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Research Article

Analysis of the essential oil of monocot grass *Kyllinga triceps* Rottb.

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ABSTRACT

Kyllinga triceps rottb. Is a monocot perennial herb found in various parts of india ^[1]. It is used traditionally by the people for treatment of diabetes, liver problems ^[2] and as antidote ^[3]. In the present study chemical constituents of the essential oil, obtained by hydrodistillation of the powdered rhizome of the plant were identified with help of GC-MS. analysis. Ferruginol, β - Caryophyllene, α -Eudesmol, were present in higher concentration, oil sample has a characteristic aromatic odour, which is due to the presence of high amount of linalool, β - Caryophyllene, and α -Eudesmol.

Keywords: *kyllinga triceps*, antidote, rhizome, caryophyllene, α -Eudesmol.

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INTRODUCTION

Kyllinga triceps rottb. Is well known ayurvedic medicine used in several ayurvedic preparation commonly called as “Nirvishi” even though its chemical constituents were unknown; not much work has been done for identifications of its chemical components according to ayurvedic literatures essential oil of the plant in used as medicine ^[4] thus in the present study chemical component of the plant were obtained with the help of GC-MS analysis. Plant is a major weed of improved pastures ^[5], but also occurs in crops, gardens, plantations and roadsides ^[6]. It grows best in moist fertile soil that is seldom cultivated and in full sunshine. It is present in areas up to 7000 ft. elevation ^[7]. The plant is naturalized primarily in gardens and lawns. The rhizomes of plant *Kyllinga triceps* rottb are fragrant, aromatic, sweet, astringent, bitter, refrigerant, febrifuge, antidiarrhoeal, diuretic, stomachic, anthelmintic, expectorant, demulcent and tonic ^[8]. They are useful in vitiated conditions of pitta and vata, fever, cough, bronchitis, hepatopathy, splenopathy, diabetes, dermatitis, fistula and tumours ^[9].

MATERIALS AND METHODS

Extraction of Oil

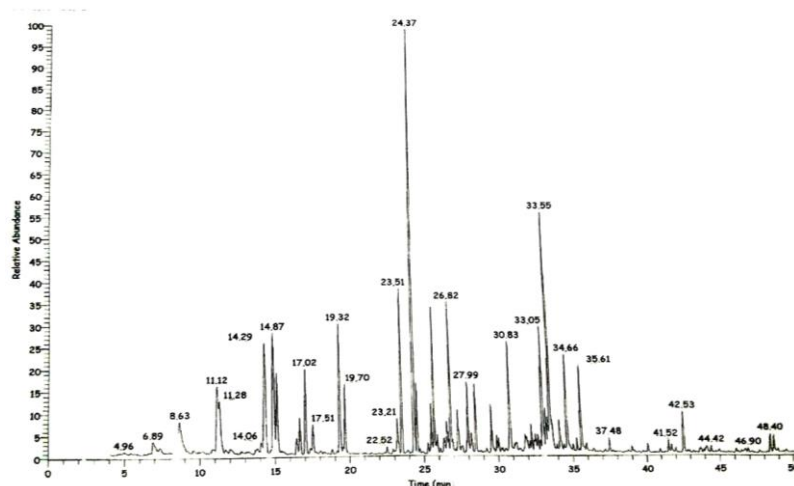
Essential oil of the rhizome is extracted with the help of hydrodistillation method through clavenger apparatus ^[10].

GC-MC System

GCMS of essential oil obtained from hydrodistillation of powdered rhizome of *Kyllinga triceps* rottb. was performed using a Hewlett Packard system, the GC silica capillary column (30m, 0.30 mm), with DB-1 bonded phase, the oven temperature was held at 70°C. for 2 minutes and then programmed to increase at 5°C/min. to 250°C, the carrier gas helium with a flow rate at 1.0 ml/min and the injector temperature was 220°C, instrument used was shimadzu QP 5000 GC 17A.^[11]

RESULT AND DISCUSSION

Essential oil Constituents of *Kyllinga Triceps* Rottb. Rhizome.

Figure 1: Gas Chromatogram of *Kyllinga Triceps* Rottb. Rhizome essential oil.**Table 1:** Essential oil constituents of *Kyllinga triceps* rottb. Rhizome.

S.No.	Compound	RI	% in Oil
1.	β -Pinene	982	1.1
2.	Myrcence	995	0.6
3.	1,8-Cineole	1035	2.8
4.	β -Ocimene	1050	0.4
5.	Linalool	1098	5.4
6.	Terpi-4-Ol	1178	4.9
7.	α - Terpineol	1189	4.7
8.	Myrtenol	1194	2.9
9.	Thymol Methyl Ether	1234	1.6
10.	Carvacrol Methyl Ether	1244	2.6
11.	Thymoquinone	1249	1.2
12.	Isomethyl Acetate	1306	1.8
13.	Cyperene	1396	3.9
14.	β - Caryophyllene	1418	11.9
15.	2,5- Dimethoxy-Para-Cymene	1423	0.5
16.	Aromadendrene	1439	0.4
17.	Z- β -Farnesene	1443	5.9
18.	α - Humulene	1453	0.3
19.	β - Chamigrene	1475	1.6
20.	Trans- β -Guaiene	1500	0.2
21.	Germacrene A	1503	0.6
22.	Epi- α -Salinene	1517	1.4
23.	Trans-Calamene	1521	0.7
24.	4,7-Dimethyl-1-Tetralone	1576	0.8
25.	Caryophyllene Oxide	1581	2.9
26.	Epi- α -Cadinol	1640	3.9
27.	Cubenol	1642	0.2
28.	Spathulenol	1652	0.2
29.	Ferruginol	1658	11.2
30.	α -Eudesmol	1660	8.9

DISCUSSION

The main compounds correlation higher than 1 % calculated as percentage peak area of GC analysis were β -Pinene, 1, 8-Cineole, Cyperene, Linalool, Terpi-4-Ol, α - Terpineol, Myrtenol, Thymol Methyl Ether, Carvacrol Methyl Ether, Thymoquinone, Isomethyl Acetate, β - Caryophyllene, Z- β -Farnesene, Ferruginol, α -Eudesmol.Ferruginol, β -Caryophyllene, α -Eudesmol, were present in higher concentration, oil sample has a characteristic aromatic odour, which is due to the presence of high amount of linalool, β - Caryophyllene, and α -Eudesmol.

CONCLUSION

The present study suggests about chemical constituents of the plant which are confirmed as terpenes and terpenoids, pharmacological effectivity of the plant is due to presence of such components.

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