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A REVIEW ARTICLE ON CALOTROPIS PROCERA

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ABSTRACT

Asclepiadaceae is the family to which Calotropis procera belongs. It is an upright, evergreen perennial shrub with soft woods. Common names for C. procera include "Akra" and "milk weed." The entire plant, including the root, stem, leaves, and blossoms, is commonly used in conventional medicine. The goal of the current paper is to give a comprehensive botanical description, grouping, and study of the plant's pharmacology.

KEYWORDS: *Calotropis procera*; drug; antifertility and antimicrobial activity.

1. INTRODUCTION

All living things have access to a wealth of therapeutic plants thanks to nature. A significant source of medicines is medicinal plants[Bhatti, et al., 1998]. The conventional medical system. Since the beginning of time, medicinal plants have been utilised to treat a variety of illnesses. Many people are involved in the trading of significant medicinal herbs all over the world since they are widely used by the local population and are of considerable importance[Elisabetsky, 1990]. People who live in villages, in particular, have used native plants as medicines for centuries because this knowledge is passed down from generation to generation and is based on lifetime experiences. In addition, the settlements are located distant from cities and typically lack adequate health facilities [Shinwari and khan, 2000].

In tropical and subtropical areas of Asia and Africa, the genus Calotropis is found. Calotropis procera is an evergreen perennial shrub that is an erect, soft-wooded member of the Asclepiadaceae family. Common names for C. procera include "Akra" and "milk weed." This

plant is well-known because it generates a lot of latex. The entire plant, including the base, stem, leaf, and flowers, is used frequently in traditional systems of medicine[Mukherjee, et at., 2010]

Calotropis procera's latex is widely accessible and used to treat a variety of illnesses. It functions as an anti-diarrhea, anti-wound healing, and anti-rheumatic and anti-inflammatory drug. It is also employed. Against skin infections and malaria [Sameer, 2010]. The flowers and milky latex were thought to improve digestion and a rise in hunger [Oudhia 2001]. In addition, latex is employed as a spasmogenic, antidysentric, antisyphilitic, and carminative characteristics antifungal, diaphoretic, anti-rheumatic, and for the treatment for skin afflictions, bronchial asthma, and leprosy.

The latex is also employed as an abortifacient, as well as having spasmogenic, carminative, antidysentric, antisyphilitic, antirheumatic, antifungal, and diaphoretic characteristics. It is also used to treat leprosy, bronchial asthma, and skin affiction. Numerous biological activity, including proteolytic, antibacterial, larvicidal, nematocidal, anticancer, and antiinflammatory properties, have been described for various plant components [Basu and chaudhary, 1991]. Its blooms have tonic and digestive qualities. On the other hand, There have been reports of alleviation from the powdered root bark. In dysentery and diarrhoea. The plant's root is utilised. In the treatment of dyspepsia as a carminative. the source Calotropis procera's leaves and bark are utilised by different tribes in central India as a treatment for jaundice [Kumar and Arya, 2006].

II. METHODS AND MATERIAL

1. Geographic Distribution

The seeds of the drought-tolerant plant Calotropis Procera are dispersed by wind and animals. It easily establishes itself as a weed in overgrazed native pastures, along wastelands, and along deteriorated wayside vegetation. It prefers and frequently dominates abandoned agricultural sites, especially those with sandy soils and little rainfall, which is thought to be an indication of overcultivation. C. Procera is indigenous to Pakistan, India, and Nepal, Afghanistan, Algeria, Iran, Iraq, Israel, Kuwait, Nigeria, Oman, Saudi Arabia, United Arab Emirates, Vietnam, Yemen and Zimbabwe [Chatterjee and Chandra, 1995].

2. Taxonomic Classification

Kingdom : Plantae

Subkingdom : Tracheobiont

Superdivision : Spermatophyta

Division : Magnoliophyta

Class : Magnoliopsida

Order : Gentianales

Family : Asclepiadaceae

Genus : Calotropis

Species : C. procera

3. Botanical Description

Calotropis Procera Linn is a 5.4 m tall, erect, tall, broad, numerous branches, perennial shrub or small tree with milky latex all over. The bark is corky and supple. Strong, terete branches with fine, cottony pubescence that is appressed (especially on young). The leaves are opposite, decussate, widely ovate-oblong, elliptic, or obovate, thick, glaucous, green, covered in fine cottony pubescent hair when young, but subsequently become glabrous, and the base is cordate. The leaves are sub-sessile. Flowers are tomentose on immature plants and in umbellate cymes; the calyx is glabrous, elliptical, and sharp. Glabrous corolla with tall, ovate, sharp lobes and 5–6 coronal scales that are similarly long and compressed in the latter stages as the staminal column. Follicles can be oval, ellipsoid, or subglobose. The 3.2 cm long seeds are broadly ovate, sharp, flattened, minutely tomentose, brown in colour, and silky[Yelne, 2000].

4. Pharmacological Activites

Antifertility

In order to investigate the hormonal and antifertility effects of an ethanolic extract of the roots of Calotropis procera, albino rats were used in the study. At a dose of 250 mg/kg (1/4 of LD50), significant anti-implantation (inhibition 100%) and uterotropic activity was seen. There was no evidence of antiestrogenic action [Saxena and Saxena, 1979].

Gastroprotective Activity

Calotropis procera latex's methanolic extract was tested on rats with experimentally caused stomach ulcers. In both the ethanol (85–95%) and aspirin (70–80%) models, the methanolic extract was observed to suppress mucosal damage, retaining tissue integrity and significantly reducing gastrointestinal bleeding.

Glutathione, thiobarbituric acid reactive substance, and superoxide dismutase were discovered to be regulated oxidative stress markers [Ramos, 2012].

Antimicrobial Activity

The antibacterial activity of the C. procera seed extract in chloroform was superior. On the other hand, the paper disc method has been used to assess the extracts from C. procera seeds for any potential in vitro antibacterial properties[Bhaskar, 2000].

Anti inflammatory

In numerous animal models, the plant's milky white latex demonstrates strong anti-inflammatory action comparable to that of common anti-inflammatory medications [Sangraula, 2002]. While latex administration in animal models causes peritonitis, paw edoema, hemorrhagic cystitis [Alencar, 2004]. Immunological and allergenic responses that are controlled by administration of various anti-inflammatory drugs, C. procera ethanololic extract of the flowers is reported to have anti-inflammatory activity [Arya and Kumar, 2004].

Antimalarial Activity

The various Calotropis procera components' ethanolic extracts exhibited antimalarial efficacy against P. falciparum. Further research should be done on these extracts to determine their active ingredients. The outcomes obtained are in favour of this plant's ethnobotanical application [Sharma and Sharma, 2004].

Antipyretic Activity

Animal models revealed strong antipyretic action from the ethanolic extract of the aerial parts, aqueous extract of the flower, and aqueous solution of the dry latex of C. Procera that was comparable to aspirin [Dewan, 2004].

Antiasthmatic Activity

The effectiveness of C. procera flower in the treatment of asthma has been examined. A human clinical research shown that asthma symptoms could be effectively treated [Upadhyay, 1979].

Anticacer Activity

Cardenolide, a new chemical found in C. procera, exhibits strong anti-tumor activity in vitro and high tolerance in vivo. Di-(2-ethylhexyl) phthalate (DEHP), which was derived from C. procera, also exhibited anti-tumor properties [Habib and Karib, 2012], while copper

nanoparticles made from an aqueous extract of the latex of the plant had cytotoxic and cytostatic effects on tumour cells and cell lines [Taylor et al., 2013].

III. CONCLUSION

C. procera is known as Aakra in Ayurveda and is frequently utilised for its medicinal and therapeutic capabilities. It is very significant in Ayurvedic formulations because of the vast range of pharmacological activities it possesses. Aurvedic practitioners advise using the root, leaf, and stem bark of C. procera to treat liver and spleen disorders as well as asthma and shortness of breath [Ghosh, 1988]. The plant is used to cure fevers, elephantiasis, nausea, vomiting, diarrhoea, and skin, digestive, respiratory, circulatory, and neurological diseases [Das, 1996].

As a result, more research must be focused on the plant to improve humankind's use of it. I hope that this review will be useful in future research on this plant.

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