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A CONCISE REVIEW ON *CORDIA DICHOTOMA* FORST

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ABSTRACT

More than half of the world's population relies on the traditional medicine and major role of the traditional medicine including the use of plant extract and their active constituents. Among them, *Cordia dichotoma* Forst., a small to moderate size plant of family Boragenaceae, commonly called bhokar, lasura, gonda, Indian cherry and shlesmataka. *C. dichotoma* is a tree of tropical and subtropical regions. It grows in sub-Himalayan tract and outer ranges, ascending up to about 1500 m elevation. This plant is native to India and Nepal. Various parts of this plant such as leaves, roots, seeds, barks and fruits, possess immunomodulator, antidiabetic, anthelmintic, antiulcer and antilarvicidal and hepatoprotective. Screening of fruits, leaves and seeds show the presence of pyrrolizidine alkaloids, coumarins, flavonoids, saponins, terpenes and sterols. Present review focuses are on details of geographical distribution and Traditional medicinal uses of *C. dichotoma* Forst.

INTRODUCTION

Plant derived medicines are considered to be first line of defence in maintaining health and combating diseases and even today plant source is principal source of new drug of therapeutic property [1]. Approximately 72 000 plant species were estimated for having medicinal properties of which, India recognizes more than 3 000 plant species having medicinal values [2]. Ayurveda is “science of life”, pointed out concept of positive health means metabolically well-balanced human beings. Foremost indigenous systems listed medicinal plants such as Siddha (600), Ayurveda (700) and Amchi (600), Unani (700), allopathy which 30 plant species for ailments [1]. *Cordia dichotoma* (*C. dichotoma*) is one of the traditional medicinally important deciduous plants available all over India. The fruit has been reported to be rich in polysaccharide. Ripe fruit of *C. dichotoma* produces a jelly-like, sticky mass. Unani system of drug medicine uses plant as antibacterial, antiviral and antitussive. Joshandah, polyherbal formulations, are extensively used by the masses in India for the treatment of common cold, catarrh, cough, respiratory distress, fevers of which *C. dichotoma* is chief ingredient [3, 4]. From the ancient time, leaves and stem bark are used in the treatment of dyspepsia, fever, diarrhea, leprosy, gonorrhoea and burning sensation.

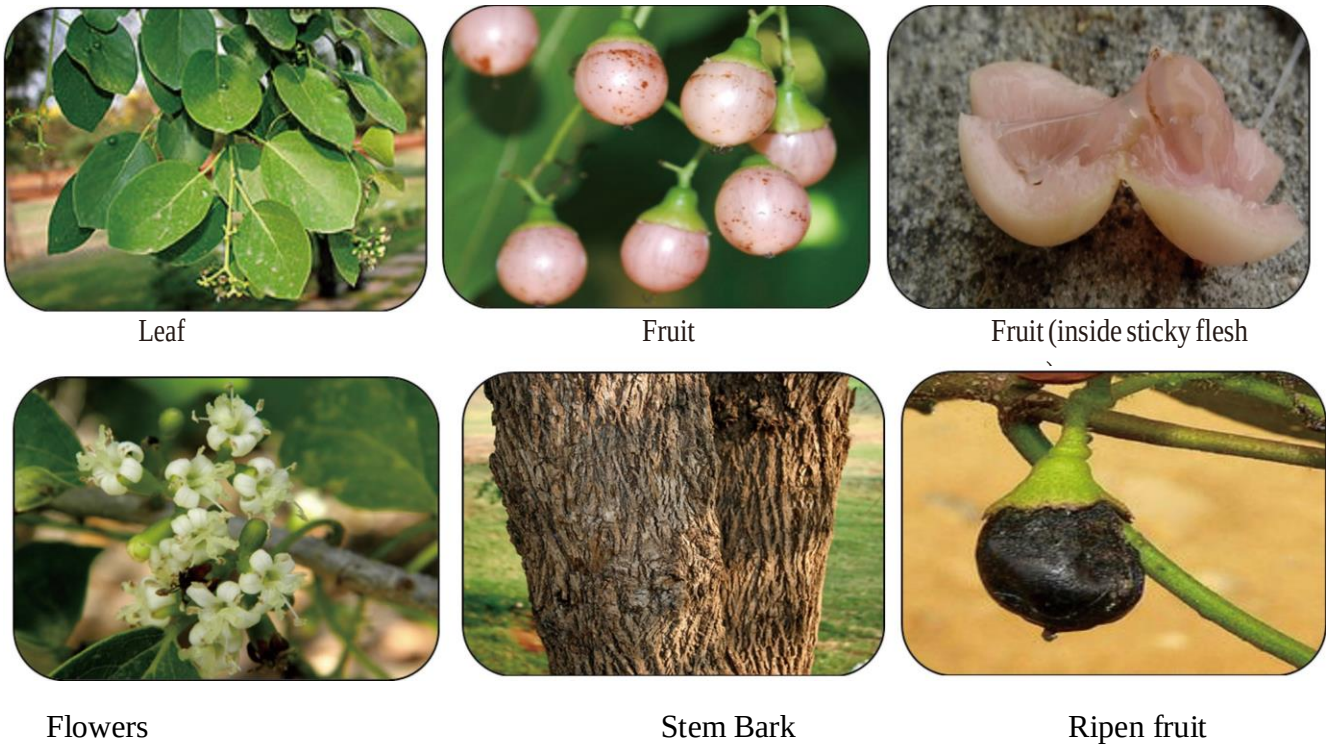

Figure 1: Different parts of *Cordia dichotoma* Forst

Leaf of plant traditionally shows the therapeutic uses and actions such as anthelmintic, astringent, diuretic, demulcent, purgative, expectorant, tonic, ulcer and cough [5].

HISTORY

Cordia dichotoma is a plant species in the genus Cordia. It is called gunda or tenti in Hindi and lasura in Nepali. The fruit of the Fragrant Manjack is called phoa-po-chi in Taiwan where they are eaten pickled. In Burma, the pa-o people are growing the tree (called "thanpet") for its edible leaves. It is a tree about 15 metres high, found spanning from north India and south China to Australia and Polynesia [6]. It grows wild in the northern part of peninsular Malaysia but is planted in south. Various Synonyms are *Cordia myxa* Forsk, *Cordia oblique* Wild, Cordia myxa Roxb etc and Common name are Bhokar, Shleshmantaka etc.

Classification

Kingdom: Plantae Division: Magnoliophyta
Class: Dicotyledons Subclass: Astaridae
Order: Lamiales Family: Boraginaceae
Genus: Cordia
Species: *C. dichotoma* Forst.
Fragrant: Manjack

Veracular name

Malaysia: Sekendal, Sekendai, Petekat
English: Sebestan plum, Soap berry, Fragrant manjack
India: Gonda, Lasora, Leshora
Javanese: Kendal
Sumatran: Nunang
Thailand: Paw man

Local Name

Bangali: Buhal, bahubara
English: Sebesten, clammy cherry, Indian cherry, Gujarati (vadgundo, gunda)
Hindi: Lasura, bhokar, borla, Javanese (Kendal)
Lao: Sino-Tibetan man, man khok), Malay (petekat, sekendai)
Tamil: Vidi, naruli, kalvirusu, Nepali (kalo bohori, bohori)
Thai: Mandong, manma, phakmong
Sanskrit: Bahuvarka, shleshmatak, shelu

DISTRIBUTION

Cordia dichotoma is a tree of tropical and subtropical regions. It grows in the sub-Himalayan tract and outer ranges, ascending up to about 1500 m elevation. It is found in a variety of forests ranging from the dry deciduous forest of Rajasthan to the moist deciduous forests of western Ghats and tidal

forests in Mayanmar. In Maharashtra, it grows in the moist monsoon forest also.

Botanical description: *Cordia dichotoma* family Boraginaceae small to moderate-sized deciduous tree with a short bole, short crooked trunk and spreading crown. The stem bark is grayish brown smooth or longitudinally wrinkled. Leaves simple, entire and slightly dentate, elliptical-lanceolate to broad ovate with a round and cordate base. These flowers are followed by 1 in (25 mm) long dull pinkish edible fruits with sticky flesh flowers are short stalked, bisexual and white in colour, appear in loose corymbose cymes [7]. The fruit is a yellow or pinkish-yellowshining globose or ovoid drupe seated in a saucer-like enlarged calyx. It turns black on ripening and the pulp gets viscid. The hard stone is 1-4 seeded. Different parts of *C. dichotoma* are displayed in Figure 1. The generic name honours a 16th century botanist, Valerius Cordus [8]. The specific epithet means having divisions always in pairs.

PHYTOCHEMICALS: Qualitative assays reveal the presence of plant phytoconstituents such as carbohydrates, alkaloids, glycosides, flavonoids, tannins and saponins [9]. Chemicals screening of both the leaves and the fruits showed the presence of pyrrolizidine alkaloids, coumarins, flavonoids, saponins, terpenes and sterol [10]. The fruit contains about 70% pulp, the pulp contains per 100 g: water 6g, proteins 35 g, fat 37 g, and carbohydrate 18 g. The seed contains per 100 g: water 32 g, fat 46 g, the principal fatty acids are: palmitic acid, stearic acid, arachidic acid, behenic acid, oleic acid and linoleic acid [11]. The petroleum ether and alcoholic extracts showed significant analgesic, anti-inflammatory and anti-arthritic activities in tests with rats. Four flavonoid glycosides (robinin, rutin (rutoside), datiscoside and hesperidin), a flavonoid aglycone (dihydrorobinetin), and 2 phenolic derivatives (chlorogenic acid and caffeic acid) were isolated [12]. The ethanol extract of the leaves reduced acetylcholine-induced contractions of guinea-pig ileum. Ethanol extracts from fruits and leaves showed significant antioxidant activities due to the carotenoids but no antimicrobial activity against gram-positive or gram-negative bacteria. Seeds of the species are anti-inflammatory, 2 compounds alpha-amyrin and 5-dirhamnoside have been isolated [13]. The bark is medicinal and several chemicals have been identified, allantoin, β-sitosterol and 3',5-dihydroxy-4'-methoxyflavanone- 7-0- alpha-L-rhamnopyranoside [14]. *Cordia dichotoma* seeds have disclosed the presence of alpha-amyrins, betulin, octacosanol, lupeol-3-rhamnoside, beta-sitosterol, beta-sitosterol-3-glucoside, hentricontanol, hentricontane, taxifolin-3-5-dirhamnoside and hesperitin-7-rhamnoside. The seed contains α-amyrin and toxifolin 3,5-dirhamnoside, which shows significant anti- inflammatory activity by an oral dose of 1 gm/kg in albino rats. The seeds of this plant reported to contain fatty acids and flavonoids [15]. The chemical compounds: robinin, rutin, datiscoside, hesperidin, dehydro-robinetin, chlorogenic acid and caffeic acid isolated from *Cordia francisci*, *C. myxa* and *C. serratifolia*. The leaves contain 12-15% crude protein, 16-27% crude fibres, 42-53% nitrogen free extract, 2-3% ether extract, 13-17% total ash, 2-4% total calcium and about 0.3% phosphorus.

Traditional Uses: The bark decoction is used to treat dyspepsia. The powdered bark is applied to mouth ulcers. The bark is also used to treat fever, abscesses and tumors. It is mixed with the pomegranate rind to treat dysentery. The extract of the bark mixed with thecoconut water relieves severe colic. The mucilage of the fruit treats coughs and chest complaints. It is also used to treat uterus and urethra disorders. The kernel of the fruits in the powder form is mixed with oil to heal tinea. The plant is also a diuretic and a laxative [16].

CONCLUSION

Numerous Ethnobotanical and Traditional folk medicine studies have been revealed the medicinal uses on different parts of the *Cordia dichotoma*. The present literature supports the potential of the *Cordia dichotoma* as a medicinal tree. In view of the nature of the plant, more research can be done to investigate the unexplored and unexploited potential of this plant for civilized people.

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