Insights into*Pterospermumacerifolium*(L) Willd*:*A Rare Gem of Central Indian Flora

Abstract:

This paper delves into a comprehensive review of the utility, distribution, botany, conservation, and cultivation aspects of *Pterospermumacerifolium*, a rare tree species thriving in the central regions of India. The study explores the practical applications of *Pterospermumacerifolium*, analyzes its geographical distribution, investigates its botanical characteristics, scrutinizes conservation efforts aimed at preserving this rare species, and discusses cultivation strategies for its sustainable propagation. By synthesizing information across these dimensions, the paper aims to provide a holistic understanding of *Pterospermumacerifolium*, contributing to the broader knowledge and conservation initiatives surrounding this distinctive central Indian tree.

Keywords: Phytochemistry, Pharmacological Properties, Cultivation, Conservation, Propagation

Introduction:

Pterospermumacerifolium (L) Willd is commonly known as “Bayur Tree”, “Dinner plate tree”, “Kanakchampa” and “Muchukunda”. This remarkable treeis celebrated for its striking foliage, captivating flowers, and cultural significance in South Asia. It is a perennial, evergreen tree belonging to family Sterculiaceae distributed throughout the world. It is an enigmatic and rare tree species in the central regions of India, stands as a testament to the biodiversity concealed within the diverse ecosystems of this subcontinent. In this review paper, we embark on a comprehensive exploration of the multifaceted aspects surrounding *Pterospermumacerifolium*, aiming to shed light on its utility, distribution, botany, conservation, and cultivation.

With its distinctive features and limited occurrence, *Pterospermumacerifolium* has captivated the attention of researchers, conservationists, and enthusiasts alike. The significance of this species extends beyond its aesthetic appeal, as its utility encompasses medicinal properties and other applications, making it a subject of increasing interest. As we delve into the distribution patterns, we unravel the geographical nuances that define the natural habitat of *Pterospermumacerifolium*, providing valuable insights into its ecological preferences and range limitations.

The botanical intricacies of *Pterospermumacerifolium* are explored in detail, examining its morphological characteristics, reproductive mechanisms, and taxonomic classification. The conservation aspect of this review delves into the challenges and initiatives associated with preserving this rare species, considering the implications of habitat loss, climate change, and human activities on its survival.

Furthermore, recognizing the potential for sustainable cultivation is paramount for ensuring the continued existence of *Pterospermumacerifolium*. By investigating propgation strategies, we aim to contribute to the development of practices that balance human needs with the preservation of this unique species.

In synthesizing these dimensions, this review aspires to provide a comprehensive overview of *Pterospermumacerifolium*, fostering a deeper understanding of its ecological, botanical, and utilitarian significance. Such knowledge is crucial for informed conservation strategies and sustainable management practices, ensuring the continued presence of this rare tree species in the central Indian landscape.

Methodology:

A comprehensive review of the literature was undertaken, involving an exhaustive exploration of diverse resources. Prominent databases such as PubMed, Google Scholar, Web of Science, and Springer Nature were extensively searched. Various combinations of keywords were employed to ensure inclusivity in this thorough investigation. Furthermore, valuable insights were gleaned from sources beyond traditional databases, including pertinent websites and relevant thesis works. The primary goal of this methodological approach was to gather comprehensive information on the Utility, Botany, Conservation, and Cultivation Aspects of *Pterospermumacerifolium*.

Results and discussion: are summarized in the following headings

Phytochemistry:*Pterospermumacerifolium* exhibits diverse pharmacological properties. Below are the specifics of the identified phytochemicals (Table 1) and the pharmacological properties (Table 2):

Table 1: Phytochemical Constituents of*Pterospermumacerifolium*

Phytochemical Constituents	References
Phytochemical investigation of seed coats revealed two phytoceramides (pteroceramide A, pteroceramide B) and two acylated phytosterol glucosides (pterosterol A and pterosterol B) with osteogenic potential.	Dixit *et al*., 2012
Eight compounds, including pterospermin A, pterospermin B, and trans-tiliroside, were identified for their osteogenic activity in rat osteoblast cultures..	Dixit *et al*., 2011
Phytoconstituents like flavones, flavonoids, triterpenoids, phenolic compounds, and glycosides contribute to anthelmintic properties.	Parida *et al*., 2010; Muhit *et al*., 2010
Lupeol from hydro-alcoholic extract also demonstrated lipid-lowering effects in hyperlipidemic models.	Senapati, 2011
Phytochemical constituents include flavonoids and phenolic	Kritkar & Basu,

components.	1998; Deshwal *et al*., 2029
Alkaloids, tannins, phenolic compounds, flavonoids, glycosides, saponins, steroids, sterols, and triterpenoids.	Panda and Datta, 2011

Pharmacological activities: The plant exhibits various pharmacological activities, including antioxidant, anti-inflammatory, antimicrobial, and anticancer effects. (Mehrotra *et al*., 2010)

Table 2: Pharmacological activities of*Pterospermumacerifolium*

Pharmacological Activities	Details	References
Anthelmintic Activity	Ethyl acetate fraction exhibited potent anthelmintic activity against earthworms, roundworms, and tapeworms.	Parida *et al*., 2010; Pathak*et al*., 2011
Analgesic Activity	Ethanolic extract of *Pterospermumacerifolium* bark demonstrated significant anti-inflammatory and analgesic activity in various models.Reduction of carrageenan-induced, mediators-induced, and arachidonic acid-induced rat paw edema.	Manna *et al*., 2009; Sannigrahi*et al*., 2010 ; Bora, 2019
Antihyperglycemic activity	Flowers traditionally used for various purposes, including as a tonic, laxative, and anthelmintic.Leaves exhibit antihyperglycemic activity in type 2 diabetic model rats.	Murshed *et al*., 2000
Antihyperlipidemic Activity	Methanolic flower extract exhibited significant antihyperlipidemic effects in a dose-dependent manner.	Senapati, 2011
Antimicrobial Activity	Ethanolic and hexane extracts showed good antimicrobial activity against various pathogenic microorganisms. Ethyl acetate extract demonstrated maximum antibacterial activity	Pattanaik & Parida., 2010; Manna, 2017; Manna *et al*., 2009; Kritkar & Basu, 1998; Deshwal *et al*., 2021; 29. Khond *et al*., 2009

Antimitotic and Anticancer Activity	Ethanol and water extracts showed antimitotic activity against meristamatic cell growth and inhibited yeast cell growth.	Saboo *et al*., 2007; Kritkar & Basu, 1998; Deshwal *et al*., 2021
Antinociceptive Activity	Ethyl acetate soluble part of methanolic extract from wood exhibited significant antinociceptive activity in various models, involving central and peripheral mechanisms. Ethanolic extract of bark demonstrated analgesic activity through the inhibition of acetic acid-induced writhing and tail clip-induced analgesia.	Bhalke *et al*., 2012
Antioxidant Activity	Leaves demonstrated antioxidant activity through in-vitro assays, including DPPH radical scavenging and nitric oxide scavenging. Ethyl acetate fraction showed the highest free radical scavenging activity. Methanolic flower extract demonstrated in-vivo antioxidant effects.	Sannigrahi *et al*., 2010; Mitra *et al*., 2011 Kritkar & Basu, 1998 Deshwal *et al*., 2021
Antiulcer Activity	Alcoholic and ethanolic fractions of bark extract showed significant antiulcer activity against various inducers. Methanolic extract, when combined with famotidine and omeprazole, exhibited significant antiulcer effects.	Manna *et al*., 2009; Katare *et al*., 2012; Kritkar & Basu, 1998; Deshwal *et al*., 2021
Ayurvedic Anticancer Treatment	Flowers, when mixed with sugar, applied locally in Ayurvedic anticancer treatment. Commonly used in the konkan region for various ailments, including smallpox.	Saboo *et al*., 2007
Haemostatic and Antimicrobial Qualities	- Different parts of the tree, including leaves and wood, are harnessed for their haemostatic and antimicrobial qualities. Pubescent underside of leaves believed to possess hemostatic properties.	Balachandran & Govindrajan, 2005; Singh *et al*., 2003
Hepatoprotective Activity	Ethanol extract of leaf exhibited significant hepatoprotective activity against carbon tetrachloride-induced hepatotoxicity. Comparable efficacy with the standard drug silymarin.	Kharpate*et al*., 2007 (
Immunosuppressive Activity	Hexane and ethanolic extracts from seeds exhibited dose-dependent immunosuppressive effects in mice. Down-regulation of immune markers and validated immunosuppressive action.	Pathak*et al*., 2011

Osteogenic Potential	Phytochemical investigation of seed coats revealed two phytoceramides and two acylated phytosterol glucosides with osteogenic potential. Stimulation of osteoblast differentiation and mineralization.	Dixit *et al*., 2012; Dixit *et al*., 2011
Wound Healing Activity	Ethanolic extract of flower showed accelerated wound healing in rats, upregulating TNF-α levels. Bark and leaf extracts demonstrated significant wound healing activity compared to providine iodine.	Senapati *et al*., 2011; Manna *et al*., 2010

Medicinal uses:*Pterospermumacerifolium* gained recent recognition for its ethnobotanical and traditional uses. *Pterospermumacerifolium* holds promise for utilization in both Ayurveda and modern biomedical practices. Ongoing standardization and authentication studies contribute to understanding its medicinal and therapeutic applications (Kritkar& Basu, 1998). The need for scientific evaluation is emphasized to explore its potential therapeutic properties and identify active constituents (Manna *et al*., 2009).

Table 3: Medicinal uses of *Pterospermumacerifolium*

Medicinal Uses	Details	References
Formulating Medicinal Tonics	Bark and flowers of the Bayur Tree play a crucial role in formulating medicinal tonics. Address a spectrum of health issues.	Bhalke & Pal, 2012
Antimicrobial Properties	Traditionally used for addressing blood disorders, inflammation, ulcers, tumors, and smallpox eruptions.	Manna *et al*., 2009
Traditional Medicine	Recognized in traditional medicine for managing inflammation, pain, ulcers, and hyperglycemia.	Manna *et al*., 2009; Chatterjee &Pakrashi, 1997;
	Traditional Ayurvedic practices utilize the tree's components for ailments such as smallpox, inflammation, ulcers, tumors, blood disorders, and leprosy.	Kirtikar& Basu, 1935 ; Chopra, Nayar, & Chopra, 1956
Ayurvedic Anticancer Treatment	Flowers of *Pterospermumacerifolium*, when mixed with sugars, find application in Ayurvedic anticancer treatment.	Kirtikar& Basu, 1935
Folk Medicine Uses	Leaves are extensively used in folk medicine. Commonly used for wound healing, fever, menorrhagia, and puerperium.	Kirtikar& Basu, 1935

Other significant use:

Edible Significance:

The plant is considered potentially edible, being rich in carbohydrates (Krishnamurthy, 1969).

Ornamental and Decorative Purposes:

Widely planted in gardens, contributing to the aesthetic value of parks, botanical gardens, and urban landscapes. Enhances outdoor spaces with its decorative and flowering attributes. Commonly known as the "Dinner Plate Tree" due to its foliage resembling large plates (Krishnamurthy, 1969; Bhalke & Pal, 2012). Utilized for landscaping in various settings, including avenues, churchyards, and temple-yards.

Cultural and Religious Significance: Popular choice for its aesthetic appeal in cultural and religious environments.Holds cultural importance, especially among local Hindu communities.Bark and leaves are used for religious purposes, extending its role beyond ornamental and practical uses.

Utilization of Leaves: Leaves find application in the production of packing cases and plywood.In India, mature leaves are shaped into regular dinner plates and soup bowls.In Burma, leaves are used for drying tobacco.

Flower Applications: Fragrant flowers serve aesthetic purposes by emitting a pleasant perfume.Fleshy calyces, when soaked in water, provide a refreshing beverage.Flowers act as a natural insect repellent.

Small-Scale Woodworking: While not a primary timber source, the wood is favored in small-scale woodworking.Its workability and attractive grain patterns make it suitable for crafting.Despite its soft nature, the wood is durable and somewhat flexible, suitable for various applications such as planking, construction, paneling, and furniture.The wood holds moderate timber value.

Plant Taxonomy: The plant family Sterculiaceae encompasses approximately 68 genera and 150 species, primarily composed of herbs or shrubs. While traditionally classified within the Sterculiaceae family, it is also associated with the expanded Malvaceae family (Senapati *et al*., 2011; Shinde *et al*., 2018) This species is commonly cultivated in gardens across numerous tropical countries, primarily for its abundant and fragrant large flowers. Approximately 25 species of the Pterospermum genus are distributed from India to Java (Singh & Karthikeyan, 2000; Mabberley, 2008). Within India, the genus is represented by 11 species (Chandra, 1993). These species are cultivated for their ornamental value across their native distribution (Singh & Karthikeyan, 2000; USDA, 2018).

Taxonomic Classification

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnolipsida

Family: Malvaceae

Subfamily: Sterculiaceae

Genus: Pterospermum

Species: acerifolium

Origin of Name: The term "Pterospermum" originates from the combination of two Greek words, 'pteron' denoting wing and 'sperma' signifying a seed. This nomenclature is derived from the tree's characteristic winged seeds. The name "acerifolium" refers to the leaves, which bear a resemblance to those of the Acer (Maple) tree.

Synonyms:

*Pterospermumacerifolia*Gaertn.

Cavanillaacerifolia (L.) J. F. Gmel.

Dombeya acerifolia (L.) Gaertn.

Pentapesacerifolia L.

Pterospermadendronacerifolium (L.) Kuntze

The tree, scientifically referred to as *Pterospermumacerifolium*, is recognized by various vernacular names across different regions, including Kanak Champa, Padma Pushp, Parivyadh, Muchkund, and Karnikar. In Hindi, it is commonly known as Muchkund, while Bengali identifies it as Muskanda, and Telugu as Matsakanda. Assamese refers to it as Moragos, Tamil as Vennangu, Oriya as Mushkundo, and Marathi as Karnikar. Additionally, the tree is widely acknowledged by common names such as Dinnerplate tree, Mapple-leaved Bayur, Maple twist, Bayur tree, and Split lily tree. These diverse appellations reflect the cultural and regional diversity in the identification of this botanical species.

Distribution:

Pterospermumacerifolium, native to the lush tropical regions of South Asia, has a widespread geographical distribution encompassing several countries, including India, Bangladesh, Nepal, Bhutan, Myanmar, South China, Laos, Thailand, and Peninsular Malaysia. Its range extends to the southern state of Selangor. In India, this species is commonly found along the sub-Himalayan

tract, outer Himalayan valleys, and hills, thriving at elevations of up to 4,000 feet. Notable occurrences include regions such as Assam, West Bengal, Khasi Hills, Manipur, Darjeeling, and Odisha, with substantial cultivation observed in Maharashtra (Wealth of India, 1969).The prevalence of *Pterospermumacerifolium* extends from the foot of the Himalayas, spanning from Jamuna eastwards in Sikkim, Assam, Meghalaya, and Manipur in India, to Chittagong in Bangladesh and Myanmar. Widely occurring in Southeast Asia, including India, it is extensively planted in various regions, contributing to the ornamental beauty of gardens and landscapes.

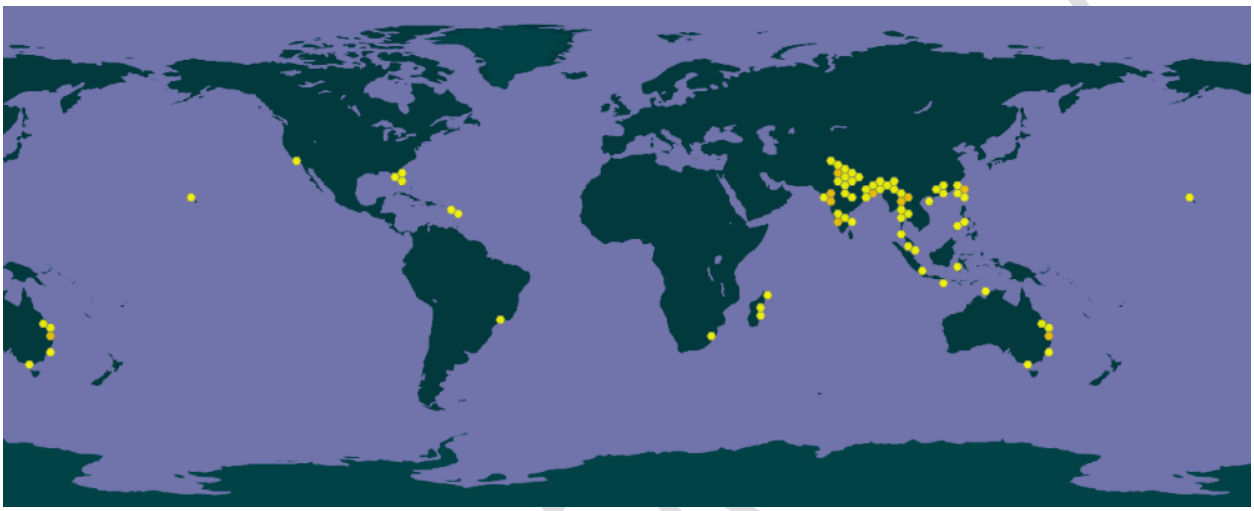

Fig 1: Distribution of*Pterospermumacerifolium* (L.) Willd. in GBIF Secretariat (2023).https://doi.org/10.15468/39omei accessed via GBIF.org on 2024-01-04.

Habitat and Ecology:

The popularity of *Pterospermumacerifolium* stems from the widespread cultivation of its large, fragrant flowers, leading to extensive plantation in gardens across various tropical countries (Singh & Karthikeyan, 2000; USDA, 2018). This adaptable species thrives in diverse habitats, including riverbanks, evergreen forests, damp valleys, and humid lowland forests and swamps (Gamble, 1972; Barwick, 2004).Thriving in a range of soil types, including well-drained sandy or loamy soils, *Pterospermumacerifolium* is commonly found gracing the lowland tropical rainforests. This sizable tree species predominantly thrives in mixed dipterocarp and secondary forests on alluvial and limestone substrates. Often cultivated for ornamental purposes, it is renowned for its captivating, fragrant blooms. Its natural habitat includes forested stream banks, and the species shows a preference for a climate characterized by seasonal moisture followed by dry periods, provided it has access to ample sunlight.

Conservation Status

Pterospermumacerifolium is generally not considered a threatened species. However, like many tropical tree species, its long-term survival may face challenges due to habitat loss and deforestation in certain areas. Conservation efforts and sustainable land management are crucial

to ensuring the continued presence of this captivating tree in its native habitats. *Pterospermumacerifolium*, a significant tree species, boasts an extensive range from India to Peninsular Malaysia, surpassing the threshold for threatened species in terms of extent of occurrence (EOO).*Pterospermumacerifolium* has most recently been assessed for The IUCN Red List of Threatened Species in 2020. *Pterospermumacerifolium* is listed as Least Concern. (Ganesan 2020)

Habit:*Pterospermumacerifolium* is a large deciduous tree reaching a height of about 24 meters (approximately 82 feet) with a girth of 2.5 meters. The tree features a clean bole of up to 12 meters, displaying a medium to large-sized structure. Its distinctive foliage resembles that of the maple tree, earning it the specific epithet "acerifolium." The tree maintains a medium-sized, evergreen structure with a straight trunk and a well-spread, dense canopy. In open areas, the unique foliage becomes conspicuous, exhibiting an ash-grey undersurface and dark-green leaftop, enhancing its distinct appeal. The bark is smooth with shades of brown-grey, and the wood, consisting of red-colored heartwood and lighter sapwood, is known for its robustness and ease of handling. The bark, characterized by its grey color, is relatively soft, while small twigs often display a feathery appearance in a rusty-brown hue (Chauhan, 2002; Sunita *et al*., 2017). The plant can reach a height of 60 feet, with gray and thin bark, and the wood comprising red heartwood and lighter-colored sapwood, known for its hardness and close grain, making it easy to work with (Agarwal &Paridhavi, 2007; Wealth of India, 1969).

Leaves: The vibrant, glossy, dark green leaves contribute to the tree's ornamental appeal. Typically 15-20 cm (6-8 inches) in diameter, the leaves vary in shapes such as broadly ovate to elliptic, displaying entire or toothed margins, a cordate base, and 5-7 prominent veins. The leaves grow alternately, featuring a rough and rubbery texture that adapts well to hot climates. The upper surface is dark green and smooth, while the lower surface ranges from silver to rust color, covered with fine hair. The leaves have a peltate blade base with the petiole insertion located at the leaf's center (Rasika and Subodh, 2010; Rasika and Subodh,2012).Microscopic studies reveal lignified stellate and four-armed trichomes, anomocytic and paracytic stomata, palisade cells, collenchyma, vascular bundles, and spongy parenchyma in the leaves. The leaves also have linear stipules and a robust petiole. Additionally, the total ash, acid insoluble ash, and water-soluble ash values for leaves were observed to be 4%, 1.4%, and 2.5%, respectively (Bhalke & Pal, 2010, 2012).

Flowers:*Pterospermumacerifolium* produces large, fragrant flowers, approximately 12-15 cm in diameter. The flowers are white, auxiliary, solitary, or in pairs, characterized by woolly sepals and linear-oblong petals. These impressive blooms, comparable to large dinner plates, emit a sweet aroma, attracting pollinators and observers (Chauhan, 2002; Sunita *et al*., 2017). The large, solitary flowers, occasionally paired, have sepals reaching up to 10 cm, woolly on the outside, linear and thick, forming a reflexed united base. The linear-oblong petals are slightly shorter than the calyx. The three linear, club-shaped stamens and elongated staminodes surround the oblong ovary, which has a rusty tomentose surface and five angles, each containing 12-20 ovules. The

nocturnal flowers, known for their exceptional fragrance, attract moths for pollination. Successfully pollinated flowers yield a hard capsule, and the pollen measures approximately 60 microns with a spherical shape and spikes (Chauhan, 2002; Sunita *et al*., 2017). The ovary is oblong with 5 angles, 5 cells, and 12-20 ovules in each cell (Chauhan, 2002; Sunita *et al*., 2017). In summary, *Pterospermumacerifolium* produces large, fragrant flowers with noteworthy features, attracting pollinators and possessing distinct characteristics during various stages of maturity (Chauhan, 2002; Sunita *et al*., 2017).

Fruit: The fruit is a capsule or follicles, 10-15 cm long, are stalked, oblong, and 5-angled, covered outside with furfuraceous pubescence. The capsules split open, releasing winged seeds. The fruit of *Pterospermumacerifolium* presents a markedly rough texture, occasionally adorned with brown hairs. Its maturation process is notably protracted, taking up to an entire year. Upon reaching maturity, the capsule splits open, liberating a considerable number of distinctively designed "winged seeds." This extended reproductive cycle renders the Bayur tree susceptible to being out-competed by faster-growing plant species, limiting its widespread distribution in natural habitats. Despite this, it remains a favored plant in gardens and landscaping endeavors (Sunita *et al*., 2017). They are enveloped by a mealy pubescence on the exterior and a corky texture within.

Seeds: The seeds of *Pterospermumacerifolium* display a compressed, ovoid to ellipsoid shape, with a color range from light to dark brown, and lack both albumen and aril. Deswal and Sharma (2011) describe the microscopic features, revealing the outer testa and inner tegmen of the seed coat, along with cotyledons exhibiting outer and inner epidermis, parenchymatous cells, vascular bundles, oil globules, and calcium oxalate crystal (Jena *et al*., 2023). These seeds are equipped with a large, thin wing, resembling miniature helicopters for dispersal, with an estimated number per kilogram ranging from 4000 to 4500 (Chauhan, 2002; Sunita *et al*., 2017). The seed itself is exalbuminous and exarillate, possessing an ovoid to ellipsoid shape, light to dark brown color, faint odor, and mucilaginous taste. Its dimensions typically measure 0.5-1.2 cm in width and 1.2-2 cm in length. Microscopic analysis, as reported by Jena *et al*. (2023) and Chauhan (2002), details the seed coat's outer testa and inner tegmen, highlighting features such as polygonal epidermal cells, lignified sclerids with starch grains and oil globules, dark brown sclerenchymatous cells with a vascular bundle, a collapsed nucellus leading to perisperm formation, and distinct characteristics of cotyledons.

Figure 2: Plant morphology of *Pterospermumacerifolium A: Plant; B: Leaf; C: Stem bark; D: Flower; E: Fruit; F: Winged seed*

Phenology: The Mapple-leaved Bayur is characterized by its slow growth, with flowers typically appearing from February to April. The nocturnal and exceptionally fragrant flowers, resembling a peeled banana skin, suggest attraction to moths for pollination. These pure-white flowers attract a diverse range of pollinators, including birds and various insects, during the early morning hours. The common sight of squirrels moving in the branches to consume seeds from dehisced capsules is observed. Mature fruit harvesting takes place between August and December, prior to natural dehiscence. After sun-drying the fruits for 2 to 3 days, the seeds are collected upon their natural split. These seeds maintain viability for up to one year.

Seed maturity

Fruits can take a very long time to completely mature; up to an entire year. The capsule then splits open releasing a massive number of "winged seeds." Because it takes such a long period to reproduce, it seems the *P. acerifolium*can be outcompeted by other faster growing plants. Ripe fruits are plucked, during August to December before dehiscence, dried in the sun for 2 to 3 days and after dehiscence the seeds are collected.

Propagation and cultivation

In the propagation and cultivation of *Pterospermumacerifolium*, the process begins with the collection of ripe fruits between August and December, sun-drying them for 2 to 3 days before gathering the seeds upon dehiscence. These seeds retain viability for a year, exhibiting 70 percent fertility after one year and diminishing to ten percent after two years. Further processing involves splitting the dry fruit after sun-drying and extracting seeds through various methods. The seeds undergo pretreatment, soaking in water for 24 hours, before being sown flat. Artificial reproduction options include direct sowings, yielding rapid growth after the first season, or nursery bed sowings for transplants. Line sowing during November-December involves pre-treated seeds mixed with ash on raised beds with regular watering and mulching. Transplanting of seedlings, root cutting, and grading are key steps in nursery care. Plantable seedlings, reaching at least 45 cm height, are introduced in July. Growing conditions necessitate well-drained, sandy compost, temperatures between 20-25°C, and access to full sunlight. The seeds, already cleaned, can be sown at any time, with germination occurring in 4 to 6 weeks.

Conclusion

In conclusion, *Pterospermumacerifolium* stands as a botanical marvel, captivating with its stunning appearance, sizable and fragrant flowers, and distinctive leaves. The tree not only contributes to the aesthetic appeal of landscapes but also holds potential applications in traditional medicine, adding to its ecological significance in tropical ecosystems. Recognizing its importance, efforts toward conservation are crucial. As we marvel at the enchanting presence of the Dinner Plate Tree, preserving its habitat and acknowledging its cultural significance becomes imperative for future generations. In rural communities, herbal remedies once solely managed disease treatment in the absence of modern medicines. Herbs, as natural drugs, were employed to

restore normal physiological systems altered by foreign organisms or bodily malfunctions. Today, there is a growing focus on ethnobotanical and traditional uses of natural compounds, particularly those of plant origin, deemed safe and efficacious. A meticulous study is needed for the identification, cataloging, and documentation of plants, promoting traditional knowledge of herbal medicinal plants. Traditional approaches to discovering lead molecules for disease management involve physiochemical characterization, biological evaluation, toxicity studies, investigation of molecular mechanisms, and clinical trials. This review consolidates significant pharmacological studies on *Pterospermumacerifolium* and explores phytochemical investigations and isolated principles, providing a foundation for future investigations into novel herbal drugs. The reported pharmacological activities underscore the considerable therapeutic potential of *Pterospermumacerifolium.*

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