Karanj

Pongamia pinnata

Code: TREE-43125DFAE0D30FB **Location:** XIM University Campus **Local / Vernacular name:** କରଞ୍ଜ

Botanical Details

Leaf habit: Semi-evergreen to deciduous depending on climate (often sheds leaves in dry season) Flowers / Fruits: Clusters of small, fragrant, purple-white pea-like flowers (spring); flattened pods containing a single oil-rich seed Native range: Indian subcontinent, Southeast Asia, northern Australia, Pacific islands

Uses & Importance

Ecological: As a legume, Karanj hosts Rhizobium and Bradyrhizobium bacteria in its root nodules, converting atmospheric nitrogen into a form usable by plants. This makes it a pioneer species for reclaiming barren, nutrient-poor , or saline lands where other trees fail to grow. Its leaf litter decomposes rapidly, adding high-quality organic matter and nitrogen back into the topsoil, essentially acting as a self-sustaining fertilizer system. The tree is an eco-warrior against climate change, possessing a high rate of carbon sequestration. Its fast growth and dense canopy allow it to store substantial biomass both above and below ground. It is exceptionally hardy, surviving temperatures from 5°C to 50°C and thriving in diverse environments from rocky beaches to riverbanks. This resilience makes it a cornerstone of agroforestry, where it protects smaller crops from wind and heat stress. The tree’s expansive lateral root system—which can spread up to 9 meters—acts as a natural mesh that binds soil particles, preventing erosion in flood-prone riverine and coastal areas. It serves as a vital host for the lac insect and a sanctuary for various pollinators. Its fragrant purple-white flowers are a primary nectar source for honeybees (Apis cerana and Apis dorsata), supporting local apiculture. By providing a dense shade canopy, it creates a microclimate that supports a diverse understory of grasses and shrubs, enhancing local ecosystem stability and helping to restore degraded watersheds.

Medicinal: In Ayurveda and Siddha medicine, Karanj is often called the remedy for skin. The seed oil contains Karanjin, a furanoflavonoid with potent antifungal and antibacterial properties. It is a standard treatment for chronic skin conditions like leucoderma (vitiligo), psoriasis, scabies, and herpes. The oil’s ability to enhance skin pigmentation and accelerate wound healing is well-documented; it is frequently formulated into ointments for non-healing ulcers and foul-smelling sores. The bark and leaves are utilized for their ability to pacify Vata and Kapha imbalances. A hot infusion of the leaves is traditionally used as a medicinal bath to relieve the excruciating pain of inflammatory joint diseases like rheumatism and arthritis. Modern pharmacology supports this, showing that leaf extracts can inhibit pro-inflammatory cytokines, acting similarly to non-steroidal anti-inflammatory drugs (NSAIDs) without the gastrointestinal side effects. Every part of the tree has a clinical application. The root juice is used to clean teeth and strengthen gums, while the bark is taken internally to treat bleeding piles and beriberi. Recent research has

highlighted the plant’s hypoglycemic potential; flower extracts are used in traditional recipes to manage diabetes and glycosuria by regulating blood sugar levels. Furthermore, the tree contains alkaloids like vinblastine and vincristine derivatives in its roots, which are being investigated for their anti-cancer properties, particularly in disrupting the proliferation of malignant cells and supporting immune response during chronic recovery.

Cultural: In Hindu culture and ancient Vedic texts, Karanja is revered as a symbol of rejuvenation and purity. It is frequently mentioned in the Bhela Samhita (circa 1st–3rd century CE) as a purifier of doshas. In many rural Indian villages, the tree is considered a living pharmacy and is intentionally planted in the center of community spaces (Chaupals) to provide a cool, medicinal atmosphere for social gatherings and local governance. During various regional festivals, particularly in the Indian states of Odisha, West Bengal, and Jharkhand, the leaves and flowers of the Karanj tree are used to decorate deities and temporary shrines. In some communities, the seeds are strung into protective amulets for children, believed to ward off diseases. The oil was historically the primary source of illumination for temple lamps before the advent of kerosene, symbolizing the light of knowledge and the burning away of impurities. The tree is deeply woven into the socio-economic fabric of tribal societies. The durable wood is used to craft essential agricultural tools and cartwheels, while the bark fiber is twisted into strong ropes for livestock. In folklore, the Karanj is often depicted as the wise elder of the forest—a tree that gives back more than it takes. In Javanese culture in Indonesia, herbalists have for centuries regarded the tree (known there as Dhenet) as a sacred gift for treating community-wide outbreaks of skin infections, cementing its status as a guardian of public health and a biological legacy passed down through generations of traditional healers across Southeast Asia.

Location

GPS: 20.15860192, 85.76535449

Directions: https://www.google.com/maps/dir/?api=1&travelmode=walking&destination=20.15860192%2C85.76535449