



International Journal of Pharmacy & Therapeutics

Journal homepage: www.ijptjournal.com

IJPT

PRELIMINARY PHARMACOGNOSTICAL STUDIES OF *LEUCAS LAVANDIFOLIA* SP OF FAMILY LAMIACEAE

GL Pachkore

Department of Botany, Padamabhushan Vasantdada Patil College, Patoda Dist-Beed.(M.S) India.

ABSTRACT

The macroscopic characters of *L. lavandulaefolia*, physical constant values, behaviour on treatment with different chemical reagents, fluorescence characteristics after treatment with different chemical reagents of the powder of *L. lavandulaefolia* were studied to fix some pharmacognostical parameters. Preliminary phytochemical studies and TLC characterization of different extractives has also been performed. These studies will help in future for identifying the plant for further research.

Key Words:- *L. lavandulaefolia*, Pharmacognostical studies, Phytochemical Study.

INTRODUCTION

Leucas lavandulaefolia Rees. (Family-Lamiaceae) Syn. *Leucas inifolia* Spreng, commonly known as Gumo well known plant used in Indian medicine system, and is a herbaceous much branched, erect or diffuse annual weed, found more or less everywhere through our India in cultivated fields, wastelands and roadsides (Wallis 1985; Anonymous 1962). The plant has a strong flavor and is eaten as pot-herb. The leaves are useful as febrifuge and vermifuge. The plant is also useful in loss of appetite, snakebite, headache, cold nervous disorder, old sores and wounds, dermatitis, conjunctivitis and migraine (Anonymous, 1996; Satyabati, 1964; Yoganarsimhan *et al.*, 1985; Tiwari *et al.*, 1979; Girach RD and Aminuddin 1992; Fox 1952). Presence of different phytochemical constituents including preparation and TLC characterization of different tinctures of this plant and the antibacterial efficacy of this plant has been reported from this laboratory. The plants were shade dried, powdered and passed through 40 mesh sieve and kept

ready for further use.

MATERIALS AND METHODS

The macroscopic characters of the plant including size, shapes, colour, odors, etc of the plant were observed. The ash values of the aerial part of *L. lavandulaefolia* were determined by pharmacopoeial methods. The alcohol (90%) soluble and water soluble extractives were determined by maceration process. The extractive values of powdered leaves were measured by extracting with different solvents in Soxhlet extraction apparatus and the dried extracts were obtained after evaporation of solvents in vacuo. The behavioral characters were also observed under ultra violet light at 245 nm (Raghunathan and Mitra 1982). Preliminary phytochemical tests of different extractives were performed by specific reagents (Trease 1985; Tyler, 1979). Thin layer chromatographic characterization was also performed with different extracts of *L. lavandulaefolia* using various solvent systems and spray reagents on silica gel G coated plates (Stahl 1971). Considering its various therapeutic efficacy and use in traditional medical practices in India it was thought desirable to fix some pharmacognostical parameters for

Corresponding Author

GL Pachkore

Email:- gpachkore@rediffmail.com

future identification of the plant materials to explore its different phytochemical constituents and clinical efficacy. In the present investigation, we studied different pharmacognostical profiles along with thin layer chromatographic characterization of different extracts to fix some specific characteristic feature for identification of this plant.

Experimental Plant Material

The plants were collected from a forest of Beed district during the month of January-February. Identified and shade dried thoroughly washed by tap water. Specimen herbarium has been kept in our laboratory for further work.

Table 1. Macroscopic Character of *L. loavandulaefolia* Rees

S. No	Characters	Observation
1	Colour	The fresh plants are green, dried plants are grayish green
2	Odour	Strong aromatic odour
3	Size	30cm-60cm high Shape
4	Shape	Erect, slender, herbaceous
5	Taste	Firstly similar that of <i>Cariophyllus</i> (Lounge) Slightly bitter,
6	Trichome	Present in all parts of the plant i.e Glandular and non-glandular
7	Leaves	Opposite, linear-lanceolate, entire or sparingly serrate, Length:2-4 inch, wide: 0.5-2 inc, Green in colour, surface smooth
8	Flowers	White in axillary and terminal whorles
9	Nutlets	Small, oblong, pale brown to dull in colour

Table 2. Some microscopically features of powdered material

S. No	Plant part	Size in Micron
1	Trichomes 20-30	20-30
2	Crystal fibers	10-15

Table 3. Fluorescence analysis of powdered *L. Iavandulaefolia* after Treatment with different chemical reagents

S. No	Treatment	Fluorescence observed
1	Powder as such	Bluish grey
2	Powder mounted with Nitrocellulose	Greenish brown
3	Powder treated with sodium hydroxide in menthol	Brownish
4	Powder treated with sodium hydroxide in menthol dried and mounted with nitro cellulose	Brownish
5	Powder treated with hydrochloric acid	Greenish
6	Powder treated with sodium hydrochloric dried acid and mounted in nitrocellulose	Grayish
7	Powder treated with sodium hydroxide in water	Brownish
8	Powder treated with sodium hydroxide in water and mounted with nitrocellulose	Greenish brown
9	Powder treated with nitric acid diluted with equal Volume of water	Greenish black
10	Powder treated with sulphuric acid diluted with equal Volume of water	Greenish black
11	Powder treated with sulphuric acid diluted with equal Volume of water	Reddish brown
12	Powder treated with sodium hydroxide in water	Brownish

Table 4. Behavior of powdered *L. Iavandulaefolia* Rees on Treatment with different Chemical reagents

S. No	Treatment	Colour observed
1	Power as such	Grey
2	Picric acid	Yellowish grey

3	Nitric acid (Sp.gr 1.42)	Reddish brown
4	Hydrochloric acid (Sp.gr.1.18)	Blackish green
5	Sulphuric acid (80%)	Dark brown
6	Glacial acetic acid	Green
7	Ferric chloride (5%)	Green
8	Ferric chloride (5%)	Blackish green
9	Iodine solution	Brownish green
10	Antimony trichloride	Emerald green
11	Sodium hydroxide	Brownish yellow

Table 5. Physical constant values of *L. Iavandulaefolia* Rees

S. No	Physical constants	Percentage*
1	Total ash	16.08
2	Acid insoluble ash	1.32
3	Alcohol (90%) soluble extractive	27.75
4	Water soluble extractive	26.82

Each value is an average of three determinations.

Table 6. Extractive Values of *L. Iavandulaefolia* Rees with different solvents

S. No	Extract	Percentage of yield (/w)	Colour
1	Petroleum ether (60-80°C)	2.40	Blackish green
2	Benzene	2.73	Brownish green
3	Chloroform	1.09	Dark green
4	Acetone	0.95	Greenish brown
5	Methanol	9.82	Dark brown
6	Water	5.61	Brown

Table 7. Preliminary phytochemical tests of Extractives of *L. Iavaandulaefolia* Rees

Extract	Steroid	Alkaloid	flavonoid	Sugar	Tannin	Gum	Tannin	Volatile oil
Petroleum ether	+	-	-	-	-	-	+	+
Benzene	+	+	-	-	+	+	-	+
Chloroform	-	-	+	+	-	-	+	-
Acetone	-	-	-	-	+	-	-	-
Methanol	-	+	-	+	+	-	-	-
Water	-	+	-	+	-	-	-	+

+ = present, - = absent

Table 8. Thin Layer Chromatographic Studies on different Extracts f *Leucas Iavandulaefolia* Rees

S. No	Extract	Solvent System	Spray reagent	Rf values	Colour under UV light	Colour developed afterspray
1	Petroleum ether	Chloroform Acetone: Methanol (70:25:5)	Liebermann Burchard Reagent	0.136 0.591 0.818	Pink Pink Dark Pink	----- Orange brown Yellowish Brown
2	Benzene	Chloroform Acetone: Methanol (70:25:5)	Liebermann Burchard Reagent	0.115 0.577 0.692	Brownish pink Pink Brown	Yellowish brown Brown Yellowish

3	Chloroform	Chloroform Methanol (1:1)	Lead acetate solution	0.523 0.705	Pink Dark Pink	Greenish yellow Greenish yellow
4	Methanol	Ethylacetate: Methanol Water (70:25:5)	Drogen dorffs Reagent	0.9545	Bluish Fluorescence	Orange brown
5		Chloroform Acetone: Methanol (100:13.5:10)	Lad acetate solution	0.3409 0.5000	Blue Pink Fluorescence	yellow Fluorescence yellow
6		Chloroform Acetone: Methanol (70:25:5)	Liebermann Burchard Reagent	0.0454 0.2274 0.8181 0.9990	Blue Fluorescence Pink Fluorescence Blue fluorescence Pink Fluorescence	---- Brown Brown ---

RESULT AND DISCUSSION

The macroscopic characters of the plant have been shown in Table 2 and Figure 1. The pharmacognostical studies on *L.lavandulaefolia* such as fluorescence characteristics of powdered drug (Table -3), behavior of powdered drug on treatment with different chemical reagents (Table -4) physical constant values (Table-5), extractive values (Table -6) and chemical group tests of different extractives (Table-7) showed a path for isolation of different phytochemical constituents present in those extracts. Thin Layer chromatographic (TLC) studies

has also been performed with all the extractives (Table -8) which will help to isolate some constituents from the extractives of *L. Iavandulaefolia*, Further isolation of the active constituents' and their studies are underway in our laboratory.

ACKNOWLEDGEMENTS

Author thankful Dr.S.K.Markandeya for their cooperation and Guidance. Author also thanks full Principal Dr.D.B.Agjav Sir for providing the facilities.

REFERENCES

- Anonymous, The Indian Pharmacopoeia 2nd Edn, Govt. of India publication, Delhi, 1966, 947-948.
- Anonymous, The Wealth of India, Council of Scientific and Industrial research, New Delhi, 6, 1962, 80.
- Fox RB. The Pinatubo negritus, their useful plants and material culture: Medicinal plants and practices. *Philipp. J Sci*, 81, 1952, 330, 3-4,
- Girach RD and Aminuddin. Some little known edible plants form Orissa. *J. Econ Tax Bot*, 16, 1992, 61-68.
- Raghunathan K and Mitra R. Pharmacognosy of Indigenous Drugs Vol 1&2. Central council of research in Ayurveda and siddha New Delhi, 1982, Vol 1&2.
- Satyabati GV. Medical plants of India. Indian council of medical research, New Delhi, 1987, 2, 162-164.
- Stahl E. Thin Layer chromatography, 2nd Edn Springer veriang, New York, 1992, 851, 904.
- Tiwari KC, Majumder R, Bhattacharjee S. Folklore medicines from Assam and arunachal Pradesh (District Tirap). *Quart. J. Crude Drug Res*, 17(2), 1979, 61-67.
- Trease GE and Evans WC. Pharmacognosy, 12th Edn ELBS Publication, 1985.
- Tyler VE, Brady LR, Robbers JE. Pharmacognosy, 9th Edn Lea & Febiger publication, Philadelphia, 1959.
- Wallis TE. Text Book of Pharmacognosy, 3rd Edn, CBS Publishers & Distributors, Delhi, 1985.
- Yoganarsimhan SN, Nair KV and Murthy KR. Keshava, Medicobotany of karnataka-3: Utilisation of floristic wealth for the economic development of kanakapura Taluk, Bangalore Distract. *J. Ecom. Tax Bot*, 6(1), 1985, 97 -108.