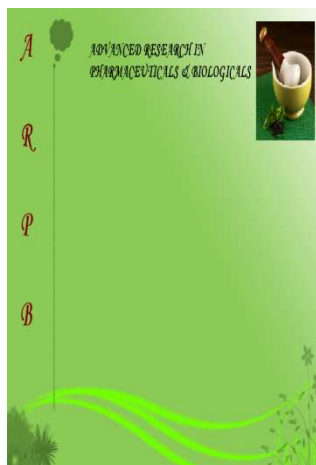




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**EXPERIMENTAL TAXONOMIC
INVESTIGATION ON *GLIRICIDIA SEPIUM*
(JACQ.) KUNTH EX WALP.**

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ABSTRACT:

The present investigation includes the phytochemical analysis and antimicrobial activity of medicinally important plant from family Fabaceae. Plant is commonly known as Giripushpa widely used as hedge plant. Plant extracts were prepared in various solvents and phytochemically they were tested in the solvent where the good extraction or active extraction observed, phytochemical tests were carried out especially for analyzing secondary metabolites from the plant.

Keywords: Phytochemical, Antibacterial, Fabaceae, Secondary metabolites.

INTRODUCTION

Plants have been one of the important sources of medicine since the dawn of human civilization. In spite of tremendous developments in the field of allopathy during 20th century, plants still remain one of the major sources of drugs in modern as well as traditional systems of medicine throughout the world¹. Medicinal plants are a source of great economic value. In the earliest Indian records of Indian medicine (Ayurveda) include the detailed information about hundreds of medicinal plants. India has rich heritage of knowledge of plants based drugs preventive and curative medicines². In India many exotic plants are introduced from other countries through civilization, social forestry and gardening. Now these plants are naturalized along roadsides, in forest, also as weed occurring regularly in cultivated fields and gardens.

Gliricidia sepium (Jacq.) Kunth ex Walp is a native of Central Tropical America and Mexico introduced into India as a shade and ornamental tree grown widely in South India, Tamil Nadu, Karnataka, Maharashtra and Kerala upto 100 M. *Gliricidia* can grow in shallow slightly saline, acidic and moderately infertile soil. It tolerates seasonal droughts and climate with mean

annual rain fall, it grow best in full sunlight. Also, *Gliricidia* as nitrogen fixing trees for wastelands, suggested by Mac Dicken³. Brewbaker⁴ studied the nitrogen fixing system of the plant. The studies on the constituents of *Gliricidia sepium* leaves and roots, isolation structure elucidation of new triterpenoids, Saponin and aromatic compounds are done by Rastrelli⁵ and Molykutty⁶ identified the essential oil composition of leaves and flowers. Insecticidal, Nematicidal and Antibacterial activities were studied⁷.

The *Gliricidia* is a small thorn less, semi-deciduous tree known for its rodenticide and mosquito repellent property also used as fodder for cattle and has medicinal uses too that's why various experimentations were made and for phytochemical analysis.

Anti dermatophyte activity of *Gliricidia* extract were studied⁸; Plants used in Guatemala for the treatment of dermatophytic infections against *Microsporum canis*, *Epidermophyton floccosum*, *Microsporum gypseum*, *Trichophyton menagrophytes*, *Trichophyton rubrum*. Results provide scientific basis for the use of these plants for the treatment of dermatophytes infections in man.

MATERIALS AND METHODS

The plant material in the form of Root, Stem and Leaves was collected from different localities of the Amravati district. After collection of plant material in sufficient quantity plant parts were washed and dried in the shade. The dried plant powder was used for the phytochemical screening. In some tests instead of dried plant material, fresh plant parts were used for the tests.

Detection of various secondary metabolites was done by standard prescribed methods⁹⁻¹⁴. Responses to various tests were denoted by +, ++ and +++ signs indicating weak, moderate and strong reactions respectively. Ashes of different plant parts were prepared in Muffle furnace and ash analysis was done.

OBSERVATION AND RESULTS

Table 1: Phytochemical analysis of *Gliricidia sepium* (Jacq.) Kunth ex Walp.

S.No.	Test	Plant part		
		Root	Stem	Leaf
1	Iridoids	- (transparent)	- (faint blue)	- (green)
2	Alkaloids Mayer's reagent Dragendorff's reagent	- +	- +	- +
3	Anthraquinone	+	+	+
4	Phenol	+ Red brown	+ Red brown	+ Green
5	Steroids Unsaturated steroid	+	+	+
6	Tannins	+	+	+
7	Saponins	+++	+++	+++
8	Juglone	-	-	-
9	Emodin	-	-	-
10	Polyoses	+	+	+
a)	Polyuronoids	+ Violet clear solution	+ Violet clear solution	+ Violet clear solution
11	Anthracene glycosides	-	-	-
12	Cardenoids	-	-	-
a)	Cardiac glycosides	- green	- green	- green
13	flavonoids	No change	No change	No change
a	flavonols	++	++	++
b	flavononols	+	+	+
c)	Flavones and flavanols	Flavones (+) (light orange)	Flavones (+) (light orange)	(-) (light orange)
d)	Rao and Sheshadri test	-	-	-
14	Leuco- anthocyanin	-	-	-

Table 2: Ash value of *Gliricidia sepium* (Jacq.) Kunth ex Walp.

S.N.	Plant part	Ash yield (gm)	Water soluble ash (gm)	Water insoluble ash (gm)	Acid soluble ash (gm)	Acid insoluble ash (gm)
1	Root	1.040	0.025	0.225	0.048	0.192
2	Stem	1.031	0.020	0.230	0.212	0.053
3	Leaves	1.016	0.221	0.029	1.031	0.233

DISCUSSION

Various Phytochemical tests were carried out and screened out various secondary metabolites from selected plant materials. The secondary metabolites like Anthraquinone, Alkaloids, phenol, Saponin, Tannins, Polyoses, Polyuronoids Flavanols are moderately present in stem leaves and roots of the plant. Flavones and Flavonols are present in root and stem but absent in leaves. Saponin shows very good results in all parts like root, stem leaves. The compounds like Iridoids, Juglon, Emodin, anthrocine are totally

absent. Cardiac glycosides also absent. Rao and Sheshandri test for flavones shows negative results. The presence of Anthocyanin pigment is observed in flower. With respect to phytochemical screening the quantitative ash analysis of the plant has been also done. Remnants of the crude drugs after incineration contain mostly inorganic salts known as ash. Its study gives an idea about the quality and purity of the drug. It was observed that *Gliricidia sepium* (Jacq.) Kunth ex Walp. is not bactericidal against UTI micro flora.

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