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CHAPTER 7

Sacred Plants of Temples: Ecological, Ethnobotanical, Cultural and Conservation Perspectives

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Abstract: Plants associated with Hindu temples form a living connection between cultural practice and the natural environment. Sacred trees, temple-associated plants known in some traditions as sthalavrikshas, ritual flowers and leaves, fruit-bearing species, and plants valued in traditional medicine can carry religious meaning while also providing shade, food, shelter, and resources for wildlife. This chapter reviews sacred temple flora through cultural, botanical, ethnobotanical, ecological, and conservation perspectives, with particular attention to Telangana. It discusses familiar species such as peepal (Ficus religiosa), banyan (Ficus benghalensis), bilva (*Aegle*

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marmelos), neem (*Azadirachta indica*), mango (*Mangifera indica*), coconut (*Cocos nucifera*), banana (*Musa* sp.), and selected flowering plants. Two regional traditions receive focused attention: Bathukamma, in which seasonal flowers, including tangedu and gunugu, are arranged in layered floral displays, and Vinayaka Chavithi, in which Telugu traditions involve offerings of 21 kinds of leaves. These practices provide opportunities to document local plant knowledge and seasonal biodiversity. The chapter also considers pollinators, birds, microclimate, soil protection, medicinal knowledge, threats from construction and unsustainable harvesting, and practical approaches to conservation. Sacred status can encourage care for particular plants, but it does not automatically protect an entire habitat. Botanical inventories, protecting mature trees, locally suitable planting, responsible harvesting, community participation, and long-term monitoring can strengthen temple landscapes' contribution to biocultural conservation.

Keywords: Sacred flora, Hindu temples, Telangana, Bathukamma, Vinayaka Charvitha, ethnobotany, sthalavriksha, biodiversity, conservation and traditional ecological knowledge.

1. Introduction

Plants have long served practical, cultural, and spiritual roles in human societies. They provide food, medicines, fibre, building materials, shade, and habitat, and they also feature in stories, festivals, customs, and the identity of particular places. In Hindu traditions, flowers, leaves, fruits, grasses, and trees are worshipped and seasonal celebrations. Their meanings differ across regions and communities, and a species used in one ritual may have a different role elsewhere.

Temple environments are useful places to study these relationships because they can contain designated sacred trees, gardens for ritual flowers, fruit-bearing plants, medicinally valued species, ornamental vegetation, and plants that have grown naturally and been retained. A single tree may be valued for its religious association, shade, fruit, and importance to birds or insects. Yet the presence of sacred plants does not, by itself, demonstrate that a site conserves biodiversity; ecological value depends on the condition and diversity of the vegetation, management, available space, and surrounding land use (Jaganmohan et al., 2018; Bhagwat & Rutte, 2006).

This chapter uses the term sacred temple flora for plants linked to Hindu temples through worship, customary practice, cultural meaning, or practical use. It brings together published research and general botanical knowledge rather than reporting a new field survey. Examples are illustrative, not a claim that every species or ritual occurs at every temple. Local names and species

identificationsespecially those used in regional festivals should be checked against field observations, regional floras, herbarium material, or qualified botanists.

2. Cultural foundations and sacred plants

2.1 Sacred trees and sthalavriksha traditions

In several South Indian temple traditions, a particular tree or plant is identified with the temple and known as its sthalavriksha. It may be associated with a local origin story, deity, customary observance, or the history of the settlement. Such a plant can function as a living cultural marker, linking present-day worshippers with earlier generations. The species and stories vary between temples, so records should preserve local explanations rather than assume a single interpretation (Gunasekaran & Balasubramanian, 2012; Haberman, 2013).

Sacred trees may be protected because devotees regard them as inseparable from a temple's identity. This can support the survival of old trees in built-up areas. However, a tree may remain sacred while its roots are damaged by paving, excavation, or construction. Cultural respect is most effective for conservation when it is accompanied by practical tree care and protection of the surrounding soil (Mohanty et al., 1997; Jaganmohan et al., 2018).

2.2 Plants in worship and everyday life

Bilva leaves (*Aegle marmelos*) are widely associated with Shiva worship in many traditions. Peepal and banyan trees have strong cultural associations in different parts of India, while neem is valued for its many traditional uses and presence in settlements. Coconut, mango leaves, banana plants, flowers, and fruits are used in a range of offerings and ceremonial settings. The precise plant material, method of use, and meaning may vary by region and ritual.

These practices connect temples with growers, household gardens, flower markets, nurseries, and nearby landscapes. Demand for ritual plants can support cultivation and local livelihoods, but it can also create pressure when materials are collected heavily from wild populations. Understanding the supply chain is therefore part of understanding sacred flora (Gunasekaran & Balasubramanian, 2012).

2.3 Oral knowledge and ethical documentation

Priests, gardeners, flower sellers, elders, devotees, and local plant collectors may hold detailed knowledge about flowering seasons, names, ritual uses, propagation, and harvesting. Such information can complement botanical surveys. Researchers should record who supplied each piece of information, the language and locality in which a name is used, and whether the information

represents a widely shared practice or an individual account. Consent, acknowledgement, and respect for knowledge that communities do not wish to publish are essential (Haberman, 2013; Gunasekaran & Balasubramanian, 2012).

3. Representative sacred and temple-associated plants

The following examples show how ritual, cultural, and ecological roles can overlap. They are not a universal list of sacred species; the plants present and their meanings should be documented separately at each temple (Table 1).

Table 1: Representative sacred and temple-associated plants and their ecological role.

Common name	Botanical name	Family	Cultural or ritual association	Potential ecological role
Peepal	*Ficus religiosa* L.	Moraceae	Revered tree in several Hindu traditions; retained in some temple grounds.	Large canopy, shade, perches and potential nesting habitat.
Banyan	*Ficus benghalensis* L.	Moraceae	Prominent sacred and cultural tree in many communities.	Broad canopy and complex structure can provide shelter for wildlife.
Bilva / Bael	*Aegle marmelos* (L.) Corrêa	Rutaceae	Leaves commonly offered in Shiva worship.	Flowers and fruit can contribute to local ecological resources.
Neem	*Azadirachta indica* A.Juss.	Meliaceae	Associated with household and community traditions; many traditional uses.	Shade and flowering resources; often suited to warm climates.
Mango	*Mangifera indica* L.	Anacardiaceae	Leaves and fruit used in some ceremonial contexts; fruit is widely eaten.	Fruit and canopy can support people and wildlife.
Coconut	*Cocos nucifera* L.	Arecaceae	Fruit used in offerings and ceremonies across many Hindu traditions.	Provides a culturally important crop and useful plant products.

Banana	*Musa* sp.	Musaceae	Leaves, fruit and whole plants used in different ceremonial and food contexts.	Leaf biomass and fruit; often grown in managed gardens.
Tulsi / Holy Basil	*Ocimum tenuiflorum* L.	Lamiaceae	leaves have cultural uses; local name and ritual role require confirmation.	Seasonal flowers may provide resources for visiting fauna.
Indian Gooseberry / Amla	*Phyllanthus emblica* L.	Phyllanthaceae	Traditionally valued in Indian culture and associated with religious observances and sacred plant traditions in some regions.	Its fruits provide food for birds and other animals, while the tree contributes to local biodiversity
Lotus	*Nelumbo nucifera* Gaertn.	Nelumbonaceae	Important flower in several Hindu religious and cultural traditions.	Aquatic plant associated with wetland habitats.

4. Telangana case study: Sacred flora in Bathukamma

Bathukamma is a major seasonal floral festival of Telangana and offers a strong example of the relationship between cultural identity and plant diversity. Women and families arrange flowers in layers to create a floral stack, with the choice and availability of flowers reflecting local practice, season, markets, and landscape. The celebration is not only a cultural event; it can also be a starting point for documenting the plants people recognize, collect, cultivate, exchange, and use.

4.1. Flowers and materials used

Tangedu (*Senna auriculata*) is a characteristic yellow flower used in many Bathukamma arrangements. Gunugu is commonly associated with Celosia argentea, which adds distinctive coloured inflorescences. Banthi, often referring to marigolds (*Tagetes* sp.), and other seasonal flowers may also be used.

In some local arrangements, grasses or other plant materials are used to hold the flowers together, while leaves such as gummadi (pumpkin) *Cucurbita* sp. may be placed beneath the floral arrangement. Lablab leaves (chikkudu) used in pooja. The grass described locally as Setaria should not be assigned a definitive scientific identity until a specimen or clear photograph has been checked. These supporting materials are valuable ethnobotanical observations because they show that the festival uses more than the colourful flowers alone.

4.2. Cultural and ecological significance

Bathukamma brings together seasonal plants, community participation, women's knowledge, local markets, and regional identity. Knowledge of which flowers appear at particular times of year may preserve observations about rainfall, flowering periods, and local plant availability. Where flowers are gathered from wild or semi-natural habitats, the scale and method of collection influence whether harvesting remains sustainable. Cultivated supplies can reduce pressure on wild populations when they are locally appropriate and managed responsibly.

The festival can therefore support biodiversity awareness if documentation is undertaken respectfully. A useful study could record the local and scientific names of flowers and supporting leaves, their source (wild, cultivated, home garden, or market), the month of availability, the part used, and the views of participants about changes in availability over time. This should not imply that every plant used in Bathukamma is formally sacred or that the same plant list applies throughout Telangana.

4.3. Suggested field documentation

For each plant, researchers can record a local name in Telugu, a photograph, identification confidence, source, season, role in the arrangement, and whether collection involves cutting, uprooting, or gathering fallen material. Interviews should be voluntary and should distinguish personal experience from information shared as a community tradition. This approach could form the basis of a Telangana-focused ethnobotanical inventory of Bathukamma flora.

5. Telangana case study: Vinayaka Chavithi and the 21-leaf offering

In many Telugu traditions, Vinayaka Chavithi worship includes an offering known as patri puja, in which 21 types of leaves are presented to Lord Ganesha (Table 2). This practice provides an important opportunity to examine how ritual knowledge names and categorises plants. The number and identity of leaves may vary among printed lists, families, priests, and local traditions; therefore, the chapter does not treat one list as universally applicable (Gunasekaran & Balasubramanian, 2012; Haberman, 2013).

The following table presents selected sacred or culturally associated plants, their botanical names, and the Telugu names supplied for this compilation. Ritual associations may vary by region and temple tradition. From an ethnobotanical perspective, a documented patra list can preserve local plant names, seasonal knowledge, and information about where ritual materials are obtained. Some leaves may come from home gardens or cultivated plants, while others may be collected from

field margins, scrub, or woodland. Collection practices should be assessed carefully, especially where plant populations are limited or harvesting damages young growth.

A reliable table of the 21 plants should be prepared from a clearly identified Telugu source or from a documented local tradition, and each name should be matched with a botanical identification wherever possible. The record should include alternative local names, plant family, habit, plant part offered, source habitat, and identification confidence. Where names remain ambiguous, the entry should be marked 'identification pending' rather than assigned a guessed scientific name.

The practice also offers a way to discuss sustainable harvesting. Leaves should be collected in quantities that do not compromise plant health, and uprooting should be avoided when leaves alone are required. Where culturally acceptable, home gardens and community nurseries can cultivate frequently used species. The conservation value lies not simply in the ritual offering, but in the care taken to maintain the plants and the knowledge associated with them (Mohanty et al., 1997; Bhagwat & Rutte, 2006).

Table 2: List of plant species used as 'Patri' in Vinayaka Chavithi Puja

S. No.	Sacred leaf (Patra)	Botanical name	Family	Telugu name
1	Shami Patra	*Prosopis cineraria* (L.) Druce	Fabaceae	Jammi
2	Bhringraj Patra	*Eclipta prostrata* (L.) L.	Asteraceae	Guntakalagara
3	Bael Patra	*Aegle marmelos* (L.) Corrêa	Rutaceae	Vilvam
4	Durva Patra	*Cynodon dactylon* (L.) Pers.	Poaceae	Garika
5	Ber Patra	*Ziziphus jujuba* Mill.	Rhamnaceae	Regu
6	Datura Patra	*Datura metel* L.	Solanaceae	Ummetta
7	Tulasi Patra	*Ocimum tenuiflorum* L.	Lamiaceae	Tulasi
8	Sem Patra	*Phaseolus vulgaris* L.	Fabaceae	Chikkudu
9	Apamarga Patra	*Achyranthes aspera* L.	Amaranthaceae	Uttareni
10	Bhatakataiya Patra	*Solanum virginianum* L.	Solanaceae	Gurrapu Gattaku
11	Sindoor Patra	*Bixa orellana* L.	Bixaceae	Sindooram
12	Tej Patra	*Cinnamomum tamala* (Buch.Ham.) T.Nees & Eberm.	Lauraceae	Talisapatri
13	Agastya Patra	*Sesbania grandiflora (L.)* Poir.	Fabaceae	Avisa

14	Kaner Patra	*Nerium indicum* Mill.	Apocynaceae	Ganneru
15	Kadali Patra	*Musa acuminata* Colla	Musaceae	Arati
16	Arka Patra	*Calotropis procera* (Aiton) W.T.Aiton	Apocynaceae	Jilledu
17	Arjuna Patra	*Terminalia arjuna* (Roxb. ex DC.) Wight & Arn.	Combretaceae	Tella Maddi
18	Devdar Patra	*Cedrus deodara* (Roxb. ex D.Don) G.Don	Pinaceae	Devadaru
19	Marua Patra	*Origanum majorana* L.	Lamiaceae	Maruvam
20	Gandari Patra	*Phanera variegata* (L.) Benth.	Fabaceae	Devakanchanamu
21	Ketaki Patra	*Pandanus utilis* Bory	Pandanaceae	Gedaga

6. Ethnobotanical, food, and medicinal knowledge

Ethnobotany examines relationships between people and plants, including naming, classification, food use, medicine, ritual, cultivation, and trade. Temple-related knowledge may include the selection of leaves and flowers, the timing of collection, the propagation of useful species, and the meanings attached to particular plants. Recording this knowledge can help preserve cultural history and identify species that communities consider important.

Some temple-associated plants also have a place in traditional medicine or everyday food practices. These uses should be reported with careful wording. A traditional use is evidence of cultural knowledge, but it is not by itself proof of clinical safety or effectiveness. Medicinal claims should be supported by appropriate scientific sources, and potentially harmful preparations should not be recommended as treatments without medical evidence. Likewise, food offered in a ritual should not automatically be described as a regular dietary practice; the distinction should be established through observation or interviews (Gunasekaran & Balasubramanian, 2012).

Documentation should also consider intellectual property and benefit-sharing. Community knowledge should not be extracted without consent or presented as anonymous, universal knowledge when it belongs to a specific group or locality. Researchers should acknowledge contributors according to their wishes and follow applicable ethical and institutional guidance.

7. Ecological roles of temple vegetation

7.1. Biodiversity and habitat

Mature trees and varied vegetation can create small habitats within villages and cities. Branches, cavities, foliage, flowers, fruits, and ground cover may support birds, insects, and other animals. A

mixture of tree sizes and plant forms generally offers more structural variety than a heavily paved compound with only a few ornamental species. However, biodiversity benefits depend on actual species composition and site condition, and should be assessed rather than assumed (Jaganmohan et al., 2018; Ray et al., 2014).

7.2. Pollinators and seasonal resources

Flowering plants can provide nectar, pollen, and resting places for bees, butterflies, flies, and other flower-visiting insects. A temple garden that includes locally suitable plants with different flowering periods may offer resources across more of the year. Researchers can document flower visitors using standard observation periods, noting the plant, time, weather, and visitor group. A single observation should not be taken as proof that a plant supports a particular pollinator species throughout the year (Jaganmohan et al., 2018).

7.3. Shade, microclimate and soil

Tree canopies can shade paved surfaces and soil, intercept some rainfall, and influence local temperature and humidity. Roots can help stabilise soil, while leaf litter contributes organic matter when managed appropriately. These functions are especially relevant in hot climates, but the magnitude of any cooling or soil benefit varies with canopy size, water availability, wind, paving, and the surrounding built environment. Claims about microclimate should ideally be tested using measurements rather than genera listed (Jaganmohan et al., 2018; Ray et al., 2014).

7.4. Connection to surrounding landscapes

Temple grounds are often small, but they may form part of a wider network of gardens, street trees, tanks, agricultural land, and semi-natural vegetation. Mapping these connections can help identify places where planting or protection may improve habitat continuity. GIS and satellite imagery can assist with mapping canopy cover and land-use change, while field surveys remain necessary for identifying individual plants and recording their condition (Ray et al., 2014; Suthari et al., 2016).

8. Threats and conservation challenges

Common pressures include expansion of buildings, paving over root zones, excavation for utilities, damage to trunks, severe pruning, replacement of diverse vegetation with lawns, and inadequate aftercare for newly planted trees. Mature trees may be difficult to replace because they take many years to develop a comparable canopy and habitat structure. Heat, drought, irregular rainfall, pests, and disease can add to these pressures.

Ritual demand can also create pressure when flowers, leaves, bark, roots, or other parts are collected intensively from wild populations. This risk depends on the species, the quantity harvested, the plant part removed, and its ability to recover. Organic offerings may become waste when mixed with plastic, synthetic thread, foil, or other non-compostable materials. Finally, local knowledge can decline when plant names and collection practices are no longer passed between generations.

Sacred status is not a guarantee of conservation. Some sites protect old trees and mixed vegetation; others may have limited plant diversity or experience substantial habitat modification. Assessments should therefore record both cultural significance and ecological condition (Jaganmohan et al., 2018; Ray et al., 2014).

9. Practical conservation strategies

9.1 Prepare a temple-flora register

Begin with a plant inventory recording scientific and local names, family, growth form, approximate size, health, location, origin (planted or naturally established), flowering and fruiting periods, and cultural or ritual associations. Include photographs and an indication of identification confidence. Uncertain local names should remain unresolved until checked by a botanist or reliable regional source.

9.2 Protect mature trees and their roots

Avoid unnecessary excavation, soil compaction, paving, and storage of construction materials around trunks. Tree pruning should be proportionate and carried out by competent personnel. Where construction is proposed, mature trees should be mapped early so that their root zones can be considered in the design.

9.3 Use locally appropriate plants

Planting should consider regional ecology, soil, water supply, mature size, root behaviour, shade, and wildlife value, as well as cultural preference. Native and locally suitable species can be included alongside plants required for established rituals. Planting a diverse range of flowering species can help extend seasonal resources for insects, while fruit-bearing plants may benefit people and wildlife.

9.4 Encourage sustainable ritual supplies

Temple committees, growers, nurseries, and festival organisers can work together to cultivate commonly used flowers and leaves, avoid uprooting when only leaves or flowers are needed, and reduce waste. Bathukamma and patri-puja documentation can help identify which plants are in greatest demand and where sustainable cultivation may be practical.

9.5 Community education and monitoring

Signs with local and scientific names, seasonal plant walks, school activities, and community-maintained registers can make temple flora visible as living heritage. Monitoring should use simple indicators such as tree survival, canopy cover, number of plant species, natural regeneration, flowering periods, observed pollinator activity, and damage to roots or trunks. Repeated records are more useful than a one-time list because they show change over time (Bhagwat & Rutte, 2006; Mohanty et al., 1997).

10. Research priorities

Future research could compare temple compounds in urban and rural Telangana, document regional differences in sthalavriksha traditions, and investigate how cultural status relates to the survival of mature trees. A specific research opportunity is a botanical and ethnobotanical survey of Bathukamma materials, including the source and seasonal availability of flowers and supporting leaves. Another is the creation of a verified, locality-specific database of the 21 leaves used in Vinayaka Chavithi patri puja.

Standardized methods would improve comparisons between sites. Researchers can combine plant inventories with tree-health assessments, bird and pollinator observations, interviews, and mapping. GIS can help measure canopy and land-use change, while repeat field surveys can verify what imagery cannot identify. Studies should clearly distinguish direct observations, statements from participants, and interpretations drawn from published literature.

A practical research record should include date, locality, observer, plant name, identification method, photograph or voucher information where appropriate, source of cultural information, and any permission or consent required. This approach improves reliability and makes the resulting data more useful for conservation planning (Ray et al., 2014; Suthari et al., 2016).

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