

PHYTOCHEMICAL EVALUATION OF *PLUMBAGO ZEYLANICA*: A PREVAILING HERB

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ABSTRACT

The outcomes of the phytochemical screening of *Plumbago zeylanica* stem sample exhibited the presence of valuable phytonutrients. The results indicate that *Plumbago zeylanica* all six solvent extracts contained reducing sugar, terpenoids, tannin, alkaloids and flavonoid. The domino effect of the phytochemical screening of medicinal plants was conferred in relation to their practicality to mankind.

Keywords: *Plumbago zeylanica*, phytochemical screening, chitrak, phytonutrients.

INTRODUCTION

Plumbago zeylanica ("Lead wort-white flowered" and "Ceylon Lead wort") is an innate to South Asia. Commonly known as Chitrak [1,2] It is distributed in tropical and subtropical countries of the world. It is an oldest herb that was used in Ayurveda for several disorders over thousands of years. It grows wild in India and also refined commercially. It is a perennial bushy shrub but in some of the works it is also defined as herb [3, 4] some described it as perennial dicot herb while some has given the class of shrub. [5]

Phytochemicals are not essential content for mankind to continue their life but have vital possessions that support man to combat beside many diseases and enhance the immune system. Latest findings have revealed that phytochemicals might shrink the risk of coronary heart diseases by inspecting the oxidation of low density lipoprotein cholesterol, cuts the production of cholesterol, normalizing blood pressure and clotting and recovers arterial elasticity [6]. These biologically active compounds may detoxify injurious compounds that encourage cancer. They offset free radicals and overpower injurious enzymes that promote carcinogens and trigger enzymes that depollute carcinogens. Phytochemicals are reported to help in inhibition and dealing in diabetes, high blood pressure, and macular degeneration. [7]. Research recommends phytochemicals as essential dietary content that works together with nutrients originate in fruits, vegetables and nuts and these nutrients might help to slow the aging process and diminish the hazard of several diseases. Most of the phytochemical constituents are potent bioactive compounds found in medicinal plants, which are precursor for the synthesis of useful drugs. In addition to these materials, plant comprise other chemical compounds too, these can act as agent to avoid uninvited side effects of the main active substances or to contribute in the integration of the main substances.

MATERIAL AND METHOD

Collection

Plant *P. zeylanica* was collected from different tribes living in tribal pockets of Mt. Abu, arid zone of Rajasthan. These plants were used by these tribes in their daily lives to treat numerous illnesses.

Identification

Sample was authenticated and submitted to Ethnomedicinal Herbarium, Centre of Excellence funded by DST, JECRC, Jaipur (Rajasthan)

Preparation of test extracts

Crushed powders of species were successively Soxhlet extracted.

Later, each of the homogenates was filtered and the residue was re-extracted twice for complete exhaustion, the extracts were cooled individually. Each filtrate was concentrated to dryness in vitro and re-dissolved in respective

Solvents, were stored at 4°C in a refrigerator, until screened for phytochemical activity

Phytochemical Screening

Phytochemical screening was performed using standard procedure:

Test for Reducing sugar (Fehling's Test)

The aqueous extract (0.5 gm in 5 ml of water) was added to boiling Fehling's solution (A and B) in a test tube. The solution was observed for a colour reaction.

Test for Flavonoids

4 ml of extract solution was treated with 1.5 ml of 50% methanol solution. The solution was warmed and metal magnesium was added. To this solution, 5-6 drops of concentrated Hydrochloric acid was added and red colour was observed for flavonoids and orange colour for flavones.

Test for Alkaloids

Alkaloids solutions produce white yellowish precipitate when a few drops of Mayer's reagents are added. Most alkaloids are precipitated from neutral or slightly acidic solution by Mayer's reagent. The alcoholic extract was heated on a boiling water bath with 2% hydrochloric acid. After cooling, the mixture was filtered and treated with a few drops of Mayer's reagent. The sample was then observed for the turbidity or yellow precipitation.

Test for Tanins: About 0.5 g of extract was boiled in 10 ml of water in a test tube and then filtered. A few drops of 0.1% ferric chloride was added and observed for brownish green or a blue black colouration.

Test for Terpenoids (Salkowski Test): To 0.5 gm. each of the extract was added to 2 ml of chloroform. Concentrated sulphuric acid (3 ml) was carefully added to form a layer. Reddish brown coloration of the interface indicates the presence of terpenoids.

RESULTS

Phytochemical screening *Plumbago zeylanica* shows that the plant has abundant amount of Secondary metabolites in it. This following table shows the result of test performed.

Table1: Preliminary phytochemical screening of the plant *Plumbago zeylanica* stem (chitrak) [(+:present) (- : absent)]

Plant Extract	Reducing sugar	Flavonoids	Alkaloids	Tannins	Terpenoids
Pet.ether	+ve	-ve	+ve	+ve	+ve
Benzene	+ve	+ve	-ve	+ve	+ve
Chloroform	+ve	+ve	-ve	+ve	-ve
Ethyl acetate	+ve	+ve	+ve	+ve	+ve
Methanol	+ve	-ve	-ve	+ve	-ve
Distilled Water	+ve	+ve	+ve	-ve	+ve

DISCUSSION

The above results shows that *Plumbago zeylanica* stem has potent phytochemical present in it. This finding support theory that states the presence of above phytochemicals in *Plumbago zeylanica* stem.

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