



Review On Comparative Monograph of calotropis gigantea and calotropis procera Leaves”

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ABSTRACT:

Since ancient times, people have used medicinal plants to treat varied diseases. Medicinal plants are the important source of drugs, are many of them than are currently available in the pharmaceutical market are obtained plant sources. Calotropis gigantea and Calotropis procera small shrub, which are used conventionally to treat many diseases such as cancer diabetes and intestinal disease in African and Asian countries. Human beings have worshiped plants such plants are conserved as a genetic research and used as food, fodder, fiber, fertilizers, fuel, febrifuge and every other way Calotropis gigantea activity shows for analgesic activity, antimicrobial activity, antioxidant activity, anti-pyretic activity, intestinal activity, cytotoxic activity, purgative properties, procoagulant activity and wound healing activity. Calotropis procera commonly known as Aak is used in many Ayurvedic formulations like Arkelavana. Calotropis procera bark and leaves are known to show wound healing, shows anti-hyperglycemic effect, Analgesic, Antipyretic, purgative, anticancer activity.

Keywords- Calotropis gigantea, antimicrobial activity, cytotoxicity, Calotropis procera, anti-hyperglycemic effect, wound healing.

INTRODUCTION:

Calotropis Gigantea plant is a native of Bangladesh, Burma, China, India, Indonesia Malaysia, Pakistan, Phillipines, Thailand and Sri Lanka. Leaves and aerial parts of the plant are reported for anti-diarrheal activity, anti-candida activity and anti-bacterial activity, antioxidant activity. From ancient time plants were used for the treatment of several diseases. Ayurveda reveals the importance of Arka species (Calotropis gigantea and Calotropis procera), both the species were used as an alternative to one another and possess similar effects. The plants were widely used in the

Ayurveda, Unani and Afghan medicines to treat several diseases, namely tumors, leukoderma, ulcer, piles, leprosy, dysentery, asthma, spleen and liver.^{1,2} Calotropis species are evergreen perennial shrub reaching 2.4-3 m high; bark yellowish white, furrowed, rough, corky; branches stout, terete, less or more covered with fine appressed cottony pubescence. Leaves are opposite-decussate, sessile, elliptic oblong or obviate-oblong, acute, thick and pale in green, clothed beneath and less or more above with fine cottony tomentum, about 10-20 by 3.8- 10 cm, base narrow, chordate.

Calotropis gigantea

In ancient Ayurvedic medicine the plant calotropis gigantea is known as "sweta Arka"

Calotropis gigantea -

Synonym - Giant milkweed, Asclepias gigantea

Biological Source - The plant has oval light green leaves of calotropis gigantea

Family - Apocynaceae

Sub-Family - Asclepiadodeae Order – Gentianales



Calotropis procera:

Synonym- Calotropis influenza chiov, calotropis Persica gand.

Biological source- Oppositely arranged sub sessile leaves

Common names- Arabic- Dead Sea plant, debaj, usher



Methodology:

1. Selection of plant-in the present study, I have selected the plants calotropis gigantea and calotropis procera leaves
2. Collection of plant material-The leaves Calotropis procera and Calotropis gigantea leaves are collected from Samarth institute of pharmacy, Belhe.
3. Preparation of Herbarium-We have prepared herbarium of Calotropis gigantea and Calotropis procera leaves for



the herbarium the plant specimen is properly dried pressed and mounted on sheet.4.Preparation of powder-calotropis gigantea and Calotropis procera leaves are dried under shade for about four week , powder from using mortar and pestle and then sived.



MICROSCOPICAL CHARACTERISTICS:

T.S OF LEAF

Unlike in stem/ root/ stolon, in case of a leaf is important aspects to study are a section through the midrib and observation of a surface preparation. In a case of a bilateral leaf either surface may be observed, but in case of a Dorsiventral leaf, the lower epidermis is more important, bearing the stomata, guard cells and epidermal cells, surface preparation is many a times, used as an identification tool by means of morphology and leaf constants.

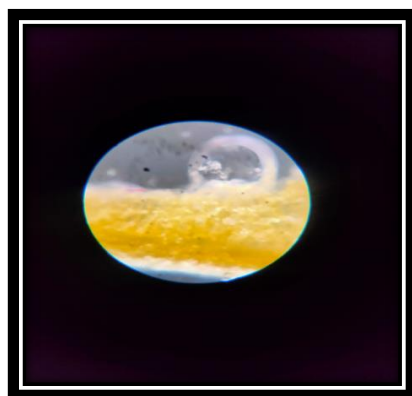


Fig T.S of Calotropis procera

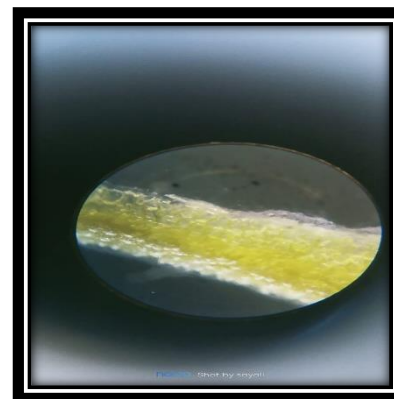


Fig T.S of Calotropis Gigantea

Preliminary phytochemical test:

Test for Glycosides

1. Keller-Killiani Test:

To 2 ml extract, glacial acetic acid, one drop 5% FeCl₃ and conc. H₂SO₄ were added.

Reddish brown appears at junction of the two liquid layers and upper layer appears bluish green indicates the presence of glycosides

Test for Tannins

2. Ferric chloride test:

To 2 ml of test solution, a few drops of 5% ferric chloride solution was added. Formation of blue color indicated the presence of hydrolysable tannins.

3. Acetic Acids Solution:

To 5ml extract, a few drop of Acetic Acid solution was added. Formation of Red color

4. Acetic Dilute Iodine Solution:

To 5 ml extract of few drops of dilute iodine solution was added. Formation of transient red color.

Test for alkaloids

5. Mayer's Test

To about 3 ml. of extract, a few drops of Mayer's reagent are added. Cream Colour ppt formed.

6. Dragendorff Test

To about 3 ml of extract, a few drops of Dragendorff's reagent are added. Orange ppt Formed.

Test for reducing sugar

7. Fehlings test

Mix 1 ml Fehling's A and 1 ml Fehling's B solutions, boil for one minute add equal volume of test solution. Heat in boiling water bath for 5 - 10min first yellow, then brick red ppt observed.

8. Benedict's test

Mix equal volume of Benedict's reagent and test solutions in test tube heat in boiling water bath for 5 min. solution appear green, yellow or red depending on amount of reducing sugar present in test solution.

Test for carbohydrates

9. Molisch's test-

To 2-3 ml aqueous extract, add few drops of alpha-naphthol solution in alcohol, shake and add conc. H₂SO₄ from side of the test tube. violet ring is formed at the junction of two liquids.

Test for protein-

1. Ninhydrin test-

Heat 3 ml T.S. add 3 drops 5 percent Ninhydrin solution in a boiling water bath for 10 min. purple or bluish colour appear.

Test for steroids-

Salkowski test-

To 2 ml of extract, add 2 ml chloroform and 2 ml conc. H₂SO₄. shake well. chloroform layers appear red and acid layer shows greenish yellow fluorescence.

Table no 1: Preliminary Test

| TESTS | C.PROCERA | C.GIGANTEA |
|-----------------------------------|-----------|------------|
| Reducing sugar | -ve | +ve |
| Carbohydrate | +ve | +ve |
| Alkaloids | +ve | +ve |
| Protein | -ve | +ve |
| Glycoside s | +ve | +ve |
| Test forphenols | +ve | +ve |
| Test for tannin and phenols comp. | +ve | +ve |
| Test for steroid | +ve | +ve |

ASH VALUE

1.Weigh and ignite flat, thin, porcelain dish or a tared silica crucible.2.weigh about 2 g of the powdered drug into the dish/ crucible.

3.support the dish on the pipe - clay triangle placed on a ring of retort stand. 4.Heat with the burner, using a flame about 2 cm high and supporting the dish about 7 cm above the flame, heat till vapors almost cease to be evolved then lower the dish and heat more strongly until all the carbon is burnt off.

5.Cool in a desiccator.

6.Weigh the ash and calculate the percentage of total ash with reference to the airdried sample of the crude drug. if a carbon free ash cannot be obtained in this way then any one of the following method can be used.

Exhaust the charred mass with hot water, collect the residue on a cashless filter paper, add the filtrate, evaporate to dryness and ignite at a temperature not exceeding 450 degree celcius. Cool the crucible; add 15 ml of alcohol, break up the ash with glass rod burn off the alcohol and again heat the whole to a dull red heat. Cool the ash.



| PARAMETER | CALOTROPIS GINGANTA | CALOTROPIS PROCERA |
|-----------------|------------------------|-----------------------|
| Total ash value | 23% | 32% |

CONCLUSION

- Empirical knowledge about medicinal plants plays a vital role of primary health care and has great potential for the discovery of new herbal drugs.
- In the quantitative phytochemical test are major constituents in plants various activity show antioxidant activity, insecticidal activity, Anti- pyretic activity, Anti- inflammatory activity, Analgesic activity, Antibacterial activity so result obtained in the study shows a significant level of carbohydrates, Alkaloids, protein, Glycoside, tannins and phenolic compounds of the leaves of *calotropis gigantea* and *calotropis procera*.

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