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Review Article: on traditional use of *calotropis procera* for Various Treatment

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Abstract: *Calotropisprocera is widely employed in traditional folk medicine. Every part of the plant has its own advantages in treating disease. The latex of this plant has strong antimicrobial, analgesic wound healing, cytotoxic, antipyretic, anti-inflammatory. procoagulant activities are proven.1 Thus antibiotics cream will be wont to kill microorganisms and forestall infections. The cream is additionally shown good physical stability at temperature and normal weather conditions after one month. Since the calotropis procera latex has medicinal properties it's potentially to be commercialized in industry..*

Keywords: Calotropisprocera

I. INTRODUCTION

Medicinal plants being an effective source of both traditional and modern medicines are genuinely useful for primary health care.[2]

Herbs and plants have been in use as a source of therapeutic compounds in traditional medicinal system since ancient time. The plant has potential pharmacological properties. A large quantity of latex can be easily collected from its green parts.[3] C procera is a widely growing plant native to India, Indonesia, Malaysia, Philippines, Thailand, Sri Lanka and China, commonly known as milk weed or crown flower weed. C. procera is latex bearing plant and release the latex after a injury. Plant latex is a mixture of alkaloids, tannins, gum, sugars, starch, resins and protein[4].Leaves, roots, stem, flowers and latex of C. procera are used in traditional medicinal
system to cure several diseases and medicinal potential of the C. procera proved scientifically.

The flowers of the C procera are used in antiasthmatic, analgesic activity.[5]Roots are used for the treatment of lupus, tuberculous leprosy, and syphilitic ulceration. Roots
also contain anti-pyretic activity [6], cytotoxic activity [7], antimicrobial activity[8,9,10,] CNS activity [11] and pregnancy interceptive properties.[12]Leaves and areal parts of the plant are used in the treatment of external swellings and diarrhoea. [13] Latex is reported to contain purgative properties, procoagulant activity [14] and wound healing activity,antimicrobial activity [15] C. procera also uses to cure toothache, earache, sprain, anxiety, pain, epilepsy and mental disorders.

II. DESCERIPTION:[16]

Synonym: Aark,Aak,Rui.
Biological source: Calotropis procera is a weed plant commonly known as giant milk weed.
Family Asclepiadaceae.
Geographical source: This plant is a native of Bangladesh, Burma, China, India, Indonesia, Malaysia, Pakistan, Philippines, Thailand and Sri Lanka.
Chemical constituent:.C. Procera is reported to possess alkaloids, cyanogenic, glycosides, phenolics, tannins [17]cardenolides [18,19], flavonoids [20], terpenes [21], [22], sterols [23], Proteinases [24] and nonprotein amino acid [25] as major phytochemical groups.
Uses: Antimicrobial activity,analgesic activity,cytotoxic activity,procoagulant activity, antioxidant activity.

III. PLANT PROFILE

Kingdom : Plantae – Plants
Subkingdom : Tracheobionta – Vascular plants

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Superdivision : Spermatophyta – Seed plants
Division : Magnoliophyta – Flowering plants
Class : Magnoliopsida – Dicotyledons
Subclass : Asteridae
Order : Gentianales
Family : Asclepiadaceae.

IV. MORPHOLOGY OF CALOTROPIS PROCERA

Calotropis species is a shrub with thick twisted branches.The species can be differentiated by the floral characterstics.Calotropis procera bears corolla lobes which are spreading, uniformly coloured, pure lavender to white,Calotropis procera bears corolla lobes which are spreading, uniformly coloured, pure lavender to white,Whereas the corolla lobes of Calotropis procera are erect while pink or purple spotted on the corolla lobes.

ROOT:[37]

Taproot, approximately 3000-4000 mm deep. Transverse section of the root appears as complete circle. Secondary xylem presence of xylem vessels, xylem fibers, and xylem parenchyma. Pith are also shows in centre.

STEAM: Approximately 2000-4000 mm tall, erect, branched, glabrous, woody below and herbaceous above, tomentose, solid, cylindrical. Branched from the base at times and branched higher up, Waxy, Copious milky sap exuded when injured.[37]

LEAF: The leaf is isobilateral.The twisting behavior may be a xerophytic character to reduce water loses by transpiration. Surface view showed kidney-shaped stomata. The mesophyll consists of 2-3 rows of irregular chlorenchyma cells dense with chloroplasts. [38]

FLOWER: Flowers consist of 5 small triangular dirty white sepals, 5 thick ovate petals (c1cm x 1cm)which are white at the base and purple at the tips and 5 purple tipped stamens, which surround a white 5 lobed stigma 11.[39]

V. PHARMACOLOGICAL ACTIVITY

- Antimicrobial activity.[26]
- Analgesic activity[27].
- Wound healing activity.[28]
- Cytotoxic activity.[29]
- Anti-diarrhoeal activity.[30]
- Anti-pyretic activity.[31]
- Insecticidal activity.[32]
- Antioxidant activity.[33]
- Pregnancy interceptive properties[34].
- Procoagulant activity.[35]
- Hepatoprotective effects.[36]

Antimicrobial activity: The antimicrobial activities of the extracts were determined by agar well diffusion method as described by[40] Mueller Hinton Agar culture plates were seeded with 106 CFU/ml of the test bacteria and allowed to stand for about 2 h for the organisms to be well established in the medium. The seeded agar plates were punched with a sterile cork borer (5 mm diameter) to make open wells. The open wells were filled with 0.05 ml of the extracts. The plates were incubated at 37ºC for 24 h. For the fungi, the test was carried out on potato dextrose agar plates and incubated at 28±2ºC for 72 h. Zones of inhibition were measured and recorded as degree of sensitivity.

Analgesic activity: The alcoholic extract of the flowers of Calotropis Procera was administered orally and explored for its analgesic activity in chemical and thermal models in mice. In acetic acid induced writhing test, an inhibition of 20.97% and 43.0% in the number of writhes was observed at the doses of 250 and 500 mg/kg, respectively. In the hot plate method the paw licking time was delayed. The analgesic effect was observed after 30 min of dose administration which reached its maximum after 90 min.

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- **Wound healing activity:** Healing of wound is a biological process that is initiated by trauma and often terminated by scar formation. The process of wound healing occurs in different phases such as coagulation, epithelization, granulation, collegenation and tissue remodeling. In India, there has been interest in the potential of medicinal plant for development of drugs with wound healing properties as taught in a popular form of Indian medicine known as Ayurveda[41]
- **Cytotoxic activity:** The present study was undertaken to investigate the *in vitro* antimicrobial activity of isolated compounds from *Calotropis Procera* against some pathogenic bacteria and fungi as well as cytotoxic activity against brine shrimp nauplii.
- **Anti diarrhoeal activity:** The hydroalcoholic (50:50) extract of aerial part of C. Procera was studied for anti-diarrhoeal activity against castor oil-induced-diarrhoea model in rats. The extract exhibited significant reductions in fecal output and frequency of droppings at the doses of 200 and 400 mg/kg body weight (intraperitoneal dose). The extract also showed significant inhibition in weight and volume of intestinal content.
- **Anti pyretic activity:** Chitme et al. (2005) reported the anti-pyretic activity of the water: ethanol (50:50) extract of C. procera roots. Anti-pyretic activity was studied by using yeast and TAB (Typhoid) vaccine induced pyrexia in Albino Swiss rats and rabbits. At the dose of 200 and 400 mg/kg body weight (intraperitoneal injection) extract significantly reduced the fever and body temperature was normalized.
- **Insectiside activity:** Methanol extract of C. Procera root bark and its chloroform and petroleum ether fractions were evaluated for residual film toxicity, fumigant toxicity and repellent effect against several inster of larvae and adult of Tribolium castaneum. Methanol extract showed high insecticidal activity against T. castaneum followed by petroleum ether fraction and chloroform fraction. None of the sample showed fumigant toxicity.
- **Antitoxic activity:** Leaves of C. Procera were reported to carry antioxidant activity. The study reports the DPPH radical scavenging activity, reducing power activity and nitric oxide scavenging activity of the hydroalcohlic extract of C. Procera leaves. Extract exhibited the maximum DPPH radical scavenging activity (85.17%) at 400µg/ml concentration. At 100µg/ml concentration extract showed 54.55% nitric oxide scavenging activity. Reducing power of the extract was found to increase with increasing the concentration of extract.
- **Procoagulant activity:** The latex of C. Procera is reported to carry procoagulant activity. The latex extract hydrolysed casein, human fibrinogen and crude fibrin clot in a dose dependent manner. Extract hydrolyses the subunits of fibrinogen, subunit Aa hydrolyzed first followed by Bb and g subunit. The crude extract hydrolysis crude fibrin clot strongly compared to trypsin and papain. Proteins present in the latex of C. Procera are strongly proteolytic and responsible for procoagulant activity of C. Procera.

VI. CONCLUSION

A critical analysis of literatures have shown that the Calotropis procera plant latex is the good source ovarious important bioactive compounds and therefore has major applications in the medicinal as well as in agricultural field for pest control. Calotropis procera latex has wide applications in industrial sector, cosmetics and textile industry but there is need for extensive research in this regards. It has diverse pharmacological activities and is also used as bio indicator for pollution monitoring. Latex of Calotropis procera is also a rich source of hydrocarbons so it is used as diesel substitutes. It might be more useful for successful control of insect pests. Calotropis procera has been reported for various biological activities such as immunomodulatory, anti-inflammatory, antimalarial, antiglycemic, anticancer, anticandidial and proteolytic activity

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