

Phytochemical Investigation of Different Plant Parts of *Calotropis Gigantea*

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Abstract- *Calotropis gigantea* R.Br. (Asclepiadaceae) a widely growing plant has been reported to possess number of medicinal properties and other purposes. Since ancient times plants have been used as source of therapeutic agents. Plants are playing a significant role in the indigenous system of medicine to combat diseases. The traditional medicine involves the use of different plant extracts or bioactive chemicals. This type study provides the health at affordable cost. The result suggest that the Phytochemical properties of the stem, leaves and flower for curing various ailments.

Index Terms- *Calotropis gigantea*, Phytochemical, Bioactive chemicals, Traditional medicine.

I. INTRODUCTION

Calotropis species, belonging to the family of Asclepiadaceae in plant kingdom, are the well known plants throughout the tropical world and they are native to the tropical and subtropical parts of Asia and Africa (Sharma, 1934). These plants are commonly known in English as Giant Milk Weeds or Swallow-worts. This species is one of the special classes of plants that can avoid or repel the grazing animals (Sastr et al, 1990). Various parts of this plant are reported to possess multiple therapeutic properties like antipyretic, analgesic, anticonvulsant, anxiolytic, sedative, wound healing, antidiabetic (Mueen et al, 2005). Chemical investigations of *Calotropis gigantea* report isolation of different types of phytochemicals such as flavonoids, glycosides, triterpenoids, steroids etc. (Habib et al 2012). Here an attempt has been made to investigate the chemical present in the plant for curing various diseases.

II. MATERIAL AND METHODS

(i) PLANT MATERIAL:

Calotropis gigantea [stem, leaves and flowers] collected in January 2013 from Rewa. The plant material was identified at the field using standard keys and descriptions. Its botanical identity was further confirmed at Pinnacle Biomedical Institute, Bhopal, India.

(ii) METHOD OF EXTRACTION:

Solvent – Petroleum ether, Methanol

Method – Maceration

Procedure:

Plant part (leaf, stem and flower) powder was weighed 500 gm and kept in a container in contact with pet ether for seven days, with vigorous shaking at regular interval. Material was filtered a first with muslin cloth and then with filter paper. Filtrate was collected and dried in water bath till no further reduction in mass of extract was observed. Dried extract was weighed and packed in air tight container.

And the marc was air dried then kept in a container in contact with methanol for seven days, with vigorous shaking at regular interval. Material was filtered a first with muslin cloth and then with filter paper. Filtrate was collected and dried in water bath till no further reduction in mass of extract was observed. Dried extract was weighed and packed in air tight container.

(iii) Phytochemical Screening-

Phytochemical Screening was carried out using standard methods to detect the bioactive compounds like alkaloids, tannins, phenols, steroids, flavonoids, saponins (Trease et al, 1989).

III. RESULT AND DISCUSSION

Table 1: Phytochemical Screening of *Calotropis gigantea*

S. No.	Experiment	Result					
		Pet. ether extract of <i>Calotropis gigantea</i> leaves	Methanolic extract of <i>Calotropis gigantea</i> leaves	Pet. ether extract of <i>Calotropis gigantea</i> stem	Methanolic extract of <i>Calotropis gigantea</i> stem	Pet. ether extract of <i>Calotropis gigantea</i> flower	Methanolic extract of <i>Calotropis gigantea</i> flower
1. Alkaloids							
1.1	Mayer's reagent test	-ve	+ve	+ve	-ve	+ve	+ve
1.2	Wagner's reagent test	-ve	+ve	+ve	-ve	+ve	+ve
1.3	Hager's reagent test	-ve	+ve	+ve	-ve	+ve	+ve
2. Carbohydrates							
2.1	Molish's test	-ve	-ve	-ve	-ve	-ve	+ve
2.2	Barfoed's test	-ve	-ve	-ve	-ve	-ve	+ve
3. Test for Reducing Sugar's							
3.1	Fehling's test	-ve	-ve	-ve	-ve	-ve	-ve
3.2	Benedict's test	-ve	-ve	-ve	-ve	-ve	-ve
4. Flavonoids							
3.1	Alkaline reagent test	-ve	+ve	-ve	+ve	-ve	+ve
3.2	Shinoda test	-ve	+ve	-ve	+ve	-ve	+ve
3.3	Lead acetate test	-ve	+ve	-ve	+ve	-ve	+ve
5. Glycoside							
4.1	Borntrager test	+ve	-ve	-ve	+ve	+ve	+ve
4.2	Legal's test	+ve	-ve	-ve	+ve	+ve	+ve
4.3	Killer- Killiani test	+ve	-ve	-ve	+ve	+ve	+ve
6. Tannin and Phenolic compound							
6.1	Ferric chloride test	-ve	+ve	-ve	+ve	-ve	+ve
6.2	Lead Acetate test	-ve	+ve	-ve	+ve	-ve	+ve
6.3	Dilute Iodine solution	-ve	+ve	-ve	+ve	-ve	+ve
7. Saponin							
7.1	Faom Test	+ve	-ve	-ve	-ve	-ve	+ve
8. Test for Proteins and amino acid							
8.1	Ninhydrin test	-ve	-ve	-ve	-ve	-ve	+ve
8.2	Biuret test	-ve	-ve	-ve	-ve	-ve	+ve
9. Test for Fats and Oils							
9.1	Solubility test	+ve	-ve	-ve	-ve	-ve	+ve
10. Test for Triterpenoids and Steroids							
10.1	Salwonski Test	-ve	+ve	-ve	+ve	-ve	+ve
10.2	Libberman and Burchard's test	-ve	+ve	-ve	+ve	-ve	+ve

(+) indicates presence

(-) indicate absence

Today, traditional medical practice has been recognized by the world health organization (WHO) as a building block of primary healthcare. But it emphasizes the fact that safety should be the overriding criterion in the selection of herbal remedies for use in healthcare (Patil et al 2012).

Chemical investigation of this plant has shown the presence of cardiac glycosides, saponins, flavonoids, steroids, terpenoids (Seniya et al 2011). Almost all the parts of *Calotropis gigantea* have been documented to possess medicinal virtues in ethnobotanical surveys conducted by researchers in India. Flowers have shown promising biological activities such as hepatoprotective, anticonvulsant, antitumour, antiasthmatic and analgesic. The leaves are useful in the treatment of paralyzed parts, the oil in which leaves have been boiled, is also applied to paralyzed parts. It is also used in the treatment of arthralgia, swelling and intermittent fever (Joshi et al 2011). The plant has been used as an antidiarrhoeal (Pratap et al 2010), wound healing (Malwaya et al 2009), anti-inflammatory (Jagtap et al 2010). Mandepudi et al, 2012 have described the pest resistant properties of *Calotropis gigantea*. Kumar et al, 2012 have described the Phytochemical properties of *Calotropis gigantea* commonly known as milk weed. Kshirsagar et al, 2010 have described the acute and subacute toxicity of the ethanolic extract from *Calotropis gigantea* R.Br. flower was investigated. Different parts of *Calotropis gigantea* have been reported to exhibit medicinal and nutritional properties while Phytochemical evaluation of the plant parts revealed the presence of essential and trace elements in varied quantities.

IV. CONCLUSION

Calotropis gigantea (stem, leaf and flowers) extract made in methanol, petroleum ether contains different secondary metabolites with biological activity that can be of therapeutic index.

Table 1 showed preliminary Phytochemical screening of plant parts of *Calotropis gigantea*. The obtained result provide a support for the use of this plant in traditional medicine and suggest its further advance investigation. Phytochemical screening of the crude extracts revealed the presence of saponins, tannins, alkaloids, other phytoconstituents which were reported during present investigation were cardiac glycosides, flavonoids, glycosides, steroids, terpenes and tannins.

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