

LC-MS Analysis of *Dendrophthoe falcata* (L.f) Ettingsh Fruits occurring on *Cassine glauca* (Rottb). Ktze. Host from Melghat.

Gopal N. Dhobale*, Sahadeo P. Rothe**

*Research Scholar, Department of Botany, Shri Shivaji College of Arts, Commerce and Science, Akola.

**Principal, Smt. Maherbano College of Science and Commerce, Akola.

ABSTRACT

In this study, the Chemical composition of the ethanolic extract *Dendrophthoe falcata* (L.f) Ettingsh Fruits growing on *Cassine glauca* (Rottb). Ktze. belonging to family Celastraceae From Melghat (Maharashtra) was investigated by using LC-MS. This analysis revealed the presence 34 compounds found in the study are reported to possess antioxidants, anti-inflammatory, anticancer, diuretic and antimicrobial and antibiotic activities. The results of this study offer a platform to reconfirm the properties of the components in *Dendrophthoe falcata* (L.f) Ettingsh fruits that are used as different ailments.

Keywords: LC-MS, *Dendrophthoe falcata* (L.f) Ettingsh Fruits, *Cassine glauca* (Rottb). Ktze. Melghat.

Introduction:

Dendrophthoe falcata (L.f) Ettingsh is a large bushy evergreen parasitic plant species generally found growing on various host plants in tropical and sub-tropical regions of the world. It belongs to the Loranthaceae family. It is a partial stem parasite which depends on the host for water and minerals. *Dendrophthoe falcata* (L.f) Ettingsh has a wide range of host and is known to parasitize on 401 plant species. *Dendrophthoe falcata* (L.f) Ettingsh is a plant of immense medicinal value. It is useful in the treatment of pulmonary tuberculosis, asthma, menstrual disorders, constipation, insanity, diarrhea, dysentery, arthritis, leucorrhoea, rheumatism, skin diseases, impotency, wound swelling, paralysis, ulcers, hemorrhage, miscarriage, kidney and gall bladder stone. Regarding the medicinal importance of this plant, *Dendrophthoe falcata* (L.f) Ettingsh Fruits in ethanolic extract were analyzed for the first time using LC-MS. The literature reveals that information on the LC-MS analysis of *Dendrophthoe falcata* (L.f) Ettingsh Fruits is totally lacking. Hence, the present study is to identify the phytoconstituents with the aid of LC-MS technique.

Material and Methods:

Plant material: The *Dendrophthoe falcata* (L.f) Ettingsh Fruits was collected from the host *Cassine glauca* (Rottb). Ktze. during June-July of 2021 from Melghat forest region of Maharashtra, India and were authenticated by taxonomist, Dr. S. P. Rothe, Principal, Maherbano Sceince and Commerce college Akola. The herbarium specimens were given voucher number and deposited in the herbarium of Department of Botany, Shri Shivaji College of Arts, Commerce and Science, Akola, Maharashtra, India.

Liquid Chromatography-Mass Spectroscopy (LC-MS) analysis of the ethanolic of *Dendrophthoe falcata* (L.f) Ettingsh fruits growing on *Cassine glauca* (Rottb). Ktze. was carried out using Liquid chromatography-Mass spectrometer by standard method. Samples were analysed SAIF, IIT Bombay, Mumbai Maharashtra, India. *Dendrophthoe falcata* (L.f) Ettingsh Fruits extract were subjected for LC-MS analysis and the Mass spectra were obtained. The samples were diluted with acetone and injected 10 µl of the same, Mobile phase used was MPA: MPB:: 5 mM Ammonium formate:0.1 % formic acid in water: Methanol:30 :70 v/v. Identification of compounds: Interpretation on mass spectrum was done using the National Institute Standard and Technology

(NIST) having more than 62,000 patterns. The mass spectrum of unknown compounds was compared with the spectral data of known compounds present in spectral libraries (NIST). The name, molecular weight and molecular formula of the identified molecules were ascertained. The confirmation of compounds was also cross checked with compounds in other databases like respect for Phytochemical database and METLIN- The metabolite mass spectral database, Pubchem, ChEBI etc.

Observation and Results:

LC-MS analysis of *Dendrophthoe falcata* (L.f) Ettingsh Fruits was collected from the host *Cassine glauca* (Rottb). Ktze. have been identified 34 compounds from the ethanol extract.

Figure-1: Mass Spectrum of Ethanol extract of *Dendrophthoe falcata* (L.f) Ettingsh fruits on *Cassine glauca* (Rottb.) O. Ktze.

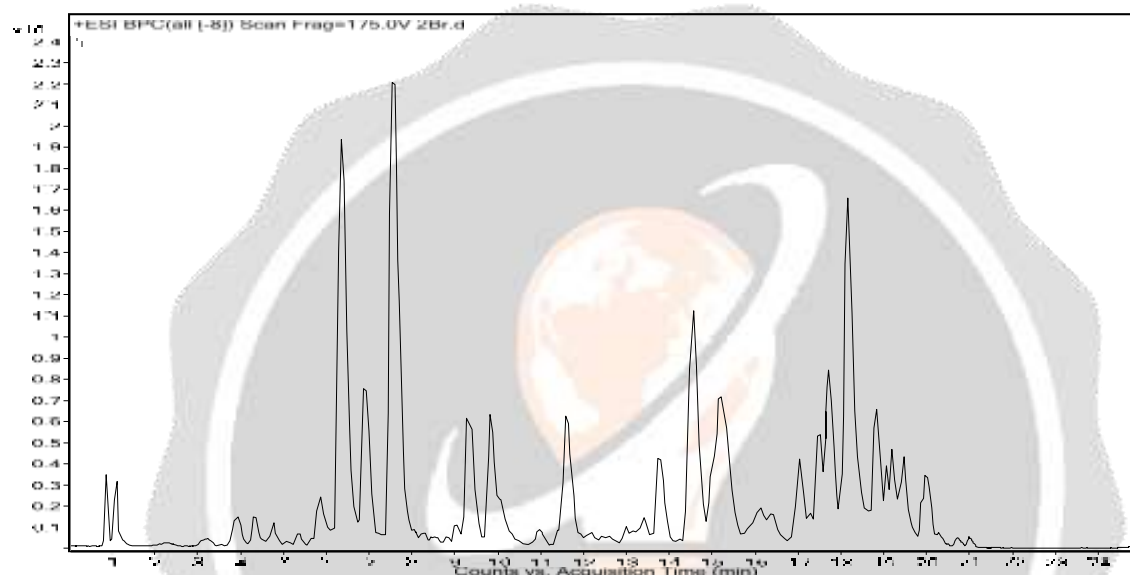


Table – 1: Compounds identified in the Ethanol extract of *Dendrophthoe falcata* (L.f) Ettingsh fruits on *Cassine glauca* (Rottb.) O. Ktze.

Sr.No	m/z	Name of Compound	Formula
1.	156.0396	Ureidoglycine	C3 H7 N3 O3
2.	465.0965	Myricetin 7-rhamnoside	C21 H20 O12
3.	303.0457	Quercetin	C15 H10 O7
4.	449.1018	6-C-Galactosylluteolin	C21 H20 O11
5.	287.051	Maritimetin	C15 H10 O6
6.	181.1194	3-Methylbutyl 2-methylpropanoate	C9 H18 O2
7.	214.1195	Phendimetrazine	C12 H17 N O
8.	279.0894	Sulfadimidine	C12 H14 N4 O2 S
9.	316.2799	Panamine	C20 H33 N3
10.	445.2067	Cynaroside A	C21 H32 O10
11.	279.1549	Monomenthyl succinate	C14 H24 O4
12.	149.0207	Methyl 2-furoate	C6 H6 O3
13.	683.4262	Cyclopasifloside II	C37 H62 O11
14.	639.4002	(3S,3'S,5R,5'R,6R)-6,7-Didehydro-5,6-dihydro-3,3',5,8'-tetrahydroxy-beta,kappa-caroten-6'-one	C40 H56 O5
15.	507.3228	Tangeraxanthin	C34 H44 O2
16.	419.2713	Cavipetin D	C25 H38 O5
17.	496.3329	23-Acetoxysoladulcidine	C29 H47 N O4
18.	625.2579	Grossamide	C36 H36 N2 O8

19.	537.2424	Glycinoeclepin C	C29 H38 O8
20.	623.2782	O-Methylsomniferine	C37 H38 N2 O7
21.	609.2633	Somniferine	C36 H36 N2 O7
22.	535.2634	Ganosporelactone A	C30 H40 O7
23.	654.2925	Rifamycin W-hemiacetal	C35 H43 N O11
24.	665.2886	2',7-Dihydroxy-4'-methoxy-8-prenylflavan 2',7-diglucoside	C33 H44 O14
25.	595.2837	Daphnandrine	C36 H38 N2 O6
26.	284.2906	Stearamide	C18 H37 N O
27.	653.2889	Secoisotetrandrine	C38 H40 N2 O8
28.	637.2935	Thalsimine	C38 H40 N2 O7
29.	467.3641	6 α -Hydroxy-castasterone	C28 H50 O5
30.	679.3044	Disinomenine	C38 H44 N2 O8
31.	413.26	D8'-Merulinic acid A	C24 H38 O4
32.	693.3195	Pisumoside B	C32 H52 O16
33.	679.3038	N3'-Acetylneomycin	C25 H48 N6 O14
34.	563.2941	Ciclesonide	C32 H44 O7

Discussion:

Among the 34 identified compounds from ethanolic extract of *Dendrophthoe falcata* (L.f) Ettingsh Fruits was collected from the host *Cassine glauca* (Rottb). Ktze shows immense medicinal value because of their activity. Possess antioxidants, anti-inflammatory, anticancer, cytotoxic, diuretic and antimicrobial activities. Phytol which are present in the fruits of *Dendrophthoe falcata* (L.f) Ettingsh are different category like **Alkaloids**: Panamine, Pisumoside, D8'-Merulinic acid A B, Daphnandrine, Somniferine, O-Methylsomniferine, 23-Acetoxysoladulcidine, **Falvanoids**: Grossamide, 6-C-Galactosylluteolin, Quercetin. **Phenolic**: Myricetin, Maritimetin, 2',7-Dihydroxy-4'-methoxy-8-prenylflavan 2',7-diglucoside, Secoisotetrandrine, 7-rhamnoside, **Terpene**: Cynaroside A, Monomenthyl succinate, Cyclopasifloside II, Tangeraxanthin, Cavipetin D, Glycinoeclepin C, Ganosporelactone A, Ganosporelactone A, **Glycoside**: N3'-Acetylneomycin, **Steroid**: Ciclesonide, 6 α -Hydroxy, castasterone, Phendimetrazine, N3'-Acetylneomycin, **Plant metabolite**: Thalsimine, Methyl 2-furoate, 3-Methylbutyl 2-methylpropanoate etc.

Conclusion:

The compound identified has its own biological importance and further study of phytochemicals present in this plant can prove its medicinal importance in future and can be an effective and efficient drug source in cheaper rate as it has better availability.

References:

- Beulah, G. G., Soris, P. T., & Mohan, V. R. (2018). GC-MS determination of bioactive compounds of *Dendrophthoe falcata* (LF) Ettingsh: An epiphytic plant. *Int. J. Health Sci. Res.*, 8, 261-269.
- Bohm, B. A., Kocipai- Abyazan, R. (1994). Flavonoid and condensed tannins from the leaves of *Vaccinium raticulation* and *Vaccinium calycimium*. *Pacific Sci.*, 48: 458-463.
- Maheshwari, A. A., & Rothe, S. P. Phytochemical and Antibacterial Investigation on *Dendrophthoe Falcata* (LF) Ettingsh Growing on *Toona Serrata* (Royle.) Roem. *Int. J. of Reserches in Biosciences Agriculture and Technology*.

- Naik V.N. Flora of Marathwada. Vol. I and II. Amrut Prakashan, Aurangabad, 1998.
- Ramchandran A.G. and Krishanakumary P. (1999) Flavonoids of *Dendrophthoe falcata* Ettingsh growing on different host plants. *Ind. J. Chem.* 29:584-585.
- Vermerris W, Nicholson R (2006). Phenolic compound biochemistry. Springer. The Netherlands

