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Preliminary phytochemical analysis of *Butea monosperma*.

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ABSTRACT

Butea monosperma commonly known as Palas. *Butea monosperma* popularly known as Flame of the Forest. generally it grows gregariously on open grasslands and scattered in mixed forest. Plantation can be raised both on irrigated and dry lands. The pods should be collected and sown before the commencement of rains, root suckers are freely produced and help in vegetative propagation.. The plant is traditionally reported to possess astringent, bitter, alterative, aphrodisiac, anthelmintic, antibacterial and anti-asthmatic properties. As per phytochemical investigation, the ether, methanol and aqueous extract used for testing various chemical compound

Keywords: Butea monosperma, Phytochemical, Traditional.

INTRODUCTION

India is sitting on a goldmine of well-recorded and traditionally well-practiced knowledge of herbal medicines, therefore, any scientific data on such plant derivatives could be of clinical importance.

Butea monosperma widely distributed throughout Inda. It holds an important place because of its medicinal and other miscellaneous uses of economic value. It is one of the most beautiful tree has been put of some useful purpose. Butea monosperma is extensible used in Ayurveda, Unani and Homeopathic medicine and has become a cynosure of modern medicine. Commonly Butea monosperma is used as tonic, astringent, aphrodisiac and diuretics[1].

It is an erect tree 12-15m high with crooked trunk and irregular branches bark rough, ash coloured, young parts downy. Leaves are 3-foliate, petioles 10-15cm long, stipules linear lanceolate. Leaflets coriaceous (the terminal 10-20 cm long, broadly ovate from a cuneate base, the lateral smaller, 10-15 by 7.5-10 cm, obliquely rounded at the base, equilateral, the lower side the larger), all obtuse, glabrous above when old Ajay kumar Sharma et al.[2] finaly silky and conspicuously reticualtely veined beneath, petioles 6 mm long, stout –stipels subulate deciduous. Flowers are large, in a rigid racemes 15 cm long, 3 flowers together form the tumid nodes of the dark olive-green velvety rachis; pedicels about twice as long as the calyx, desely brown-velvety; bracts and bracteoles small, deciduous. Calyx 13 mm long, dark olive-green, densely velvety outside, clothed with silky hairs within; teeth short, the 2 upper connate, the 3 lower equal, deltoid. Corolla 3.8-5 cm long, clothed outside with silky, silvery hairs, orange or salmon coloured; standard 2.5 cm broad; keel semicircular, beaked veined. Pods stalked 12.5-20 by 2.5-5 cm, thickened at the sutures, reticulately veined argenteocanescent; stalked 2 cm long.

METHODOLOGY

The plants collected during the tours. The entire plant or its parts i.e. stem, root, leaves, bark, fruits were used for the phytochemical studies. The plants were washed properly with distilled water, chopped in small pieces and dried in shead. After drying they are granded in powder which was later kept in polythene bags. This was later used for the phytochemical analysis.[3]

Procedure:-

Qualitative detection of the compounds was done by soaking 10g powder of plant material in 100ml of petroleum ether. After 24 hours, petroleum ether was distilled off and the residue was dissolved in 25ml ethanol and divided in to two portions (A) and (B). portion A divided in two parts(A.1&A.2). portion (A.1) of the extract was tested was tested for alkaloidal bases and volatile oils. The other portion(A.2)was saponified with 5ml of alcoholic potassium hydroxide(0.5N) by refluxing on water bath for 90 minutes. The alcohol was distilled off and residue was redissolved in hot distelled water(10ml). The non-saponifiable (A.2.1) was extracted in ether (3x5ml) and tested for presence of carotenoids, steroids/triterpenoids. The alkaline aqueous solution was acidified (pH 3-4) with concentrated hydrochloric acid and extracted in ether (3x10ml). This ethereal solution (A,2.2) was tested for coumarins, emodins, fatty acids and flavonoids.[4]

The plant residue marked (B) which was exhausted with ether, was extracted with hot methanol(100ml) and kept overnight for extraction by facilitated diffusion technique on a orbital shaker at 150 rpm. The methanol extract was decated off in another flask and it was reduced to 1/3 of its volume under vacuum at 40^0 C. It was divided in two portions (B.1&B.2). Portin (B.1) was tested for alkaloida salts, reducing compounds and tannins. The other remaining portion (B.2) was hydrolysed with hydrochloric acid (5ml 10%) by refluxing on water bath for 30 minutes. Contents were cooled and after adding water (10ml), extracted with ether (3x10ml). The ethereal solution(B.3)was tested for anthracene glycosides, coumarins, flavonoids, steroids and triterpenoids. Acidic solution (B.4) was tested for anthocaynin and anthocyanidin.[5]

The plant residue marked (C), exhausted with ether and methanol, was extracted with hot distilled water(100ml) and kept overnight to ensure complete extraction. The water extract was reduced to 1/3 ot its volume under vacuum and divided into two portions. the portion (C.1) was tested for alkaloidas salts, ployosed, polyuronoids, reducing compounds, saponin, starch and tannin. The portion (C.2) was hydrolysed with hydrochloric acid(5ml 10%) by refluxing on water bath for 30 minutes. Contents were cooled and after adding water (10ml) extracted with ether (3x10ml). The ethereal solution (C.3) was tested for anthracene glycosides, coumarins, flavonoids, steroids and triterpenoids. Acidic soulution(C.4) was tested for anthocaynin and anthocyanidin

RESULTS AND DISCUSSION

Preliminary phytochemical screening of the presence of various phytocompounds is tabulated in the table

1,2 and 3. The maximum number of phytocompounds were seen in the ether extract which showed the presence of Alkaloids, Coumarins, Emodins, Fatty acids and Flavonoids, whereas the presence of Alkaloids, Anthocyanin and Coumarins presence in the methanol extract, on the other hand Anthocyanin, Flavonoids and Polyuronoids are presence in the aqueous extract. After surveying all the available paper, journals and books about plant Butea monosperma, we can certainly conclude that, a number of compounds can be isolated by means of different extraction procedure following their through characterization and optimization. Study of pharmacological activities with different extract, which show that the compounds have beneficial effects against a number of diseases. [6]

Table No, 1: Preliminary Phytochemical Screening of Butea monosperma

Parts used	Alkaloids			Anthocyanin/Anthocyanidin		Anthracene Glycoside		Anthroquinone
	Ether	Methenol	Water	Methanol	water	Methanol	water	
Root	+	-	-	+	+	-	-	+
Stem	+	+	-	+	+	-	-	-
Bark	++	+	-	+	+	-	-	-
Leaf	++	++	-	+	+	-	-	-
Fruit	+	-	-	+	+	-	-	-

Table No. 2: Preliminary Phytochemical Screening of Butea monosperma

Parts used	Carotenoids	Coumarins			Emodins	Fatty Acids	Volatile oils
	Ether	Ether	Methenol	Water	Ether	Ether	Ether
Root	-	-	-	-	-	+	-
Stem	-	-	-	-	-	-	-
Bark	-	+	+	-	+	-	+
Leaf	-	-	-	-	-	-	-
Fruit	-	-	-		-	-	-

Table No.3: Preliminary Phytochemical Screening of Butea monosperma

Parts used	Flavonoids			Lignans	Polyoses	Polyuronoids	Reducing compound	
	Ether	Methenol	Water	Methenol	Water	Water	Methenol	Water
Root	-	-	+	-	-	++	-	-
Stem	-	-	-	-	-	-	-	-
Bark	+	-	+	-	-	+	-	-
Leaf	++	-	-	-	-	++	-	-
Fruit	-	-	+	-	-	+	-	-

Table No.4: Preliminary Phytochemical Screening of Butea monosperma

Parts used	Saponin	Starch	Steroid/Triterpenoid			Tanin		Volatoil oils
	Water	Water	Ether	Methanol	Water	Methanol	Water	Ether
Root	-	-	+	-	-	-	-	-
Stem	-	-	-	-	-	-	-	-
Bark	-	-	-	-	-	-	-	+
Leaf	-	-	+	-	-	-	-	-
Fruit	-	-	-	-	-	-	-	-

Conflicts of interest: The authors stated that no conflicts of interest.

REFERENCES

1 Jhade D., Ahirwar D., Sharma N.K., Jain R., Gupta S., *Butea monosperma.* (Lam.) Taubert: A Review,Journal of Pharmacy Research 2009; 2 (7) 1181-1183.

2 Ajay Kumar Sharma et al /Int.J. PharmTech Res.2011,3(2)

3 K.R. Kirtikar., B.D. Basu, *Indian medicinal plants*, (Lalit mohan Basu, Allahabad, India, 1935) Vol, 1 2nd edition Pp785-788

4 K. M. Nadkarni's Indian Materia Medica (Bombay Popular Prakashan 2002) Vol. 1, pp.223-25.

5 The Wealth of India, A dictionary of India raw material and industrial products, (Publication and Information Directorate, CSIR, New Delhi, 1988) pp. 341-46

6 L. D. Kapoor. Handbook of Ayurvedic Medicinal Plants, Herbal Reference Library Edition (Replica Press Pvt. Ltd., India 200s5) pp 86.