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Phytochemical and Physicochemical screening of different extracts of *Butea monosperma (Lam.) Taub* flowers

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ABSTRACT

Traditional herbal medicine is well known and practised in India. Since ancient times, people have employed plants for medicinal and cosmetic purposes. *Butea monosperma*, also known as Flame of the Forest, is frequently used in the "Ayurveda" system of traditional Indian medicine to cure a wide range of illnesses. The purpose of this study is to extract and isolate components found in *Butea monosperma* flowers.

Keywords: *Butea monosperma,* medicines, flowers etc.

INTRODUCTION

It is clear that human life is impossible without nature. Humans' three basic needs are for food, clothing, and shelter, and today the fourth is for good health, which is provided by the plant kingdom. Nature is a shining example of how to give a wealth of treatments for all human ills. The plant world is a rich source of organic chemicals, many of which have been employed as medicines and may one day lead to the creation of innovative drugs that are effective against a variety of clinical conditions. In India, herbs have long been the primary form of medicine, and today they are gaining popularity around the globe as people try to stay healthy in the face of ongoing stress and pollution and cure illness with drugs that support the body's natural defences. Green medications are thought to be more beneficial to health and more secure than synthetic ones (Sindhia and Bairwa, 2010). Phytomedicines include products made from plants. Barks, leaves, flowers, roots, fruits, and seeds can all be used to make this. The ability to synthesise complex with the help of local fisherman. The fishes are brought in the laboratory and preserved in 10% formalin solution for further study. Then fishes were identified with the help of Day volume (1878). chemical substances will benefit from knowledge of the chemical components of plants (Ayitey and Addae, 1977; Cooke, 1967; Cragg and David, 2001).

The primary or more accurately secondary metabolism of living things produces these chemicals. Secondary metabolites are incredibly diverse chemically and taxonomically and have unknown purposes. They are extensively employed in a variety of fields, including veterinary medicine, agriculture, scientific research, and human therapy (Gaikwad et al., 2003). The foundation of many pharmaceutical industries was built on phytochemical components. The components of the plants are very important in identifying crude medicines. Alkaloids, flavonoids, phenolic compounds, saponins, steroids, tannins, terpenoids, and other chemicals with therapeutic and commercial importance can be found in new sources thanks to phytochemical screening. Antimicrobial compounds are abundant in medicinal plants. Different nations employ plants as medicine, and they are the source of potential and potent medications (Gill, 1997).

The World Health Organization (WHO) states that the best source for a wide range of medications would be medicinal plants. In developed nations, traditional medicines with ingredients derived from medicinal plants are used by about 80% of people. To learn more about these plants' characteristics, security, and effectiveness, however, more research should be done (Hey and Sheng, 1997). The introduction of new and advanced methodologies has drawn the attention of plant scientists to current phytochemical studies. Plants produce a variety of chemical molecules that can be divided into primary and secondary metabolites according to their chemical class, functional groups, and origin in biosynthesis. It is desirable to have an understanding of the chemical components of plants since it will help reveal new sources of these chemical substances as well as aid in the identification of medicinal treatments.

MATERIALS & METHODS

Butea monosperma

Butea monosperma (Lam.) Taub (Syn. Butea frondosa Willd. Family Faboideae), a deciduous tree, is found chiefly in the mixed or dry deciduous forests of Central and Western India. This plant is popularly known as dhak or palas, palash, mutthuga, bijasneha, khakara, chichara and commonly known as “Flame of the forest” This tree grows to 50 ft high, with stunning flower clusters. Tree is almost leafless during spring season forming an orange- red hue of flowers on the upper portion, giving the appearance of flame from a distance (Padghan, 2018; Geeta et al., 2011; Varsha, 2011).

Flowering & Fruiting: March to May.

i. Collection of plant material:

Plants *Butea monosperma* will be collected from back uard of S.R.TM. University Nanded. Subsequent visit will be planned to photograph the plant in proper blooming period and confirm the folk of medicinal uses. The plant parts will bring to the laboratory. After completion of description, identification and noting medicinal uses the plant will be subjected for phytochemical constituents through literature. The plant parts will be dried, crushed to make powder and the powder material used for the study of phytochemical test.

The collected flowers were cleaned and shade dried. Fresh samples were used for anatomical studies and dried parts were powdered, sieved and stored in an airtight container for further use.

Fig. 1: Flowers of *Butea monosperma* (Lam.) Taub

ii. Extraction of Plant Drug:

The fine powdered plant material will be subjected to extraction in soxhlet apparatus. The powdered plant material will be subjected to successive solvent extraction using different organic solvents such as methanol, Ethanol, Acetone, chloroform, and Ethyl acetate. Twenty grams of powdered plant material will

be used to soxhlet extraction with 250 ml of the various organic solvents for 8 hrs. Each time before extracting with next solvent, the powder residue will dried. Extract obtained in each solvent will be concentrated, solidified and used for preliminary phytochemical analysis.

iii. Phytochemical Screening:

For preliminary phytochemical screening powder tuber of ***Butea monosperma*** will be subjected to various qualitative chemical tests to determine the presence of various phyto-constituents like glycosides, tannins, phytosterols, proteins, amino acids, flavonoids, saponins etc

iv. Physicochemical evaluations:

Physico-chemical parameters of the powdered drug such as total ash, water-soluble ash, acidinsoluble ash and sulphated ash were determined. Extractive value, solubility tests, moisture test, mineral content and nutritive value (ash, fat, fiber, protein and carbohydrate) of flowers were determined as per standard procedures

RESULTS AND DISCUSSION

The Butea monopserma extract was subjected to a phytochemical investigation using hot water, methanol, acetone, chloroform, and ethyl acetate. Proteins, amino acids, alkaloids, phenolic compounds, glycosides, and carbohydrates were discovered in hot water extract. Carbohydrates, glycosides, alkaloids, flavonoids, and saponins are all present in methanolic extract. Acetone, chloroform, and ethyl acetate extracts all contain alkaloids, phenolic compounds, and carbohydrate protein in addition to steroid, carbohydrate protein, and glucoside. (Table 1.)

This research is useful for evaluating the purity and quality of the raw medication. Different metrics, including moisture content, extractive values, and ash values, were employed in this study to evaluate *Butea monosperma*. *Butea monosperma*'s physicochemical examination revealed results that fell within acceptable bounds. No. 2 Table This suggests that the purity and quality of the basic materials were enough.

Table 1: Phytochemicals Screening of *Butea monosperma* flower

Test	Hot water	Methanol	Acetone	Chloroform	Ethyl Acetate
Carbohydrates					
Fehling's Test	+	+	+	+	+
Protein					
Millon's Test	+	+	+	-	+
Saponins					
Foam Test	+	+	-	-	-
Glucosides					
Keller-Killian test	+	+	+	+	-
Legal's test	+	+	+	+	-
Alkaloids					
Mayer's Te	+	+	-	-	+
Flavonoids					
Shinod test	-	+		-	-
Lead acetate test	-	+			
Phenolic compound and Tannins					
FeCl3 test	+	+	-	-	+
Terpenoids					
Liebermann Burchards Test	-	-	-	-	-
Steroids					
salkowski test	+	+	+	-	-

The result of 3.64%w/w moisture content suggests that the medicine has been correctly dried and stored. The medicine has been correctly dried and kept if the moisture content is 4.80%w/w. Total ash, a

physicochemical measure, is crucial because it indicates the drug's purity and the presence or absence of foreign substances such metallic salts and other impurities. Total ash was discovered to have a physicochemical analytical result of 7.3 W/w. If the ash value is within the acceptable range, the crude medication must be pure and of high quality. The extractive value that was discovered to be water soluble was 7.16%. While the extractive value of ethanol was 9.25% weight-for-weight.

CONCLUSION

Numerous phytochemical elements, including alkaloids, flavonoids, amino acids, carbohydrates, proteins, saponin, and tannins, were identified through the phytochemical screening. Phytochemical components supported the use of flowers as medical treatments. Indians are increasingly using phytochemicals and medicinal plants in their healthcare. Multiple physicochemical parameters, including total ash, acid insoluble ash, water soluble ash, water soluble extractive value, and alcohol soluble extractive value, were noted. The information in the identification and authenticity of *Butea monosperma* is provided by all investigated standardising parameters, including phytochemical screening and physicochemical characteristics.

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

REFERENCES

Ayitey Smith E., Addae-Mensah I. W., *Afr. J Pharmacol Drug Res, 1977; 4, 7*-8.

Cooke T, *Flora of presidency of Bombay*, 1967; 3B, 236-37.

Cragg GM., David JN, *J Pharm Biol,*2001;39, 8-17.

Gaikwadi SS, Vadlamudi VP, Waghmaee, Maral SP, Ranteke VJ, Dhok AP., *Phytochemical analysis of aqueous extract of few medicinal plants,PKV. Res. J.*, 2003; 27(1): 91-92.

Geeta R, Prakash R, et al "*Butea monosperma* (LAM.) KUNTZE: A Review" *Int Res J of Pharma,* 2011; 2 (7):98-108.

Gill LS, *Ethnobotanical uses of plants in Nigeria*, ,*University of Benin Press,* 1992:350.

Hey, SA and N Sheng. Utilization and Conservation of Medicinal Plants in China with Special Reference to Atractylodes Lancea, in, Medicinal Plants for Forest Conservation and Health Care, G.C. Bodeker (Ed.) FAO, Rome. 1997.

Padghan Santosh V. Phytochemical and Physicochemical screening of different extracts of *Butea monosperma* flowers, *Int. Res. Journal of Science & Engineering,* January 2018 | Special Issue A3 |: 113-116.

Sindhia VR, Bairwa R. Plant review: *Butea monosperma*. International Journal of Pharmaceutical and Clinical Research 2010; 2(2): 90-94.

Varsha S, "Therapeutic Significance of *Butea monosperma*: A Review" *J of Drug Delivery & Therapeutics,* 2011; 1(2): 63-67.