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A REVIEW OF CORDIA DICHOTOMA'S POTENTIAL ANTIOXIDANT

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ABSTRACT
The genus Cordia contains a large number of trees and shrubs that are frequently found in warmer climates and have been used to treat a variety of illnesses. Numerous phytochemicals with varying activity, including as flavonoids, alkaloids, terpenes, tannins, and glycerides, were separated and tested from various C. Dichotoma sections. This plant has been shown to have several significant pharmacological qualities, such as hepatoprotective, antidiabetic, anti-inflammatory, anthelmintic, analgesic, anticancer, antioxidant, and antibacterial effects. C. Dichotoma is a promising natural antioxidant source with notable anti-inflammatory and therapeutic effects. We have covered the antioxidant potential of C. Dichotoma in brief in this review, which can be used as a guide for further studies on the plant's potential health benefits.

KEYWORDS: *flavonoids, Cordia dichotoma, antioxidant, and anti-inflammatory*

INTRODUCTION

Researchers are still facing a significant obstacle in the form of managing diseases with drugs that have no adverse effects. Many disorders affecting multiple human systems are treated with plant species belonging to the genus Cordia. The tropical and subtropical tree C. Dichotoma is also referred to as Lasura in Hindi and Shleshmataka in Sanskrit. Several phytoconstituents with distinct bioactivities, including flavonoids, triterpenes, tannins, alkaloids, and fatty acids, were extracted from several C. Dichotoma plant sections. Numerous studies have documented the pharmacological uses of C. Dichotoma, including anti-ulcer contraceptives anti-inflammatory anthelmintic, analgesic, anticancer antioxdant antimicrobial antifungal hepatoprotective and diuretic uses, as well as the treatment of disorders of the digestive system, respiratory, urogenital, cardiac, vascular, and blood. C. Dichotoma is a promising natural antioxidant source that has outstanding anti-inflammatory properties and can be used as a food ingredient . The current review's goals are to give a general overview of C. Dichotoma's use as a herbal antioxidant.



Fruit



Leaf

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Flower



Fruit C. Dichotoma



Steam Bark

Fig. 1 Various Parts of Cordia Dichotoma

Classification: :- Kingdom: Plantae;
Division: Magnoliophyta;
Class: Dicotyledons;
Subclass: Astaridae;
Order: Lamiales;
Family: Boraginaceae;
Genus: Cordia; Species: C. Dichotoma Forst.

Distribution: The sub-Himalayan tract is where it grows. And beyond ranges, rising to a height of roughly 1500 m Raising. It can be found in a variety of woodlands, including From the Western Ghats' damp deciduous woodsFrom Mayanmar's tidal woods to the arid deciduous Rajasthani woodland. It flourishes in Maharashtra in the Likewise a wet monsoon forest

Botanical Description: The family C. Dichotoma Small to moderately sized deciduous trees in the Boraginaceae family have a spreading crown, a short crooked stem, and a short bole. The stem bark has a smooth or wrinkled longitudinal pattern and is colored grayish brown.Simple, whole, slightly dentate, elliptical-lanceolate to broad ovate, with a circular and cordate base characterize the leaves. These 25 mm long, dull pinkish edible fruits have sticky flesh. The blooms are bisexual, short-stalked, white, and arranged in loose corymbose cymes.12 The fruit is a shiny, golden or greenish-yellow drupe that sits on an expanded calyx that resembles a saucer. When it ripens, it turns black and the pulp becomes viscid. A hard stone has one to four seeds.

Herbal Antioxidant, C. Dichotoma

Numerous illnesses, including diabetes mellitus, cancer, arthritis, aging, and others, are caused by free radicals. Due to its capacity to scavenge free radicals, herbal antioxidants have become increasingly significant in the treatment of various ailments in recent

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years. Plants have received a lot of attention because they are the natural source of antioxidants. Finding an antioxidant chemical with strong bioactivities and minimal to no adverse effects has garnered more attention lately, both domestically and internationally. An imbalance between the generation of free radicals and the organism's capacity to neutralize or detoxify them by neutralizing their harmful effects through the action of antioxidants is known as oxidative stress. Due to their high reactivity, free radicals can damage all biological macromolecules, including DNA, proteins, and lipids. This can result in cell damage, which can then lead to the emergence of pathological conditions like diabetes, inflammatory diseases, and cardiovascular diseases Antioxidants are secondary compounds or metabolites that act as ROS scavenger and activator of cellular antioxidative enzymes to counteract the damages induced by ROS in biological system. As a result, naturally occurring antioxidants derived from plant polyphenols are gaining increased recognition for their potential applications as powerful and safe bioactive substances. The presence of phenols, flavones, isoflavones, flavonoids, xanthones, alkaloids, anthraquinones, phytosterols, steroids, amino acids, anthocyanins, and isothiocyanate may be responsible for this plant's antioxidant action. lignans, catechins, isocatechins, coumarins, and indoles, among others20, 21, and 22.The literature has.Dichotoma's antioxidant activity5,6,9,12,20,23, and 24.It has been demonstrated that quercetin, a phytochemical derived from hence enhance cardiovascular function. Quercetin has the ability to enhance endothelial function, boost nitric oxide production, and prevent platelet aggregation.20, 23 The effect of C. Dichotoma seed and leaf extract's capacity to scavenge free radicals on degenerative diseases was investigated by Sharma et al.16. According to the authors, these models display positive antioxidant activity that is concentration-dependent, with the highest concentrationshowing the highest level of antioxidant activity (100 µg/ml). The findings indicated that the level of antioxidant activity in leaves was higher than in seeds.

CONCLUSION

", Cochlospermum dichotoma is a plant that has long been used as medicine has been extensively studied over the past three decades, revealing its rich phytochemical profile and diverse pharmacological properties. Research has identified various bioactive compounds, including flavonoids, triterpenes, tannins, alkaloids, and fatty acids, which contribute to its:

- Analgesic
- Anti-inflammatory
- Antimicrobial
- Antiviral
- Wound healing
- Antidiabetic
- Antifertility activities

Flavonoids and phenolic compounds are primarily responsible for its antioxidant properties, confirmed by IC50 data correlation. Given its long history of traditional use and established scientific evidence, further exploration of C. Dichotoma's potential is warranted, providing valuable insights for future research in traditional medicine."

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