



Phytochemical constituents from *Semecarpus anacardium* L.f. flowering Buds

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Abstract

A survey of literature showed that no work has been done on *Semecarpus anacardium* L.f. Flowering Buds. The genus *Semecarpus anacardium* (Family: Anacardiaceae) is represented by about 83 genera and 860 species distributed throughout India existing as trees, shrubs and vines. Out of these, the commonly known Cashew family or Sumac family has tremendous commercial importance. Flowers dioecious, small up to 0.8 cm, dull greenish yellow in terminal panicles, sepals and petals 5 each. Stamens 10, Ovary unilocular; ovule 1, pendulous; style 3. The GC-MS analysis the mass spectrum of the Methanolic extract of *Semecarpus anacardium* L.f. Was compared with the available library sources (NIST08 LIB, WILEY8 LIB) GC Methods it was found that *Semecarpus anacardium* L.f. Flowers contains 25 components, Sterols, terpenoids and hydrocarbons were the most prominent. The major components detected were (23S)-ethylcholest-5-en-3(35.27%), 4, 4, 6a, 6b, 8a, 11, 12, 14b-Octamethyl-1, 4, 4a, 5, 6, 6a(9.02%), 3- Keto-urs-12-ene(9.02 %), beta-Amyrin (7.53 %), Stigmasterol(6.10%), Ergost-5-en-3-ol(5.81%)(Stigmast-4-en-3-ene (4.92%), Alpha Amyrin, n-hexadecanoic acid (3.26%), 9-Octadecenoic acid(3.06%), 1,2Dodecanediol(3.06 %) etc.

Keywords: *Semecarpus anacardium* L.f. Flowers, GC-MS/GC, antimicrobial activity

1. Introduction

The genus *Semecarpus anacardium* (Family: Anacardiaceae) [1] is represented by about 83 genera and 860 species distributed throughout India existing as trees, shrubs and vines. Out of these, the commonly known Cashew family or Sumac family has tremendous commercial importance. A survey of literature showed that no work has been done on *Semecarpus anacardium* L.f. Flowering Buds [2] Flowers dioecious, small up to 0.8 cm, dull greenish yellow in terminal panicles, sepals and petals 5 each. Stamens 10, Ovary unilocular; ovule 1, pendulous; style 3.

2. Extraction

The plant material *Semecarpus anacardium* L.f. Flowers collected from field area nearer to the village Nandgaon. Specimen's were identified by Prof. Vatsavaya S. Raju, and conformed as *Semecarpus anacardium* L.f. (syn:

Anacardium latifolium Lam., *A. orientale* Steud.) of Anacardiaceae and plant specimen deposited at Kakatiya University Herbarium, Warangal (KUW) with accession number 1874. It is locally known as 'nalla jeedi' and popularly known 'marking nut/dhobi nut.

3 kg of flowering buds were collected and dried under shade, after drying it was powdered 1 kg of powder was obtained, this powder was extracted with 3 liters of methanol, by soxhlet extraction for 72 hours, extract was distilled off and the residue was weighed. The residue was subjected for column chromatography followed by TLC, Prep. TLC & by individual crystallization, and analyzed by using FT-IR, ¹HNMR, ¹³CNMR, MASS, additionally by using Gas Chromatography-Mass Spectroscopy & Gas Chromatography. and the isolated compounds are the first time report from this plant.

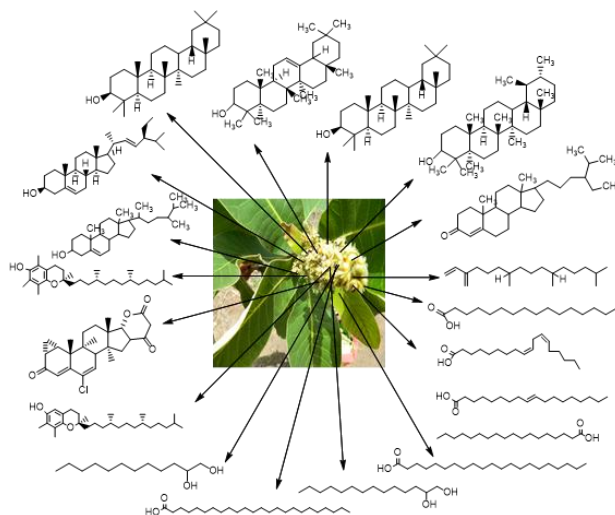


Fig 1: Phytoconstituents present in *Semecarpus anacardium* L.f. Flowers

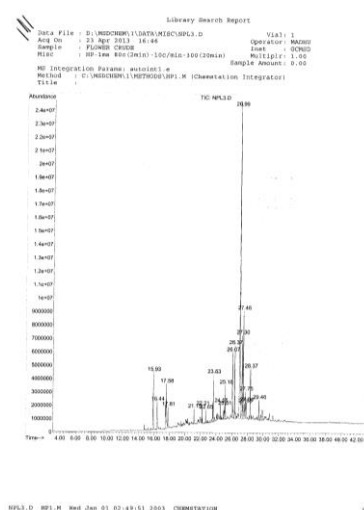
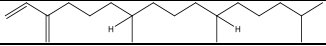
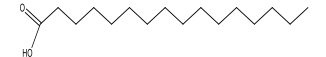
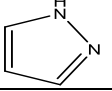
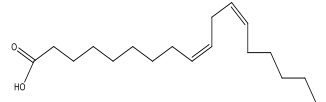
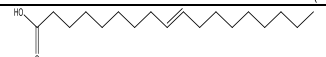
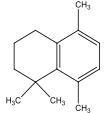

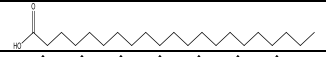


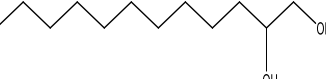
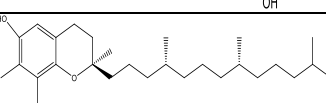
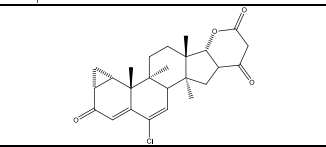
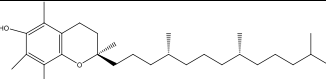
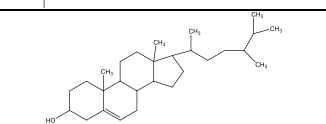
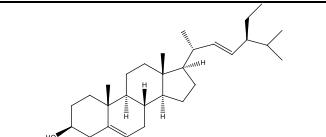
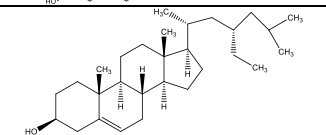
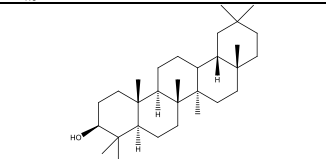
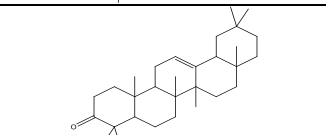
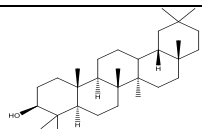
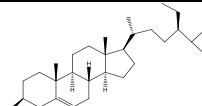
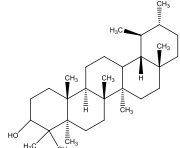
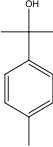
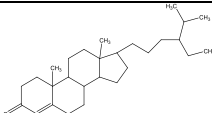
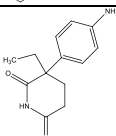


Fig 2: GC-MS Analysis Spectra

Table 1: Chemical compounds and their R.T/Min & Area %

S. No	Chemical name	Chemical structure	Chemical formula	Molecular weight	R.T/Min	Area %
1	Neophytadiene		C ₂₀ H ₃₈	278.52	14.82	0.27
2	n-Hexadecanoic acid		C ₁₆ H ₃₂ O ₂	256.4241	15.95	3.26
3	1H-Pyrazole		C ₃ H ₄ N ₂	68.0773	16.44	2.15
4	9,12-Octadecadienoic acid		C ₁₈ H ₃₂ O ₂	280.445	17.50	1.16
5	9-Octadecenoic acid		C ₁₈ H ₃₄ O ₂	282.46	17.57	3.06
6	2-Butyl-6-phenyl-1,2,3,5-tetrahydronaphthalene		C ₁₄ H ₂₀	188.3	17.61	1.94
7	Octadecanoic acid		C ₁₈ H ₃₆ O ₂	284.48	17.807	1.50
8	Docosanoic acid		C ₂₂ H ₄₄ O ₂	340.58	21.15	0.81
9	1,2-Tetradecanediol		C ₁₄ H ₃₀ O ₂	230.39	22.21	0.78
10	Tetracosanoic acid(Lignoceric acid)		C ₂₄ H ₄₈ O ₂	368.63	22.65	0.83
11	1,2-Dodecanediol		C ₁₂ H ₂₆ O ₂	202.33	23.63	3.06
12	Gamma.-Tocopherol		C ₂₈ H ₄₈ O ₂	416.68	24.55	0.96
13	13-Tetradecene-1-ol acetate		C ₂₄ H ₂₉ ClO ₄	416.94	25.01	1.33
14	Vitamin E		C ₂₉ H ₅₀ O ₂	430.71	25.18	2.55
15	Ergost-5-en-3-ol		C ₂₈ H ₄₈ O	400.3705	26.06	5.81
16	Stigmasterol		C ₂₉ H ₄₈ O	412.69	26.37	6.10
17	(23S)-ethylcholest-5-en-3		C ₂₉ H ₅₀ O	414.7	27.00	35.27
18	.beta.-Amyrin		C ₃₀ H ₅₀ O	426.72	27.30	7.53
19	4,4,6a,6b,8a,11,12,14b-Octamethyl-1,4,4a,5,6,6a,6b,7,8,8a,9,10,11,12,12a,14,14a,14b-octadecahydricen-3(2H)-one		C ₃₀ H ₄₈ O	424	27.46	9.02

20	3- Keto-urs-12-ene		C ₃₀ H ₅₂ O	428.73	27.46	9.02
21	24(S)-Ethyl-3.alpha.,5.alpha.-cyclocholest-22(E)		C ₂₉ H ₅₀ O	414.7	27.65	1.41
22	Alpha- Amyrin		C ₃₀ H ₅₀ O	426.72	27.76	2.68
23	2-(P-methylphenyl)-4H-1-benzothiopyran-4-one		C ₁₀ H ₁₄ O	150.21756	27.84	1.69
24	Stigmast-4-en-3-one		C ₂₉ H ₄₈ O	412.37	28.37	4.92
25	2,6-Piperidinedione (or)(+)-3-(p-Aminophenyl)-3-ethyl2,6-piperidinedione		C ₁₃ H ₁₆ N ₂ O ₂	232.3	29.46	2.14

3. Conclusion

The present study is the first report on the *Semecarpus anacardium* L.f. Flowers [3-9], 25 chemical constituents were identified from the methanol extract of the SA Flowers. Presence of medicinally useful phyto-components in the extract implies the phytopharmaceutical importance of the plant. Most of the chemical compounds can target both gram-positive and gram-negative bacteria.

4. References

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