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Native Tree Species of Central Gujarat Region in Landscaping for Enhancing Biodiversity Value and Utility

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Abstract:

Native landscaping is gaining recognition as a sustainable and ecologically sound practice that minimises the environmental impact of traditional ornamental landscaping by integrating local plant species. This study focuses on the identification and documentation of native tree species in the Central Gujarat region, emphasising their role in sustainable landscaping and biodiversity conservation. The survey was conducted across rural and forested areas of the Kheda, Anand, Ahmedabad, and the Panchmahals. Tree species were identified using the Gujarat State Flora, and ethnobotanical information was collected through community interaction and personal observations. A total of 50 native tree species were documented, with detailed information on their botanical and local names, habitat types, and ecological and utilitarian values. Many species showed significant medicinal, cultural, and ecological importance. The study highlights the potential of these native species to be incorporated into modern landscape planning to enhance biodiversity, reduce dependency on exotic flora, and maintain ecological balance. Ultimately, it contributes to the broader goals of conservation and environmental sustainability by advocating for the integration of native flora in urban and rural landscaping efforts.

Keywords:
Native trees, Central Gujarat, landscaping, native landscaping, biodiversity, sustainable development, ethnobotany, ecological landscaping, native species conservation

1. Introduction:

Landscaping is the science of reshaping the outdoor areas into attractive and practical spaces. It is a complex blend of art and science (Burud, A. *et al*., 2023). Landscaping extends beyond the simple decorations and artwork. It aims to design outdoor environments that are harmonious, sustainable, and meaningful, ultimately improving the overall quality of life. Landscaping is an evolving field that demands a thorough knowledge of ecological systems, a keen artistic sense, and attention to practical factors (Burud, A. *et al*., 2023). Landscaping should be sustainable. At this point, to reduce the exploitation of exotic species, native landscaping plays a key role. It is a type of landscaping in which native plant species that are locally found in the area are utilised. Native landscaping has emerged as a holistic, environmentally superior alternative to traditional landscaping, as it integrates the functions of local ecosystems and significantly reduces capital expenditure (Kermath, B., 2007).

This study has been carried out to understand and gain a deeper knowledge of the native tree species of Central Gujarat.

2. Materials and Methodology:

The survey work took place in various localities of rural as well as forest areas of Central Gujarat. The study was carried out through the rural and forested areas of the Kheda, Anand, Ahmedabad, and the Panchmahals. The central region of Gujarat may not be as rich in forest cover as the north or south Gujarat regions, but it most definitely has a varied diversity of native species that are certainly present in large amounts. The collected plant species were identified by the Gujarat State flora (Shah, 1978). Local or vernacular names, basic usages, and importance were reported by surveying the local communities. A model questionnaire was prepared to collect data from the locals of the respective areas. Several individual interviews with the elderly were conducted, along with personal observations, to gather information. After an extensive survey and collection tours, many native tree species were identified and collected. The data thus collected was cross-referenced with relevant research and authenticated publications of biodiversity of Central Gujarat and native tree species of Gujarat and India.

A list was prepared in alphabetical order, consisting of information like the botanical and local names of the species, family, habitat, and biodiversity value for efficient use in modern landscaping.

3. Results and Discussion:

From the above survey, various tree species, as follows, were recorded as having significant biodiversity value, along with medicinal and ethnobotanical values.

Table 1: Habitat and Biodiversity Value of Various Native Tree Species of Central Gujarat

Sr No	Botanical Name	Local Name	Family	Habitat	Biodiversity Value / Uses
1	Acacia nilotica	Babool	Fabaceae	Dry scrub, open forest	Nitrogen fixer, fodder, timber, and medicinal uses
2	Sterculia urens	Kadaya / Karaya Gum	Sterculiaceae	Dry deciduous hills	Gum-producing, bark for nesting
3	Albizia lebbeck	Shirish	Fabaceae	Dry forests, urban areas	Shade, timber, fodder
4	Anogeissus latifolia	Dhaudo	Combretaceae	Dry deciduous forests	Timber, fuelwood
5	Azadirachta indica	Limdo	Meliaceae	Dry forests	Medicinal, insect repellent
6	Bauhinia racemosa	Apta	Fabaceae	Dry forests	Medicinal, fodder

7	Bauhinia variegata	Kachnar	Fabaceae	Dry forests	Ornamental, medicinal
8	Butea monosperma	Palash/Khakhro	Fabaceae	Dry deciduous forests	Medicinal, ornamental, dye source
9	Capparis decidua	Ker	Capparaceae	Arid, scrub forests	Medicinal, fodder
10	Careya arborea	Kumbhal	Lecythidaceae	Moist and dry forests	Medicinal, edible fruit, used in folk remedies
11	Cassia fistula	Amaltas	Fabaceae	Dry deciduous forests	Ornamental, medicinal
12	Caryota urens	Shivjata	Palmae	Dry deciduous forests and gardens	Ornamental, medicinal
13	Diospyros melanoxylon	Tendu/ Beedi	Ebenaceae	Dry forests	Leaves used in bidi making
14	Emblica officinalis	Amla	Phyllanthaceae	Dry forests, scrub	Medicinal (Vitamin C-rich), edible fruit
15	Ficus benghalensis	Vad	Moraceae	Moist to dry forests	Keystone species, shade, soil conservation
16	Ficus racemosa	Umbar	Moraceae	Moist to dry forests	Medicinal and ecological importance
17	Ficus religiosa	Peepal	Moraceae	Riverbanks, moist areas	Ecological keystone, shade, and religious importance
18	Haldina cordifolia	Haldu	Rubiaceae	Moist to dry forests	Timber, medicinal
19	Holoptelea integrifolia	Kanji/Charel	Ulmaceae	Moist to dry forests	Medicinal, timber
20	Lagerstroemia parviflora	Dhaman	Lythraceae	Dry forests	Timber, ornamental
21	Manilkara hexandra	Rayan	Sapotaceae	Dry deciduous forests	Edible fruit, timber, and bird attractor
22	Madhuca longifolia	Mahudo	Sapotaceae	Dry forests	Edible flowers, oilseed, timber
23	Mangifera indica	Aambo	Anacardiaceae	Moist to dry forests	Edible fruits, timber, shade
24	Moringa concanensis	Saragvo	Moringaceae	Dry forests, gardens	Edible leaves, medicinal

25	Pongamia pinnata	Karanj	Fabaceae	Dry forests	Medicinal, biofuel, fodder
26	Prosopis cineraria	Khejri	Fabaceae	Arid, scrub forests	Fodder, nitrogen fixing, drought resistant
27	Pterocarpus marsupium	Bijasar	Fabaceae	Dry forests	Medicinal, timber
28	Schleichera oleosa	Kusum	Sapindaceae	Dry deciduous forests	Oilseed, timber
29	Tamarindus indica	Amli	Fabaceae	Dry forests, riverbanks	Edible fruit, shade, soil stabilisation
30	Terminalia arjuna	Arjun	Combretaceae	Riverbanks, moist areas	Medicinal, timber
31	Terminalia bellirica	Behda	Combretaceae	Dry forests	Medicinal, fodder
32	Terminalia chebula	Harade	Combretaceae	Dry forests	Medicinal, soil conservation
33	Terminalia tomentosa	Asan	Combretaceae	Dry forests	Timber, medicinal
34	Ziziphus mauritiana	Bordi	Rhamnaceae	Dry forests, scrub	Edible fruits, fodder, soil binder

4. Conclusion:

Through this study, we aim the exploitation of exotic species can be checked. This study shall also serve as an instrument for identifying native species to utilise appropriately when planning a landscape that promotes sustainability and acknowledges the importance of these native plants. Using native plants for landscaping will be a unique way of preserving the native biodiversity of the state.

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