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## Phytochemical analysis of *Leucaena leucocephala* on various extracts

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### ABSTRACT

The plants play a vital role in human life. Every plant has some disease curative properties in it. Even the fodder plants have medicinal properties. In the similar way the present research was carried out to study phytochemicals present in the leaves of fodder plant *Leucaena leucocephala*. The result showed that presence of valuable secondary metabolites like flavonoids, saponins, phenols, tannins, cardiac glycosides, phlobatannin and terpenoids on various extracts of leaves.

**Keywords:** Curative, Phytochemicals, *Leucaena leucocephala*, Secondary metabolites.

### INTRODUCTION

Plant metabolites can be derived from any part of the flora [1]. The plant synthesized different types of chemical substances such as alkaloids, phenolic compounds, saponins etc. which are known for biological activities [2]. In many laboratories the screening of plant species is routinely carried out to find out the new bioactive compounds [3]. *Leucaena leucocephala* (Lam.) de Wit is well known fodder plant in the villages of Tamil Nadu, India. But this plant has hidden their medicinal properties in it. The reason for therapeutic properties is due to the presence of plant metabolites. *Leucaena leucocephala* (Fabaceae) is a medium sized fast-growing tropical tree and indigenous to Southern Mexico and Northern Central America [4,5] and now in many tropical and sub-tropical regions it has grown wildly [6]. White lead tree, White popinac, Jumbay and wild Tamarind are the common names. Kubabul or subabul is the popular name in India [7]. Due to the outstanding multiple uses it was promoted as a "miracle tree" [8]. The tree has diverse uses like controls soil erosion, fuel wood, timber, fodder, green manure, etc. [9-12]. Medicinally it has been used for its antimicrobial, anthelmintic, antibacterial, anti-proliferative and antidiabetic, anticancer, cancer preventive, diuretic, anti-inflammatory, antioxidant, antitumor, antihistaminic, nematicide, pesticide, anti-androgenic, hypo-cholesterolemic, and hepatoprotective properties [13]. The seeds have contraception and abortifacient medicinal properties and also used to control stomachache. For tablet formulation the seed gum is used as a binder [14,15]. The plant is reported to be a worm repellent. In the present research phytochemical analysis of leaves of *Leucaena leucocephala* was studied using various extracts.

### MATERIALS AND METHOD

#### Plant Collection and Preparation of Plant Extract

The plant *Leucaena leucocephala* was collected from Perundurai, Erode (Dt.), Tamil Nadu, India. The leaves of *Leucaena leucocephala* was separated, washed with water, dried under the shade and powdered.

The plant extraction methods viz., maceration and infusion methods were used for extract preparation [16]. Maceration method was used for preparing the different solvent extracts such as petroleum ether and ethanol. The infusion method was used for preparing aqueous extract.

#### Phytochemical Screening Methods

The standard methods were followed to detect various secondary metabolites in petroleum ether, ethanol and aqueous extracts [17-20].

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## RESULT

The results of phytochemical analysis of leaves of test plant *Leucaena leucocephala* using various extracts are depicted in the Table 1. It expressed the presence of flavonoids, saponins, phenols, tannins,

cardiac glycosides, phlobatannin and terpenoids as secondary metabolites. The maximum secondary metabolites are present in petroleum ether extract, followed by aqueous extract and ethanolic extract. Alkaloids, phytosterol, fixed oil and anthroquinones are completely absent in all the three extracts of selected part of plant.

**Table 1:** Phytochemical analysis of leaves of *Leucaena leucocephala* on various extracts

Phytochemical constituents	Reagents used/ Chemical Test	Petroleum ether extract	Ethanolic extract	Aqueous extract
Alkaloids	Mayer's reagent test	-	-	-
	Wagner's reagent test	-	-	-
Flavonoids	Alkaline reagent test	+	+	+
	Acid test	+	+	+
Phytosterol	Salkowaski test	-	-	-
Saponin	Foam test	+	-	+
Phenolic compounds	Ferric chloride reagent test	+	+	-
Tannin	Ferric chloride reagent test	+	+	-
Cardiac glycosides	Keller-killiani test	+	-	+
Fixed oil	Filter paper test	-	-	-
Anthroquinones	Magnesium acetate	-	-	-
Phlobatannin	HCl	+	+	+
Terpenoids	Chloroform + Conc. H <sub>2</sub> SO <sub>4</sub>	-	-	+

+ = indicates presence of phytochemical

- = indicates absence of phytochemical

## DISCUSSION

Now-a-days plants are considered as a wonderful source for the discovery of new novel medicines than those of microbial and animal origin [21]. The endogenous combination of secondary products of plant is the reason for valuable therapeutic effects of plant material [22]. The phytoconstituents present in the plants have medicinal properties. Many authors reported the biological properties of secondary metabolites. Tannins are astringent and are used for diarrhoea and dysentery [23] and possess antioxidants, antimicrobial and anti-carcinogenic agents [24]. Saponins are used in healing of heart conditions [25]. Terpenoids have anti-carcinogenic, anti-malarial, anti-ulcer, antimicrobial and anti-inflammatory activities [26]. In previous study, the phytochemical analysis of *L. leucocephala* leaf extract divulged the presence of various secondary metabolites as alkaloid, cardiac glycosides, tannins, flavonoids, saponins and glycosides [27]. The secondary metabolites present in *Leucaena leucocephala* indicate the presence of biological active compounds.

## CONCLUSION

From the present study it concludes that plants are used for all the purposes including food, medicine, fodder, shelter and so on. The leaves of *L. leucocephala* have valuable phytochemicals.

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