)deca-6,9-diene-2,8-dione	87	0.33
41.105		Hexadecanoic acid,	96	0.96
41.475		Cyclopentadecanone	95	0.24
42.205		n-Hexadecanoic acid	94	2.57
42.64		1-Nonadecene	98	1.51
45.615		Methyl stearate	96	0.49
45.93		9,12-Octadecadienoic acid	92	0.17
46.04		9-Tetradecenal,	88	0.95
46.24		(Z)-18-Octadec-9-enolide	98	9.57
46.845		1-Heptacosanol	96	2.18
49.55		2-Propenoic acid	95	1.13
50.43		1-Heptacosanol	96	1.24
51.185		24-Norursa-3,12-diene	86	0.52
56.765		Octabenzone	93	0.70
58.985		1,1,6-trimethyl-3-methylene-2-(3,6,9,13-tetramethyl-6-ethenye-10,14-dimethylene-pentadec-4-enyl)cyclohexane	82	0.21
59.21		2,6,10,14-Hexadecatetraen-1-ol	85	0.78

	59.6	Linoleic acid	92	3.07
	60.005	Friedelan-3-one	93	10.07
	62.63	beta.-Sitosterol acetate	83	0.76
	62.945	1,6,10,14,18,22-Tetracosahexaen-3-ol	88	4.19
	63.22	Thunbergol	81	0.54
	65.87	Friedelan-3-one	80	2.41
	68.125	Tricyclo[20.8.0.0(7,16)]triacontane	87	52.29

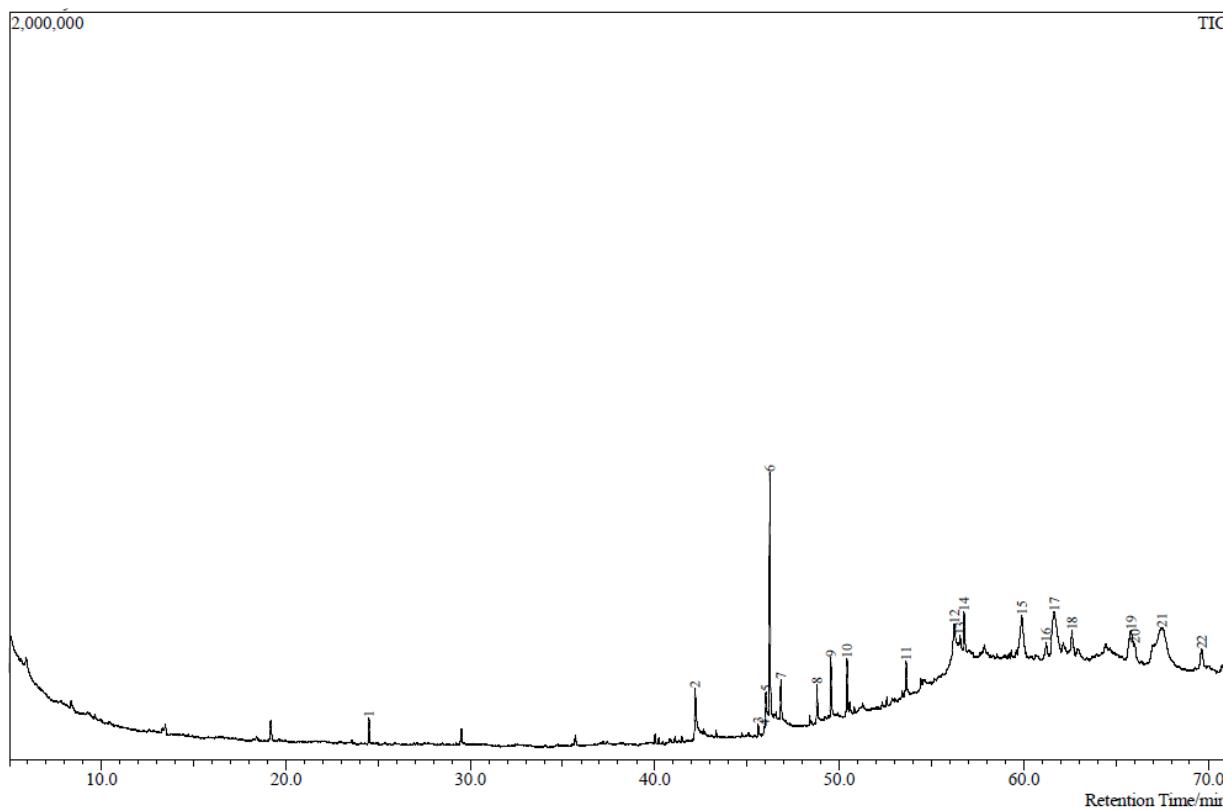
S.D 8 GC-MS chromatogram and information on the chemical constituents analyzed by GCMS of *Garcinia rostrata* Ethyl Acetate extract



RT (min)	Compounds	SI	Area (%)
5.02	Pentanoic acid	81	0.20
5.635	Ethylbenzene	96	1.05
6.46	1,3,5,7-Cyclooctatetraene	93	12.69
41.095	Pentadecanoic acid	95	0.36
41.47	Heptadecanolide	93	0.27
42.19	n-Hexadecanoic acid	94	2.88
42.635	1-Nonadecene	96	0.44
45.61	Methyl stearate	95	0.48
45.925	11,14-Eicosadienoic acid	93	0.28
46.03	9-Tetradecenal	86	1.60
46.235	(Z)-18-Octadec-9-enolide	98	13.42
46.575	2-Propenoic acid	87	0.25
46.84	1-Nonadecene	97	2.02
49.545	2-Propenoic acid	94	3.04
50.425	1-Heptacosanol	96	1.90
56.265	28-Norolean-17-en-3-one	85	3.07
56.55	Nonadecyl trifluoroacetate	90	1.18
56.765	Octabenzone	93	2.45
59.33	trans-Geranylgeraniol	92	0.71

59.59	1,6,10,14,18,22-Tetracosahexaen 3-ol, 2,6,10,15,19,23-hexamethyl-,	91	0.67
59.925	Friedelan-3-one	91	9.26
61.215	Stigmaster-5,22-dien-3-ol, acetate,	85	0.85
62.63	beta-Sitosterol acetate	88	2.41
67.685	Tricyclo[20.8.0.0(7,16)]triacontane	86	38.52

S.D 9 GC-MS chromatogram and information on the chemical constituents analyzed by GCMS of *Garcinia rostrata* Methanol extract



RT (min)	Compounds	SI	Area (%)
42.185	n-Hexadecanoic acid	94	7.03
45.605	Methyl stearate	94	0.97
45.925	11,14-Eicosadienoic acid	93	0.80
46.030	cis-Vaccenic acid	82	5.04
46.230	(Z)-18-Octadec-9-enolide	98	28.04
46.835	1-Nonadecene	97	3.82
49.545	2-Propenoic acid	93	6.55
50.425	1-Heptacosanol	97	4.59
56.245	28-Norolean-17-en-3-one	84	6.74
56.765	Octabenzone	93	5.16
59.895	Friedelan-3-one	90	11.19
61.220	Stigmaster-5,22-dien-3-ol	86	2.05
62.625	beta.-Sitosterol acetate	90	4.64
67.495	Tricyclo[20.8.0.0(7,16)]triacontane	88	13.37