

Review on Taxonomical and Phytochemical Study of *Commelina Benghalensis L.*

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I. Introduction

Plants have been used for medicinal purposes long before recorded history. Ancient Chinese and Egyptian papyrus writings describe medicinal uses for plants as early as 3000 BC. Indigenous cultures such as African and Native American used herbs in their healing rituals, while other developed traditional medical systems such as Ayurveda and traditional Chinese medicine in which herbal therapies were used. The word "herb" has been derived from the Latin word, "herba" and an old French word "herbe". Recently there has been a shift in universal trend from synthetic to herbal medicine, which we can say 'Return to Nature'. Medicinal plants have been known for millennia and are highly esteemed all over the world as a rich source of therapeutic agents for the prevention of diseases and ailments. Nature has bestowed our country with an enormous wealth of medicinal plants; therefore India has often been referred to as the Medicinal Garden of the world.

Countries with ancient civilizations such as China, India, South America, Egypt, etc. are still using several plant remedies for various conditions. In this regard India has a unique position in the world, where a number of recognized indigenous systems of medicine viz., Ayurveda, Siddha, Unani, Homeopathy, Yoga and Naturopathy are being utilized for the health care of people. No doubts that the herbal drugs are popular among rural and urban community of India. The one reason for the popularity and acceptability is belief that all natural products are safe. The demand for plant based medicines, health products, pharmaceuticals, food supplement, cosmetics etc are increasing in both developing and developed countries, due to the growing recognition that the natural products are non-toxic, have less side effects and easily available at affordable prices.

Traditional Use of Medicinal Plants: Traditional medicine is the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures used in the maintenance of the health, prevention of diseases and improvement of physical and mental illness. In practice, traditional medicine refers to the acupuncture (China), ayurveda (India), unani (Arabic countries), traditional birth attendant's medicine, mental healer's medicine, herbal medicine, and various forms of indigenous medicine.

Role of WHO In Herbal Medicine: Two decades ago, WHO referred to traditional health systems (including herbal medicine) as 'holistic' – 'that of viewing man in his totality within a wide ecological spectrum, and of emphasizing the view that ill health or disease is brought about by an imbalance or disequilibrium of man in his total ecological system and not only by the causative agent and pathogenic evolution, probably implying that the indigenous system drugs (including herbal medicine) restore the imbalance or disequilibrium leading to the cure of ill health or disease.

Such an attitude sent signals that WHO as an organization has failed to provide leadership to establish traditional systems of medicine which provide health care to about 80% of the world population. However, it helped the inclusion of proven traditional remedies in national drug policies and regulatory approvals by developing countries.

Plant Description Botanical Classification:

Domain : Eukaryota

Kingdom : Plantae

Sub kingdom : Viridiplantae

Class : Magnoliopsida

Sub class : Commelinidae

Order : Commelinales

Family : Commelinaceae

Genus : *Commelina*

Species : *benghalensis*

Botanical name: *Commelina benghalensis* L.

Synonym: *Commelina mollis* Jacq. *Commelina turbinata* Vahl.

Common name: Benghal dayflower, Tropical spiderwort, Wandering jew.

Habitat and Distribution: *Commelina benghalensis* L. is a perennial herb native to tropical Asia and Africa. It is otherwise known as the paleotropics. *Commelina benghalensis* L. is often found in forest edges, road sides, cultivated fields, agricultural sites and home garden.

Description: Herbs perennial, stems mostly creeping, ascending distally, diffuse, numerous branched, up to 70 cm, sparsely pubescent. Leaf sheaths sparsely hirsute-ciliate; petiole distinct; leaf blade ovate, 3–7 × 1.5–3.5 cm, subglabrous. Involucral bracts borne opposite leaves, often several, aggregated at apex of branches, very shortly stalked, funnellform, 0.8–1.2 cm, sparsely hairy, proximal margins connate, apex acute or obtuse. Proximal branch of cincinni with elongate peduncle and 1–3 exerted, infertile flowers, distal branch longer, with several fertile flowers. Sepals calyx 2 mm, membranous. Petals blue, 3–5 mm. Capsule ellipsoid, 4–6 mm, 3-valved; posterior valve 1-seeded or seedless, indehiscent; other 2 valves each 2-seeded, dehiscent. Seeds black, cylindrical or semicylindrical, ca. 2 mm, rugose, irregularly reticulate, truncate at 1 end. Fl. summer to autumn. Wet places; near sea level up to 2300m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang (tropical and subtropical Africa and Asia).

Flower Cleistogamous flowers are formed in the smaller, funnel form involucral bracts on slender and creeping branches, which possess bladeless leaf sheaths and arise from the base of the plants. Flowers blue colour. FRUITS (Capsule) Capsules produced by such flowers are at the soil surface or in the soil, but only 1 or 2 valves are developed, each containing 1 or 2 seeds, which are larger than normal. In all districts except in the wettest localities; Sea-level to 4000 ft. The lower nodes sometimes develop naked underground shoots bearing smaller white flowers which ripen large seeds underground, whereas perfect seeds are often not developed in the normal flowers. (Gamble JS and Fischer CEC, 1967: Hong Deyuan and Robert A. DeFilipps, 2000).

Phytochemical Review: Udaya Prakash NK *et al.*, 2011, had studied phytochemical analysis of aqueous extract of *Commelina benghalensis* L. showed the presence of tannins, phlobatannins, saponins, flavonoids and absence of terpenoids, cardiac glycosides and steroids. Bodke SS *et al.*, 2012, had studied preliminary phytochemical analysis of weeds in Marathwada region. They reported *Commelina benghalensis* L. showed the presence of alkaloids, tannins, saponins, steroids and flavonoids. Bibin Baby Augustine *et al.*, 2013, had reported preliminary phytochemical analysis of hydroalcoholic extract of *Commelina benghalensis* L. It showed the presence of alkaloids, flavonoids, tannins, carbohydrates and saponins. Prayaga Murty P *et al.*, 2013, had studied preliminary phytochemical screening of some weed species of Kadapa district, Andhra Pradesh, India.

Commelina benghalensis L. showed the presence of alkaloids, saponins, tannins, steroid and flavonoids. Kharade Amit S *et al.*, 2013, had reported preliminary phytochemical investigation of Aqueous and Alcoholic extracts of *Commelina benghalensis* L. It showed the presence of alkaloids, carbohydrates, phytosterol, flavonoids, terpenoids, quinon and tannins. Udaya Prakash NK *et al.*, 2013, had studied phytochemical analysis of aqueous extract of *Commelina benghalensis* L. showed the presence of phlobatannins and saponins. Chichioco Hernandez *et al.*, 2014, had studied phytochemical analysis of methanolic extract of *Commelina benghalensis* L. showed the presence of terpenoids and flavonoids.

Krishna Satya A *et al.*, 2016, had evaluated qualitative phytochemical analysis of chloroform and aqueous extracts of *Commelina benghalensis* L. Chloroform extract showed the presence of alkaloids, flavonoids, tannins and absence of phenol, terpenoids, saponins. Aqueous extract showed the presence of alkaloids, tannins and absence of phenol, flavonoids, terpenoids, saponins. Sumithra D and Sumithra Purushothaman, 2017, had studied phytochemical profiling of ethanolic extract of *Commelina benghalensis* L. by using Gas chromatography-Mass spectrometry (GC-MS). GC-MS analysis of *Commelina benghalensis* L. revealed the presence of bioactive compounds such as 3-dodecene, 1-hexadecanol, 9-eicosene and tetratriacontane, Phenol 2,4 bis(1,1 dimethyl ethyl), hexadecan-1-ol trans-9, 9,10 anthracenedione, tetracosane, 1,4 benzene-dicarboxylic acid, bis (2ethylhexyl) ester, 13 docosenamide, tetracosane 11 decyl. Sumithra. D and Sumithra Purushothaman, 2017, had investigated phytochemical screening of different (acetone, ethanol and water) extract of *Commelina benghalensis* L. Aqueous extract showed the presence of carbohydrate, phlobatannins, flavonoid, saponin, tannin, volatile oil. Ethanol extract showed the presence of carbohydrate, phlobatannins, alkaloid, flavonoid, saponin, tannin, volatile oil, anthraquinone. Acetone extract showed the presence of carbohydrate, phlobatannins, alkaloid, flavonoid, saponin, volatile oil, anthraquinone.

Leaves and Stems Sharmila Banu Ghani *et al.*, 2016, had studied preliminary phytochemical screening of different extracts with solvents such as (aqueous, methanol, hexane, and carbon tetrachloride) of *Commelina benghalensis* L. It showed the presence of phytochemical constituents such as alkaloids, protein, amino acids, flavonoids, saponins, total phenols, and tannins and absence of anthraquinones, glycosides, steroids, and triterpenoids.

Armando *et al.*, 2010, had evaluated preliminary phytochemical analysis of aqueous and alcoholic extracts of *Commelina benghalensis* L. It showed the presence of alkaloids, lactones, coumarins, triterpenes,

steroids, resins, reducing agent, phenols, tannins, aminoacids, quinones, flavonoids and saponins. Ibrahim *et al.*, 2010, had performed thin layer chromatography and phytochemical analysis of *Commelina benghalensis* L. The phytochemical screening revealed the presence of phlobatannins, carbohydrates, tannins, glycosides, volatile oils, resins, balsams, flavonoids and saponins while terpenes, sterols, anthraquinones and phenols were absent. Thinlayer chromatography development revealed three spots for hexane extract, six spots for ethylacetate and five spots for methanol.

Ndam LM *et al.*, 2014, had studied phytochemical screening of the bioactive compounds in twenty Cameroonian medicinal plants. They reported acetone extract of *Commelina benghalensis* L. showed the presence of steroids and flavonoids. Balakrishnan CP and Jenifer Panneer, 2015, had studied phytochemical analysis of different extracts (Benzene, petroleum ether, chloroform, acetone, methanol, water) of *Commelina benghalensis* L. It showed the presence of bioactive compounds such as alkaloids, catechin, flavonoids, phenol, quinones, saponins, tannins, sugar, glycosides, protein, and aminoacids were present. Anthraquinone, coumarin, and xanthoprotein were absent.

Gurjar Himanshu PS *et al.*, 2016, had studied preliminary phytochemical investigation of methanolic extraction of *Commelina benghalensis* L. It revealed the presence of different types of chemical constituents such as stigmasterol, alkaloids, carbohydrate, glycosides, flavonoids, aminoacids, and phenolic compounds. Kaliyamoorthy Jayakumar, 2016, had investigated phytochemical screening of alcoholic extract of *Commelina benghalensis* L. It showed the presence of carbohydrate, phytosterols, alkaloids, flavonoids, and terpenoids, quinone, tannins.

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