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## Ethnomedicinal profile on magnolia species (Magnoliaceae): A review

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### Abstract

Some of the traditional crude drugs used in contemporary medicine are occupying/plays a very major place as unprocessed materials for various drugs. India authoritatively identified more than 3000 plants having significant medicinal value/importance. In general, it is estimated nearly about 6000 plants in India are used in traditional, folk and herbal medicine. Magnolias have been known for the traditional medicine in China. The genus *Magnolia* includes groups of lignans and sesquiterpene lactones, as well as few important biomolecules. Ethnomedicinal data obtained from the Native Americans of the Southeastern United States compare well with the results of pharmacological investigations. Out of numerous species of *Magnolia*, maximum investigation was done on *M. officinalis* and some part of the activity on *M. obovata*, and *M. virginiana*. In the existing review, an attempt is made for successful in gathering its ethnomedicinal usage, active principle compound along with the exhibited pharmacological activities.

**Keywords:** *Magnolia*, magnoliaceae, *Magnolia* species, alkaloids, essential oil and anti- oxident

### 1. Introduction

Herbal drug is fast nascent treatment as secondary accessible analytical drugs for aid of different diseases, maybe due to cheaper costs and decreased side effects. Several chemical substance compounds have been standardized from the medicative plants. Approximately 70% of the world processing accumulation of people actually relies on the conventional medicinal scheme, commonly known as complementary or alternative medicine systems<sup>[1]</sup>.

Charles Plumier (1646-1704) described in his *Genera* the flowering tree from Martinique in 1703. After Pierre Magnol, he assigned the plant, known locally as "Talauma," the name of the genus *Magnolia*. The English botanist possibly the first to adopt the name of that same genus *magnolia* after Plumier who studied botany. The genus *magnoliae* belongs in the *magnoliales* flowering plant order to the *magnoliaceae* family unlike most angiosperms flowering plants in exercise, the *magnoliaceae* have their stamens and reproductive structure on a conical spiral receptacle. This planning is occur in ancient foggy plants and is considered to be simple for flowering plant. The common names are large flowered *Magnolia*, Big-laurel, Bull-bay, Southern *Magnolia*, Deciduous *Magnolia*, Bull bay, Large-flowered *Magnolia* and Himchampa. Are mostly shrubs and small trees in the tropical forest that are part of the underground plant population but few species can become very large. People of the neighborhood have been using *Magnolia*'s for many years ago, not only for cosmetic intention but more significantly because of their medicinal values. In Religious spirituality as well as Traditional folk medicine, white and yellow colour flowers are usually used<sup>[2]</sup>.

### 2. Distribution

*Magnolia* is said to be indigenous to Central America's western hemisphere in Central America and some of them South America and *Magnolia* in East and South Asia. Nearly about 210 species depending on the taxonomic scheme. It is also best-selling choice for hedging in parts of Southeast Asia and also in warm climates in Thailand that bloom during the year. Different popular cultivars are dwarfs, normally check under 3 ft (1 meter) in height. Leaves of *Magnoliaceae* species are alternate, simple and sometimes lobed, sessile or sub-sessile, simple and acute<sup>[3]</sup>. They differ in leaf size, height, flower size and color. *Magnolia* flowers are not so unintelligibly distinguished floral leaf and flower petal like most other flowering plants. The sections of these plants are noted as tepals, a term strike for these in-between or separate petals and sepals. Tepals vary from more than four to more and Stamens are many with short stalk that are sickly separated from the anthers. In general, carpels are many, defined and on an elongated receptive. This comes in a various of shades such as red, pink and yellow colours. Leaves of *magnolia* species are often simple and the fruit is

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occasionally lobed as an aggregate of follicles that are typically tightly appressed as they mature and spread along the a basal layer. Seeds have a fleshy coat and colour that ranges from red to orange. Plant contains important phytochemicals such as, magnolol, honokiol, 4-O-methylhonokiol, and obovato, 4'-dihydro-5'-methoxy-3,4-methylenedioxy-4'-oxo-7.0.2' 8.1'-neolignan, maglifenone, 2, 5'-diene-2', 8'-epoxy-5'-methoxy-8-methyl-4'-oxo-3,4-methylene dioxy-spiro (5, 5)-undecane, veraguensin and  $\beta$ sitosterol [4].

## 2.1 Taxonomic Hierarchy

Kingdom Plantae – Plants  
 Subkingdom Tracheobionta – Vascular plants  
 Superdivision Spermatophyta – Seed plants  
 Division Magnoliophyta – Flowering plants  
 Class Magnoliopsida – Dicotyledons  
 Subclass Magnoliidae  
 Order Magnoliales  
 Family Magnoliaceae  
 Genus Magnolia L

## 2.2 Direct Children

Species: *Magnolia delavayi* - Chinese evergreen magnolia  
 Species: *Magnolia fraseri* - Fraser magnolia  
 Species: *Magnolia globosa* - Globe magnolia  
 Species: *Magnolia guatemalensis* - Guatemalan magnolia  
 Species: *Magnolia macrophylla* - Bigleaf magnolia  
 Species: *Magnolia nitida*  
 Species: *Magnolia obovata* - Japanese bigleaf magnolia  
 Species: *Magnolia officinalis* - Houpu magnolia  
 Species: *Magnolia sieboldii* - Siebold's magnolia  
 Species: *Magnolia virginiana* - Sweetbay magnolia

## 2.3 Different species of Magnolia

### 1. *Magnolia delavayi* [5]

Family: Magnoliaceae

**Common name:** Chinese evergreen magnolia.

It is an ornamental plant of the genus Magnolia. It is commonly known by the names of the evergreen magnolia or the magnolia of Delavay, the Chinese Catholic missionary who collected it from Delavay's father.

### Description

*Magnolia delavayi* is an 8 to 15 meters (26 to 49 ft) small evergreen tree with a grey to greyish-black colour bark. The leaves are ovate to ovate-oblong 10 to 20 cm long (rarely up to 32 cm), 5 to 10 cm wide (rarely up to 20 cm) with 5 to 7 cm petiole. The flowers are fragrant, cup-shaped, 15 to 25 cm wide, with nine dense, creamy white to pink tepals; 210 stamens and 100 carpels of ovoid gynoecium.

**Distribution and habitat:** *M. delavayi* is native to southern China, occurring at 1,500 to 2,800 meters in Guizhou, Sichuan and Yunnan.

**Ecology:** From April to June, flowering occurs in its native habitat. It grows on calcareous areas on wet slopes.

### Cultivation

This tree is grown as an embellishing greenery as well as flowers. It is more cultivated in California [6].

## Description of the plant: (Fig:1)

It is medicinally used as antimicrobial, anti-oxidant, anti-mitotic and anti-inflammatory activities. Decoction of roots was used for nausea, hiccups and anorexia and also used to clarify the urine, poultice fresh leaves and as well as stems decoction for sprains, eczema, boils and injury [7].



Fig 1: *Magnolia delavayi*

**Preliminary phytochemical screening** [8]: The reported phytoconstituents like, alkaloids, glycoside, flavonoids, steroids, triterpenoids, tannins, saponins, resins etc.

## 2. *Magnolia fraseri*

Family: Magnoliaceae

**Common name:** *Magnolia fraseri*, *magnolia fraser*, *magnolia mountain*, Cucumber tree

### Habitat

This belongs to the genus of Magnolia, conatural to Southern United States in the Carol Mountains and related regions of the Ocean and Gulf Islands from West Virginia South to Northern Florida and West to East Texas.

### Varieties

*Magnolia fraseri* var of *fraseri*, it is native to the Appalachian Mountains. Whereas *M. pyramidata* is native to the Coastal Plain.

## Description of the plant: (Fig: 2)

*Fraser magnolia* is a small, fascinating group of trees flourishing to 14 meter (40 ft) tall, as a primitive, aromatic plant, it contains brown colour bark with a "warty" or "Rough" texture. The leaves are quite large, 15 to 25 cm (rarely up to 53 cm) long and 8 to 18 cm (rarely up to 29 cm) broad, at the base, entire margin, a pair of auricles ("earlobes"); they are green colour in upper surface and glaucous blue-green lower surface. It has white flowers 16 to 25 cm in diameter and nine tepals appear in deep spring or summer, after the foliage. The fruit is a woody, oblong cone-like structure as all 7 to 12 cm long magnolias covered in small cones, like follicles each containing one or two red seeds and their cones with a slender thread when mature. About every 4 to 5 years a good seeds crop are occurred. Biological process is done for some seeded part of the plant and quiescence plant organ the fruit is eaten by wild-life serving to spread the seeds. It grows in rich growing and it contains drained and moist soil. The white flowers are very large and grassy gross textured leaves make this an attractive ornamental tree, but otherwise it has little commercial value.



Fig 2: *Magnolia fraseri*

### Cultivation

It is extensively growing in North America as a local alternative to exotic magnolia can be grown a fair distance north of its natural range if it has favorable conditions for its growth [9].

### 3. *Magnolia globosa* [10]

Family: Magnoliaceae

**Common name:** *Globe magnolia* or *Hen magnolia*.

### Habitat

This species is a of Bhutan, Southwestern China (Sichuan, Xizang, Yunnan), Northeastern India (Assam, Sikkim), Northern Myanmar-Burma and Eastern Nepal.

### Description of the Plant: (Fig:3)

The leaves are shedding shrub or small tree growing to 7 to 10 meter tall, variable in shape, obovate, elliptic-ovate or broadly ovate, 10 to 24 cm long and 5 to 14 cm broad, Leaves appear glossy dark green on dorsal side and slightly pale green in ventral side with blunt acute apex. The flowers are creamy white, 6 to 8 cm wide, 9 to 12 tepals; fragrant odour.



Fig 3: *Magnolia globosa*

### Cultivation

It is rarely cultivated compared to *M. wilsonii* and *M. sieboldii*. In this species, flowers are less attractive than other species in the genus.

### 4. *Magnolia guatemalensis* [11]

5. Family: Magnoliaceae

**Common name:** *Pouteria sapota* from Cuba, fruit tree *Mammea americana* from Central and South America.

### Habitat:

*Magnolia guatemalensis* is a tree located in highlands and mountains of Chiapas, Guatemala, El Salvador. It is considered as indicated species from the cloud forest.

### Description of the plant: (Fig: 4)

It is an evergreen tree *Magnolia*, reaching about 75 feet tall with a pyramidal habit. White flowers are 3 inches across, does not exist any fragrant as like *M. grandiflora*. Mostly cultivated in warm areas of the U.S. like southern California, Louisiana and Florida. It is native to swampy forest areas of Guatemala at 4600 to 6500 feet altitude. Also found in El Salvador. It was collected first time in 1908.



Fig 4: *Magnolia guatemalensis*

### 5. *Magnolia macrophylla* [12]

Family: Magnoliaceae.

**Common name:** *Bigleaf magnolia*, *Ashe magnolia*.

### Habitat:

The *bigleaf magnolia*, native to the Southeastern United States and eastern Mexico. This species have ability to produce the largest simple leaf and single flower of any native plant in North America.

### Description of the plant: (Fig:5)

*Big leaf magnolia* is medium-sized the vegetative layer of the tree 15 to 20 meter tall, though some individuals over 27 meter tall (and over 100 cm circumference) have been documented by the Eastern Native Tree Society. This species is different from other magnolias by their large leaf size, 25 to 80 cm long and 11 to 30 cm broad. The tree's branches are obtained bend under the weight of this heavy foliage.



Fig 5: *Magnolia macrophylla*

### Distribution of the plant

*Big leaf magnolia* is found in rich moderate amount of water supply to the woods; in any disturbance that lets more light reach the ground, but inspite of fast growth-rate it also stimulated by more light, other understory and canopy trees/seedlings Typically able to outgrow and thrive it is set to perfect for the plant as it is tolerant of low light levels it needs only full shade, not full sun directly. The regeneration of natural plants is quite extent due to the scarcity of mature and seed-bearing plants.

**Cultivation**

Leaf of magnolia is often short-period under cultivation of the plants unless it is also demand for the requirements are need. This tree likes healthy, undisturbed rich mesic soil or and compost replacements with wet, well drained soil and low ph. It is likely that this tree will grow in places that closely resemble its natural habitat and where it is protected from strong winds that can kill its large leaves <sup>[13]</sup>.

**6. *Magnolia nitida*** <sup>[14]</sup>

Family: Magnoliaceae.

**Taxon Name:** *Magnolia nitida* W.W.Sm.

*Subspecies nitida* W.W.Sm

**Description of the plant:** (Fig: 6)

An evergreen tree or large shrub reaching 20 to 50 feet. Bark is grayish brown and the braxnchlets are smooth. Leaves are bright green, glossy and leathery, with bronzy red new growth. The flowers are white to purple, 2 to 3 in chesm in color and sweetly fragrant in March or April. Native to forests at 5900 to 12,000 feet elevation in Yunnan Province, China and parts of Tibet. Introduced into cultivation in England from seed. Cultivated plants are generally smaller than in the wild. It is grow in mild climate areas, prefers moist climate, sun or shade. Can be grown easily from seed. Flowers at 15 years of age. Prefers rich, moist soil and partial shade.



**Fig 6:** *Magnolia nitida*

**Habitat:** China (Guangxi, Guizhou, Tibet [or Xizang], Yunnan); Myanmar

**Ecology:** This trees grow up to nearly 30 metres tall in Montane coniferous forests <sup>[15]</sup>.

**7. *Magnolia obovata*** <sup>[16]</sup>

Family: Magnoliaceae.

**Synonyms:** *Magnolia hypoleuca*

**Common name:** *Japanese big leaf magnolia* or *Japanese white bark magnolia*.

It belongs to Magnolia species, widely found in Japan and the adjacent Islands of Kurile. This species grows around upto 1800 meters altitude, near sea level in mixed deciduous plants <sup>[17]</sup>.

**Cultivation**

Grow in moist but well-drained soil in full sun with shelter from cold winds.

**Description of the plant:** (Fig: 7)

It is a moderate-sized broadleaf tree of about 15 to 30 meters tall, with slight grey bark. The leaves are 16 to 38 cm long and 9 to 20 cm rarely 25 cm wide, Slivery green leathery or below gray pubescent along with broad acute apex. At the end of each shoot, they are placed in whorls of five to eight. The flowers are also large fleshy red stamens in the form of a cup shape and expansion of leaves takes place in early summer. Shape of the fruit is cylindrical, contains 12 to 20 follicles in each fragments which is pink red colour <sup>[18]</sup>.



**Fig 7:** *Magnolia obovata*

**Habitat and Ecology**

This plant is found evolution sporadically on moist to hydric places such as margins of deciduous broadleaves forests. It is a large and common deciduous tree 15 to 30 meters tall, with slate grey bark. Its large flowers do not secrete nectar, and are mainly pollinated by insects. In temperate forests in Japan, a few dominant tree species frequently occupy a large proportion of the canopy, such as *fagus crenata*, and the majority of the canopy is made up of tree species that occur at relatively low densities <sup>[19]</sup>.

**Phytoconstituents**

The leaves shows the presence of  $\alpha$ - and  $\beta$ -pinene, camphene, caryophellene and bornyl acetate as major constituents, essential oils like, Caryophyllene epoxide and chavicol and recently reported on isolation and characterization of ethyl stearate, ethyl palmitate and palmitic acid from *Magnolia obovata*.<sup>[20]</sup>

**Medicinal uses**

The active principal compounds like, magnolol and honokiol, which shows more pharmacological actions. Generally, antioxidative Effects, Anti-Inflammation and Anti- Tumor effects. Anti-Microbial Effects, Antiplatelet Activities of *Magnolia obovata*.<sup>[21]</sup>

**8. *Magnolia officinalis***

Family: Magnoliaceae.

**Latin Name:** *Magnolia officinalis*

**Synonyms:** Houpu, Houpu Magnolia, Magnolia, Magnolol, honokiol

**Description of the plant:** (Fig: 8)

*Magnolia officinalis* tree is a native of China, grows at an altitude between 300 to 1500 meters above the seal level near the Chinese mountain and valleys Tree height about 20 inches height, thick bark, brown colour leaves 20 to 40 cm length. Cup shaped white flowers are 10 to 15 cm width containing 9

to 12 sepals and petals. The fruits are oval, to egg-shape, flat on dorsal 4-5 inches in height and 4 to 4.5 inches in width [22].



Fig 8: *Magnolia officinalis*

#### Habitat and Ecology

This trees grow up to 20 metres tall and become broad-leaves evergreen forests. Flowers are white, aromatic, insect fertilise and occur from April to May. The developed seeds are bright red and eaten by birds or small animals. Nether natural conjuncture, seed set and development rates are low [23].

#### Phytoconstituents

Significant antioxidant effects have been shown from flower extract of *M. officinalis* due the presence of magnolol and honokiol active principles [24]. Reported phytoconstituents like Proteins and amino acid, steroid and terpene, carbohydrates, alkaloids, phenolic, tannins, flavonoids, saponins, fats and oils were present in seed part [25].

#### Medicinal uses

Used as a folk medicine, the bark from stems, roots and branches for the aid of depression, cough, asthma, liver disease, and diarrhea for more 2000 year [26]. The compounds isolated from the leaves, seeds and branches of *M. officinalis* were exhibited significant anti-tumoral, anti-angiogenic, antioxidant, and anxiolytic activities [27].

#### 9. *Magnolia sieboldii* [28]

Family: Magnoliaceae.

**Synonyms:** *Magnolia sinensis*, *Oyama sinensis*

**Common name:** *Magnolia sieboldii*, *Siebold's magnolia*.

This species is a native of China (East Asia), Japan, and Korea.

**Description of the plant:** (Fig: 9)



Fig 9: *Magnolia sieboldii*

*Magnolia sieboldii* is a large shrub 5 to 10 meters tall containing young leaves and stalk. The young twigs and young buds are downy. The leaves are elliptical to ovate in shape, around 9 to 16 cm long, 4 to 10 cm width with a petiole of 2 to 5 cm. The flowers appear mostly in the early summer, unlike the better known spring flowering Magnolias, but continue till late summer, These flowers are pure white, cup-shaped, pendulous, around 7 to 10 cm diameter containing 6 to 12 tepals, three are outer side and smaller, the rest of them are larger, the carpels are green in colour where as stamens are in reddish-purple or greenish-white.

#### Habitat and Ecology

*Magnolia sieboldii* trees grow up to 10 metres tall in montane forests.

#### 10. *Magnolia virginiana* [29]

Family: Magnoliaceae

**Common names:** *sweet bay magnolia*, *laurel magnolia*, *swamp magnolia*

**Scientific names:** *Magnolia virginiana* L.

This species is native of Southeast Asia, North America, Central America.

**Description of the plant:** (Fig:10) *Sweet bay* is a woody, flowery tree grow up to 60 ft, gray in color and smooth stems and can be deciduous semi-green or evergreen. It grows almost similar to a shrub. The barks are trim, hairy twigs and the colour is gray or light brown. When the leaves are broken, the bark becomes aromatic, when the leaves are 4 to 6 in 10 to 15 cm long, 1 to 3 in 3 to 8 cm simple alternating oblong, slightly stringy with a wedge-shaped base, tip of apex is sharp.

In late spring, the flowers are produced 2 to 3 in 5–8 cm white fragrant 9 to 12 spoon-shaped petalles on smooth stalks. Each fruit contains aggregation of dry oval hairy carpels 2 in 5 cmlong each follicle contains a light oval red seed 0.6 cm long with a thin elastic thread attached to the open flower.



Fig 10: *Magnolia virginiana*

#### Habitat

*Sweet bay* occurs from north to southern magnolia and is originally referred to as a wetland plant, meaning that it is usually found in wetlands. In wet, dry streams, swamps, and flat woods, it is also found. It occurs in forest and flat woods of pine and hardwood. There might be synthetic, acidic, mossy, saturated soils in some of these ecosystems. In Rural Plain Histosols, the soils can be found. It is growing bigger in the Southeastern United States due to rich fertile source of soil [30].

### Phytoconstituents

The reported phytoconstituents are terpenoids, benzenoids and fatty acid, sesquiterpene hydrocarbons of *Magnolia virginiana* [31].

### Medicinal uses

Essential oils were possessed the antioxidant and anticancer [32].

### 11. *Magnolia grandiflora* [33]

Family : Magnoliaceae

**Common names:** *Southern magnolia* or bull bay. This species is native of United States, from southeastern North Carolina to central Florida, and west to East Texas.

#### Description of the plant: (Fig: 11)

It is an evergreen tree that grows between 60 and 80 feet tall and has a canopy spreading from 30 to 40 feet. The leaves are simple and oval in shape, growing alternately on the limbs and green in colour. The leaves have no change of pigment in the fall, and the blossoms have a very pleasurable aroma, are late summer and summer flowers, the petals are very showy and white. The berries, branches and leaves on the ground will cause a lot of litter. The bark is very thin and can be harmed easily. It will include pruning under the tree's canopy for vehicle and pedestrian clearance.



Fig 11: *Magnolia grandiflora*

### Habitat

White flowers of this species are grown large aromatic fragments and deciduous leaves, making it one of the fewest beautiful vegetation trees. It is a large-sized, reasonably fast growing tree that gives best well-heelled loamy wet and well drained soils from the lower and upper highland of the coastal plains of southeastern United States along flowing of water and near wetland. It is also grows on mesonic highland sites where firing is rarified. Although it is predominantly a bottomland plant, it can't tolerate sustained flooding and therefore grows mainly on the oldest alluvium and waste water sites.

### Ecology

This species exhibited rarely lonely and related to a variety of mesonic hardwoods belong to this species such as Oak, Pine, Swamp Chestnut and Beech. It produces larger white flowers between April to June and fleshy cone shape like fruit ripe from September through the late fall. Southern magnolia is a productive germ manufacturer and good seed collection normally take place every year. Trees as immature as 10 years aged one can produce seeds and optimum seed production occurs at 25 years of age. The comparatively dense seeds are redistributed by birds and mammals but some may be spread

by heavy rains. Seed plant are extremely sensitised to rime impairment and death rate can even issue from a heavy freeze.

### Phytoconstituents

The reported various phytochemicals like alkaloids, carbohydrates, flavonoids, glycosides, gums & mucilage [34], phenolics, phlobatannins, reducing sugar, saponins, steroids, tannins and terpenoids are present in different quantity.

### Medicinal uses

The pharmacological effects like, anti-inflammatory, antibacterial and antioxidant properties [35].

### 2.4 Same family of Magnolia

Chamapaka is one of the important drug from Pushpa varga of Bhavaprakasha nighantu, known as Atigandha (Magnoliaceae), evergreen tree, cultivated in gardens and near temples, well know for its fragrant flowers and handsome foliage.

**Scientific name:** *Magnolia champaca* Linn

**Synonyms:** *Michelia champaca* Linn

It is native to Southeast Asia-Indochina.

***Michelia champaca* L (*Magnolia champaca*)**

#### Description of the plant: (Fig: 12)

It is a tree growing upto 30 meter height, with grey bark, lenticellate. Stem aerial, erect, woody. Leaves simple, alternate, spiral, 10 to 25 cm lamina, lanceolate to elliptic-lanceolate, acuminate apex, acute base, margin is slightly undulate, glabrous, strongly and reticulately nerved. Petiole is 1 to 3 cm length and stout. Flower are solitary, axillary, large, yellow to orange, bracteate with short pedicel, complete, actinomorphic and very fragrant. Perianth usually 15 to 20 tepals, in whorls of 3 each; either all the 3 whorls petaloid or sometimes outermost tepals become sepaloid. Fruit is follicle, warty, about 2 to 3 cm length, arranged as spike, dehiscing dorsally.



Fig 12: *Michelia champaca*

### Habitat

It is highly distributed in Sub-Himalayan region, West Bengal, Myanmar and South India, apart from China. It is renowned for perfumery and envisaged as „Joy perfume tree“. „Joy“ the second best selling perfume in the world is derived in part from the essential oil of champaca flowers [36].

### Chemical constituents

Root and Stem bark: liriodenine, Magnosprengerine, salicifoline

Leaves: polysorprenoid,  $\beta$ -sitosterol and lirioidenine.

Flower: Essential oil contains  $\beta$ -elemene, borneol, caryophylline,  $\alpha$ -humulene, spathulenol and quercetin.

Seed oil: Myristic, palmitic, hexadecadienoic, stearic, oleic, arachidic, eicosenoic and hexadecanoic acid<sup>[37]</sup>.

The essential oil isolated from flower, leaf and fruit contain mono and sesquiterpenes. The plant also contain -sitosterol and its glucoside, parthanolide, dihydroparthenolide, micheliolide, germacranolide, constinolide, irioidenine, macheline, A, urshinsunine, oxoushinsunine and magnoflorine<sup>[38]</sup>.

### Medicinal uses

This plant is traditionally well-known for cure of fever, colic, leprosy and also for coughs, rheumatism and remedies of various disorders, bark is used as a febrifuge. According to Indian system of medicine, root bark of *Michelia champaca* used as purgative and emmenagogue and also different disorders like abscesses, inflammation, constipation, amenorrhoea and dysmenorrhoea are used.

The stem bark is reported as astringent, febrifuge, diuretic, stimulant and expectorant. Whereas flowers are used in chronic gastritis, fever, strangury, cough, bronchitis and cardiac debility. Fruits are bitter, astringent, acrid, refrigerant, haemostatic, digestive, carminative, depurative, digestive, anthelmintic, diuretic, expectorant, cardiotoxic, stimulant, stomachic and antipyretic<sup>[39]</sup>.

Essential oil are used in aroma therapy and also in perfumery industry, which are obtained from flower part<sup>[40]</sup>.

*Michelia champaca* reported maximum pharmacological activities like anti-microbial, anti-pyretic, anti-inflammatory, anti-oxidant, insecticidal, anti-uretic, carminative, anti-diabetic etc<sup>[41]</sup>.

### 3. Conclusion

The comprehensive literature study showed that magnolia species have various medicinal properties with a variety of pharmacological orientations. This article briefly reviews the ecology, habitat, discription of the plant species Phytochemical, pharmacological medical and conventional psychological feature of the Magnolia genera Traditionally, the different species were commonly used but various pharmacological behaviors were not tested. More evaluation on Magnolia species is required to be used in hypothesize for their applied clinical applications, which can be used for human financial aid. This is an effort to accumulate and the papers information on various feature of magnolia variety and particular needs for the further investigation and evolution in upcoming future.

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### 5. References

1. Azazieh H, Saad B, Cooper E and *et al.*, Traditional Arabic and Islamic Medicine, a Remerging Health Aid. Evid based Comp Alt Med. 2010; 7(4):419-424.
2. Elumalai A, Chinna Eswaraiah, Yetcharla Venkatesh, *et al.*, Phytochemical and pharmacological profile of *Magnolia virginiana* Linn. Int J of Pharma and Life Sci. 2012; 3(3):1563-1567.
3. Kharat, Nambiar, Tarkasb *et al.* A Review on Phytochemical and Pharmacological activity of genus Magnolia. Int J Res in Pharma and Chem. 2013; 3(3):628-635.
4. Bo Garza, Alondra Echeverria, Felipe Gonzalez, *et al.* Phytochemical investigation of *Magnolia grandiflora* green seed cones. Food Sci Nutr. 2019; 7:1761-1767.
5. Hunt D. Magnolias and their allies. International Dendrology Society and Magnolia Society. 1998, I
6. Varier VPS. Indian Medicinal Plants, a compendium of 500 species, University press Pvt. Ltd, Hyderabad. 2010, 239.
7. Baliga MS, Kurian PJ. *Magnolia officinalis* Linn: traditional uses, phytochemistry and pharmacology. Chin J Integrative Med. 2012; 18(1):72-79.
8. Shah B, Shet AK. Textbook of Pharmacognosy and Phytochemistry, Elsevier India Pvt. Ltd, New Delhi, 2010; 1:233-234.
9. Khela S. *Magnolia fraseri*. The IUCN Red List of Threatened Species 2014: <http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T193941A2291599>.
10. Cicuzza D, Newton A, Oldfield S. The Red List of Magnoliaceae. Fauna & Flora International, Cambridge, UK. 2007.
11. Hastings, Don. Trees for the South. Atlanta, Georgia: Longstreet Press. 2001:109. ISBN 1-56352: 596-598.
12. Fang J, Wang Z, Tang Z. Atlas of Woody Plants in China - Distribution and Climate. Higher Education Press, 2000.
13. IUCN. 2014. The IUCN Red List of Threatened Species. Version 2014. [www.iucnredlist.org](http://www.iucnredlist.org).
14. Kundu SR. A synopsis on distribution and endemism of Magnoliaceae s.l. in Indian Subcontinent. Thaiszia Journal of Botany. 2009; 19:47-60.
15. Nianhe X, Yuhu L, Nooteboom HP. Flora of China: Magnoliaceae, 2008.
16. Ishida K. Maintenance of Inbreeding Depression in a Highly Self-Fertilizing Tree, *Magnolia obovata* Thunb. Evolu Ecol. 2006; 20(2):173-191.
17. Miller TP. Kurile Islands. Encyclopedia of Islands - Encyclopedia of the Natural World, University of California Press, 2009.
18. Nooteboom HP. Notes on the Magnoliaceae II. Revision of Magnolia section Maingola (Malesian species) Aromadendron and Blumiana. Blumea. 1987; 32:343-382.
19. Jiri Patocka, Jiri Jakl, Anna Strunecka. Expectations of biologically active compounds of the genus *Magnolia obovata*. J Appl Biomed. 2006; 4:171-178.
20. Hwang EL, Kwon BM, Lee SH, *et al.*, Obovatols new chitin synthase 2 inhibitors of *Saccharomyces cerevisiae* from *Magnolia obovata*. J. Antimicrob. Chemother. 2002; 49:95-101.
21. Wang L, Waltenberger B, Pferschy-Wenzig EM *et al.*, Pferschy-Wenzig, *et al.*, Natural product agonists of peroxisome proliferator-activated receptor gamma: Review. Bio chem. Phamacol. 2014; 92(1):73-89.
22. He Chen L, Si Y, Huang B *et al.*, Population structure and genetic diversity in wild and cultivated populations of the traditional Chinese medicinal plant *Magnolia officinalis* subsp. biloba (Magnoliaceae). Genetica. 2009; 135:233-243.
23. Zhao C, Liu ZQ. Comparison of antioxidant abilities of magnolol and honokiol to scavenge radicals and to

- protect DNA. *Biochimie*. 2011; 93:1755-1760.
24. Mengna Zhang, Zhulin Han, Li Zhang, *et al.*, Phytochemical screening of *Magnolia officinalis* seeds. *Int J Research in Pharm and Pharm Sci*. 2019; 4(1):01-05.
  25. Luo H, Wu H, Yu X, *et al.*, A review of the phytochemistry and pharmacological activities of *Magnoliae Officinalis* Cortex. *J Ethano pharmacol*. 2019; 236:412-442.
  26. Han H, Jung JK, Han SB *et al.*, Anxiolytic-Like Effects of 4-O-Methylhonokiol Isolated from *Magnolia officinalis* Through Enhancement of GABAergic Transmission and Chloride Influx. *J. Med. Food*. 2011; 14:724-731.
  27. Watanabe K, Watanabe H, Goto Y *et al.*, Pharmacological Properties of Magnolol and Honokiol Extracted from *Magnolia officinalis*: Central Depressant Effects. *J Med Plants Res*. 1983; 49:103-108.
  28. [http://www.qhd.gov.cn/qhdenglish/show.asp?Qinhuangdao.2011Magnolia sieboldii Festival is open.2011](http://www.qhd.gov.cn/qhdenglish/show.asp?Qinhuangdao.2011Magnolia%20sieboldii%20Festival%20is%20open.2011) Available at: sid=2336&id=83&page.
  29. Gucker CL. *Magnolia virginiana*. Fire effects information system. Rocky Mountain Research Station. USDA Forest Service. <http://www.fs.fed.us/database/feis>. 2008.
  30. Mohamed A, Farag Dalia, Al-Mahdy. Comparative study of the chemical composition and biological activities of *Magnolia virginiana* flower essential oils. 2013; 27(12):1091-1097.
  31. Mohamed A Farag, Dalia A Al-Mahdy. Comparative study of the chemical composition and biological activities of *Magnolia grandiflora* and *Magnolia virginiana* flower essential oils. *Nat Pro Research: Formerly Natural Product Letters*. 2013; 27(12):1091-1097.
  32. Aktar F, Kaisar A, Hamidul Kabir, *et al.* Phytochemical and biological investigations of *Magnolia virginiana*. *Dhaka Univ J Pharm Sci*. 2009; 8:161-166.
  33. Khela S. *Magnolia grandiflora*. The IUCN Red List of Threatened Species. 2014. <http://dx.doi.org/10.2305/IUCN.UK.20141.RLTS.T193948A2291865>.
  34. Sweta Thakur, Sidhu MC. Phytochemical screening of leaves and seeds of *Magnolia grandiflora* L. *Der Pharmacia Letters*. 2013; 5(4):278-282.
  35. Kumano Y, Sakamoto T, Egawa M and *et al.*, *In vitro* and *in vivo* prolonged biological activities of *Magnolia grandiflora* L. flower extract 2-O-alpha-D-glucopyranosyl-L-ascorbic acid (AA-2G), in cosmetic fields. *J Nutr Sci Vitaminol*. 1998; 44(3):345-359.
  36. Rajshree Sinha, Ranjana Varma. *Michelia champaca* L. (Swarna Champa): A Review *Int J Enhanced Res Sci Tech & Eng*. 2016; 5:2319-7463.
  37. Chen CY, Huang LY, Chen LJ, *et al.*, Chemical constituents from the leaves of *Michelia alba*. *Chem Nat Comp*. 2008; 44(1):137-139.
  38. Geetha KN, Jeyaprakash K, Nagaraja YP. A preliminary pharmacognostical study on leaves and flowers of *Michelia champaca* L. *Magnoliaceae*. *J Nat App Nat Sci*. 2011; 3 (2):228-231.
  39. Vivek RK, Kumar S, Shashidhara S *et al.*, Antioxidant and Antimicrobial activities of various extracts of *Michelia champaca* Linn flowers. *World Appl Sci J*. 2011; 12(4):413-418.
  40. Raja S, Koduru RA. Complete Profile on *Michelia Champaca* – Traditional uses pharmacological activities and phytoconstituents. *Int J Pharmaceu Res Sch*. 2014; 3(2):496-504.
  41. Gupta S, Mehla K, Chauhan D and *et al.*, Anti-inflammatory activity of leaves of *Michelia champaca* investigated on acute inflammation induced rats. *Latin Amer J Pharm*. 2011; 30(4):819-822.