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GCMS Analysis in Methanolic Extract of Residential plant *Eclipta prostrata* (L.)

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Abstract

This study aimed to investigate the presence of the bioactive compounds in the *Eclipta prostrata* (L.) plant has studied from the residential place. Species diversity is one of the most important indices used for plant communities and provides information on the homeostatic capacity of the system to unforeseen environmental change. The species richness of selected plant to adopt the local diversity and find the bioactive molecules for the presence of methanolic extract. We had found 15 different bioactive compounds based on the identification GC MS spectrum. A higher percentage area was occupied by 8-Octadecenoic acid, methyl ester, and 2,6,10,14,18,22-Tetracosahexaene. The potentially active compounds might represent useful leads in the pharmaceutical application.

Keywords: *Eclipta prostrata* (L.), Bioactive compounds, GCMS, Diversity, Methanol extract.

Introduction

The annual herbaceous plant of *Eclipte prostrata* (L) belonging to family of Asteraceae, commonly known as King of hairs. The plant has been used in traditional medicines in Indian subcontinent. It is a more branched, the leaves are opposite, roughly hairy, rooting at the nodes (Kirtikar and Basu, 1999). It's has a medicinal value of analgesic, antiseptic, antiviral and antibacterial, antioxidant, antihemorrhagic, and anti-hyperglycemic. Earlier reports are described; it is

an ingredient of herbal formulation of liver cell generation and immunomodulatory actions. Thailand traditional medicine has been used as self-medication by AIDS patients and isolates the compounds for inhibition of HIV-1 protease and HIV-1 integrase (Tewtrakul, *et al*, 2007). The *in vitro* and *in vivo* activities of *E. prostrata* juice has anti-migration activity against a variety of cancer cell types and endothelial cells; as well as also showing anti-angiogenic activity (Kriengsak,

et al., 2008). Gas chromatography-mass spectrophotometry (GCMS) has well established as a key technological platform for identification of secondary metabolite profiling in plant species (Robertson, 2005), (Kell *et al* 2005), (Ferne, *et al.*, 2004). In this study, we had found the bioactive molecules from the methanol extracted residential plant of *Eclipta prostrata* (L.) through GCMS studies.

Materials and Methods

Eclipta prostrata (L.) was collected from nearby Rathinam institution, Echanari, Coimbatore District, Tamil Nadu, India and identified from plant taxonomist Tamilnadu Agriculture University, Coimbatore, Tamil Nadu, India. The specimen voucher had deposited from Department of biotechnology Rathinam institution (Voucher No. RCASEP2019008)

Preparation of Extract

The whole plant material of *Eclipta prostrata* (L.) was collected from around the campus, shade dried and pulverized to powder using a mechanical grinder. The required quantity of the whole plant powder was weighed and extracted for soxhlation with methanol.

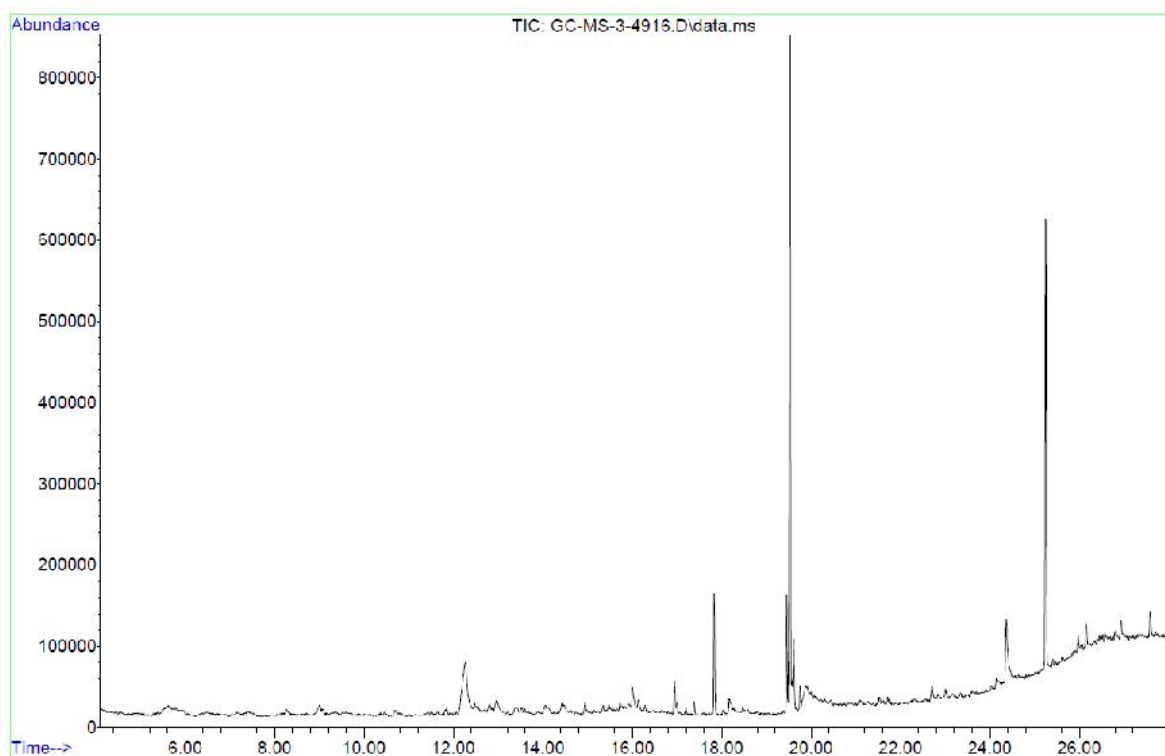
GCMS Analysis

GC-MS analyses were conducted using GC Clarus 500 Perkin Elmer apparatus equipped with reference libraries (NIST); column Elite-5MS, 30x0.25mm x 0.25mm df. cross-linked fused-silica capillary column, coated with 5 % Diphenyl and 95% Dimethyl poly siloxane; column temperature, 110°C for 0 min, rising to 200°C at 10°C/min, then 280°C at 5°C/ min, then rising to

280°C at 20°C and held for 9 min. Injector temperature 250°C, Total GC running time 28 min. The injection mode, split; split ratio 1:20; volume injected, 2 µL of the sample. Helium was used as a carrier; interface temperature 200°C; acquisition mass range, m/z 45-450. The compounds of the leaf extract were identified by comprising their Time of Retention (RT), with those on the stored in NIST version -year 2005 (National Institute of Standards and Technology) library.

Results and Discussion

The *Eclipta prostrata* (L.) leaf extract showed the presence of 15 bioactive chemical compounds by using based on their time of retention (RT) formula weight of molecules, chemical structure and % concentration by using GCMS chromatogram (Fig. 1) analysis were recorded and tabulated (Table 1). The hot Soxhlet extraction of the leaf part of the plant in investigation pertaining to analysis of the methanolic extract of *Eclipta prostrata* (L.) lead to number of compounds identified by GCMS. The presence of various components confirmed with GCMS spectrum based on different retention time showed in [Figure1.]. The fingerprint of mass spectrum to identified from NIST data library. The various components present in the entire herb of leaf in *Eclipta prostrata* (L.) that were tabulated maximum % area covered by 8-Octadecenoic acid, methyl ester (Table 1). The present study 15 biomolecules for predict to find the structure and formula. Further investigation of eluted compounds at different times to identify the pharmacological activities of selected bio-active compounds may leads to development of new drugs.

Figure 1. GCMS chromatogram of *Eclipta prostrata* (L.) methanolic extractTable 1: Chemical composition of *Eclipta prostrata* (L.) methanolic extract identified by GCMS.

S.No	RT	% Area	Name of the compound	M.Wt	Chemical formula
1	5.62	2.20	Chlorbromuron	293.5	$C_9H_{10}BrClN_2O_2$
2	12.26	11.19	Lethane	203.3	$C_9H_{17}NO_2S$
3	12.96	1.54	-d-glucopyranose 1 6-anhydro-	162.1	$C_6H_{10}O_5$
4	14.44	1.83	Lactose	342.2	$C_{12}H_{22}O_{11}$
5	15.99	1.88	1-Methoxy-1,3-cyclohexadiene	110.1	$C_7H_{10}O$
6	16.94	1.50	Bicyclo[3.1.1]heptane, 2,6,6-trimethyl-	138.2	$C_{10}H_{18}$
7	17.82	5.25	Methyl Palmitate	270.5	$C_{17}H_{34}O_2$
8	18.16	2.14	Palmitic acid	256.4	$C_{16}H_{32}O_2$
9	19.45	4.57	Methyl Linoleate	294.5	$C_{19}H_{34}O_2$
10	19.52	31.26	8-Octadecenoic acid, methyl ester	296.5	$C_{19}H_{36}O_2$
11	19.60	2.87	Phytol	295.5	$C_{20}H_{40}O$
12	19.88	4.44	9-Eicosyne	278.5	$C_{20}H_{38}$
13	22.69	1.62	o-(p-Tolyl) 1-azetidincarbothioate	207.2	$C_{11}H_{13}NOS$
14	24.36	7.10	Petroselaidic acid	282.5	$C_{18}H_{34}O_2$
15	25.24	20.62	2,6,10,14,18,22-Tetracosahexaene	326.6	$C_{24}H_{38}$

Conclusion

After the GCMS analysis we had detected the presence of various bioactive compounds using the methanol extract of *Eclipta prostrata* (L.), the traditional practitioner justifies the use of leaf part for various elements. The rich pharmacological potency available in individual isolation of phytochemical constituents based on their biological activity will be need to clarify. For our study, it could be concluded that *Eclipta prostrata* (L.) contains active molecules for pharmacological application under progress.

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