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# APURVA CHAMPAKA: AN UNDEREXPLOITED MEDICINAL AND AROMATIC CROP

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*Cananga odorata,* also known as Ylang-ylang, is a medium-sized, fast-growing tree native to the Indo-Pacific region's lowland and lower montane tropical forests. It is grown in gardens throughout the tropics and subtropics for its highly fragrant blossoms, from which essential oils are extracted and utilized in fragrances, soaps, shampoos and other cosmetic items, foods and aromatherapy applications.

Commonly called as English -Climbing ylang-ylang, Ylang-ylang tree: Kannada- Apurvachampaka, **ಅಪೂರ್ವ ಚಮ್ಪಕ**; Malayalam- Kattuchempagam; Marathi- Chape; Tamil-Kadi,Karumugai, **க்ட்டு சம்பகம்**, Kattu Chempakam; Telugu-Apurvachampakama, Apurva Champakame Chettu Sampangi, **అపూర్వ చంపాక**.

**Uses**

*Cananga odorata* flowers, leaves and fruits provide an essential oil commonly used in perfume production. The essential oil has a wide range of medical applications. The timber is utilized locally for construction, canoes and infrequently as fuelwood. The species is also documented to be marketed and utilized as folk medicine. It is used medicinally to cure boils, as a carminative, for cephalgia, diarrhoea, gout, malaria, eye difficulties, rheumatism and as an emmenagogue. The flower is also said to create an incredibly sweet aroma that is akin to jasmine. Its oil has been certified as generally recognized as safe by the Flavor and Extract Manufacturers Association (FEMA) and is commonly used as a flavouring ingredient and adjuvant. Ylang-ylang oil can be found in different cosmetic products and Massage oils, moisturizing creams, perfumes and even scented candles are common household staples. It is also claimed that ylang-ylang oil's therapeutic benefits are one of the primary reasons for its growing popularity in aromatherapy.

**Botany**

**Tree Description**

This medium-sized tree typically reaches a height of 10 to 15 meters. Its bark is dark brown, deeply fissured and has a fibrous texture. Young branches are covered in fine hairs but gradually lose this pubescence as they mature.

**Leaf Characteristics**

The leaves are simple and arranged alternately along the branches. They vary in shape ranging from ovate-lanceolate and oblong-lanceolate to broadly elliptic and measure between 10 to 24 cm in length and 4 to 9 cm in width. Each leaf is slightly asymmetrical, with a base that is either rounded or blunt. The edges are smooth and the tip is either pointed or softly tapering. The leaf surface is leathery, dark green and smooth on top, while the underside is lighter with fine hairs along the midrib and veins. There are 7 to 13 lateral veins on each side of the central vein, running nearly parallel and visibly sunken on the upper surface but raised beneath. The

network of smaller veins is dense and finely reticulated.

**Flower Structure**

The tree produces fragrant, bisexual flowers. These emerge from the axils and older branches in racemes that vary in number. Each woody flower stalk (peduncle) is about 1.5 to 2 cm long, supporting pubescent flower stems (pedicels) that range from 2.5 to 5 cm. At the base are small, triangular bracts that are hairy and shed early, measuring 1 to 2 mm.

The flower has three sepals that are joined near the base, forming a valvate bud. These sepals are ovate or triangular, with pointed tips and a hairy surface, measuring approximately 5 to 7 mm in length and 4 to 5 mm in width. Six petals of similar size and shape are arranged in a linear-lanceolate form with pointed ends. Initially light green, they turn yellow as they mature, with fine veins and a silky texture when young, becoming slightly hairy with age. Each petal is about 5 to 7 cm long and 4 to 5 cm wide.

The stamens are numerous, tightly packed and oblong, each around 3 mm long, featuring a connective appendage at the top. The carpels are also numerous, slender and slightly hairy, measuring 3 to 4 mm. The style is thin, ending in a nearly rounded stigma.

**Fruit and Seeds**

Once mature, the carpels develop into 10 to 12 fruits that are either globose or ovoid, with a blunt top. These fruits are green initially and turn black upon ripening. They are pulpy and measure 1 to 2.5 cm in diameter, attached to stalks about 1.5 to 2 cm long. Each fruit contains 2 to 12 seeds arranged in two rows. The seeds are brown, with a pitted surface.

**Geographical Distribution**

**Within India:**

This species is widely found across various regions of the country, including Andhra Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal. Its presence spans both tropical and subtropical zones, thriving in diverse climatic conditions.

**International Presence:**

Beyond India, the tree is naturally distributed across several parts of Asia such as China, Indonesia, Laos, Malaysia, Myanmar, the Philippines and Thailand. It also grows in Madagascar on the African continent. In the Southern Hemisphere, it is found in Australia and New Zealand. Additionally, it has been introduced or cultivated in parts of North and South America, showcasing its adaptability to a wide range of environments.

**Climate and Soil**

*Cananga odorata* favors wet lowland tropics, in tropical moist to semi-dry evergreen and teak forests. The plant's long taproot requires deep, well-drained soils. However, it can handle a

variety of soil types, including rich volcanic, fertile sands, clay loams and clays with a pH range of 4.5-8. It can withstand shallow and infertile soils, as well as short-term waterlogging, but not permanent marshy or wetland conditions, or saline or alkaline soil.

**Propagation**

The tree is often grown from seed, but it can also be propagated via cuttings with various degrees of success. Seeds should be extracted from mature (black) fruits and separated from the surrounding oily meat using a moist sieve. The seeds are traditional, retaining viability when dried and stored in sealed containers. Fresh seed germination is unpredictable, while dried seeds held for 6-12 months show increased germination rates. Hot water treatment has been demonstrated to increase germination. The germination process in ylang-ylang is hypogeal. Direct seeding in the field is widely employed to establish plantings, which is desirable since it prevents taproot damage caused by transplanting nursery-grown seedlings. To achieve good results, spread many seeds at a depth of 2-3 cm. Each planting site should be prepared prior to seeding by clearing weeds and cultivating to a depth of 50 cm, especially in compacted soils, to allow for proper taproot development. Wild seedlings (10-20 cm tall) can be collected and nurtured in seedling containers for 2-3 months before being planted outdoors.

For nursery production, a light, well-drained potting medium is recommended. For field transplantation, seedlings should be between 20-30 cm tall. Because of their susceptibility to competition, seedlings and transplants require special attention during their first two years of development.

**Coppicing**

Coppicing causes rapid vegetative recovery in ylang-ylang trees that have been injured by severe winds or other disturbances. When planted in plantations, the tree is frequently aggressively trimmed or pollarded to keep it at an appropriate height (usually 3 m) for flower collection. Even enormous trees will quickly recover after pruning and trees are occasionally cut for their blossoms.


**Yield**

A healthy tree can produce up to 5 kilograms of blossoms each year, starting at four years old and up to 11 kg after ten years. When planted in plantations with a 5 by 5 m spacing (about 400 trees per ha), a typical flower production of 3,400 kg per hectare has been reported.