

# Floristic Diversity of Wild Edible Plants Along the Akot–Wadner Gangai Road, Maharashtra, India

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## Abstract

Wild edible plants constitute an essential component of biodiversity and play a significant role in supporting food security, nutrition, and traditional healthcare systems in rural areas. The present study was carried out along the Akot–Wadner Gangai roadside region in Maharashtra, India, to document the diversity and distribution of wild edible plant species. Field surveys were conducted across different seasons to record plant species and assess their availability patterns. A total of 15 wild edible plant species belonging to diverse families were identified. The study revealed that roadside ecosystems act as important reservoirs of plant biodiversity, particularly during the monsoon season when species richness was highest. The findings highlight the ecological, nutritional, and socio-economic importance of wild edible plants and emphasize the need for their conservation and sustainable utilization.

## Keywords

Wild edible plants, Biodiversity, Roadside vegetation, Seasonal variation, Maharashtra.

## 1. Introduction

Biodiversity forms the foundation of ecosystem functioning and human survival by providing essential resources such as food, medicine, and raw materials. Among the various components of biodiversity, wild edible plants occupy a unique position as they serve as both nutritional and medicinal resources, particularly in rural and tribal communities. Wild edible plants have been traditionally used as supplementary food sources, especially during periods of food scarcity. According to the Food and Agriculture Organization (2013), these plants contribute significantly to dietary diversity and help combat malnutrition in developing countries. They are rich in micronutrients, including vitamins, minerals, and antioxidants, which are often lacking in conventional diets.

These plants, which grow naturally in forests, fields, and even roadsides, are rich in essential nutrients such as vitamins, minerals, antioxidants, and other bioactive compounds, making them an important component of the human diet (Bharucha and Pretty, 2010).

The importance of wild edible plants is not limited to nutrition alone. S. K. Jain (1991) emphasized that traditional knowledge plays a crucial role in identifying, utilizing, and conserving these plant resources. Such knowledge systems are passed down through generations and form an integral part of cultural heritage. From an ecological perspective, wild edible plants contribute to ecosystem stability and resilience. R. K. Maikhuri et al. (2004) reported that indigenous practices promote biodiversity conservation and sustainable resource management. Similarly, C. P. Kala (2005) highlighted that wild plants are vital for maintaining ecological balance and supporting rural livelihoods.

In addition to ecological and nutritional roles, wild edible plants also have socio-economic significance. Many rural households depend on these plants for subsistence and income generation. Roadside ecosystems, although often overlooked, serve as important habitats for wild plant species. These areas are characterized by diverse microhabitats such as open lands, disturbed soils, and semi-natural vegetation, which support a variety of plant species. Due to minimal management and human interference, roadside vegetation often harbors significant biodiversity.

These plants are often used in indigenous recipes, local medicine, and rituals, and their preservation is essential not only for maintaining food security but also for safeguarding cultural heritage (Grivetti and Ogle, 2000; Kala, 2005).

Despite their importance, wild edible plants remain underdocumented and underutilized in many regions. Rapid urbanization, changing food habits, and loss of traditional knowledge have contributed to their decline. Therefore, the present study aims to document the diversity and distribution of wild edible plants along the Akot–Wadner Gangai road in Maharashtra and to analyze their seasonal variation and ecological significance.

## 2. Materials and Methods

### 2.1. Study Area

The study was conducted along the Akot–Wadner Gangai road in Maharashtra, India. The region experiences a semi-arid climate with distinct seasonal variations, including summer, monsoon, and winter. The roadside habitat includes wastelands, open fields, and disturbed vegetation zones.

### 2.2. Field Survey and Sampling

Field surveys were conducted during different seasons to ensure comprehensive documentation of plant diversity. Observations were made along the roadside, and plant specimens were collected for identification.

### 2.3 Identification of Plant Species

Plant specimens were identified using standard taxonomic and regional floras. Scientific names were verified to ensure taxonomic accuracy.

## 3. Results

### 3.1. Species Diversity

A total of 15 wild edible plant species belonging to multiple families were documented. These species exhibited diverse growth forms, including herbs, shrubs, climbers, and trees.

Such structural diversity reflects the adaptability of wild edible plants to varying environmental conditions along roadside habitats. The presence of multiple life forms also indicates the ecological richness of the study area and its capacity to support a wide range of plant species.

### 3.2. List of Documented Species

The important species recorded during the study include:

1. *Bambusa vulgaris* – Grass
2. *Ficus drupacea* – Tree
3. *Canavalia gladiata* – Climber
4. *Ziziphus mauritiana* – Tree

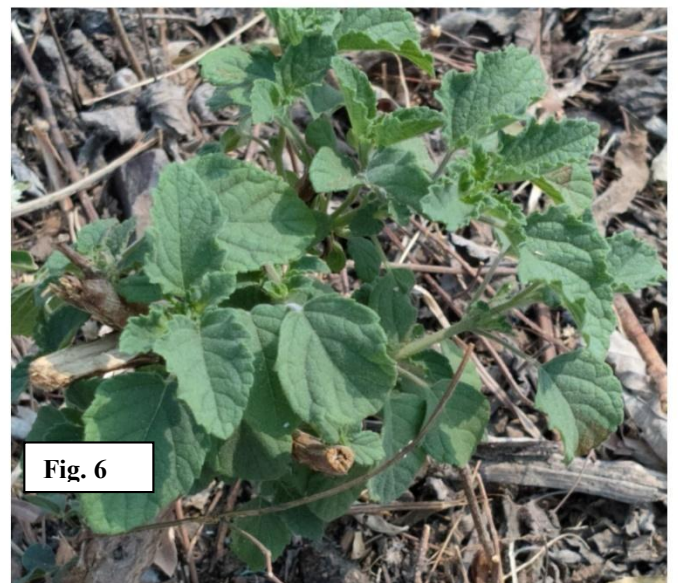
5. *Hyptis suaveolens* – Herb
6. *Luffa cylindrica* – Climber
7. *Annona reticulata* – Tree
8. *Psidium guajava* – Tree
9. *Terminalia catappa* – Tree
10. *Cassia tora* – Herb
11. *Brassica juncea* – Herb
12. *Amaranthus deflexus* – Herb
13. *Moringa oleifera* – Tree
14. *Cleome gynandra* – Herb
15. *Verbascum thapsus* – Herb

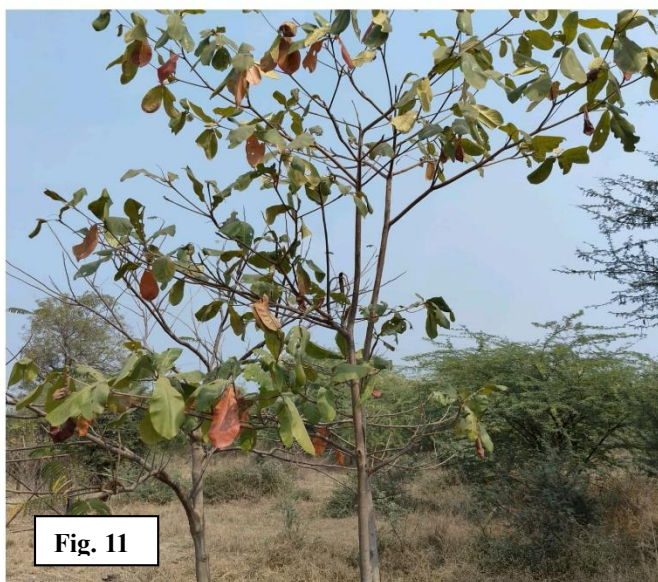
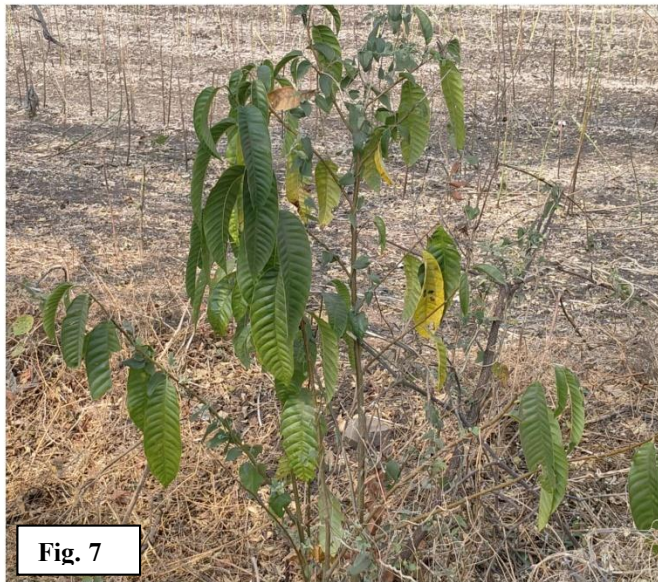
### 3.3 Distribution Pattern

The distribution of plant species varied across different roadside habitats. Herbaceous species were dominant in open and disturbed areas, while tree species were scattered along the roadside. This pattern indicates that disturbance-tolerant species are better adapted to roadside environments, where factors such as human activity, soil compaction, and vehicular movement influence plant growth.

### 3.4 Photographic Documentation of Recorded Species

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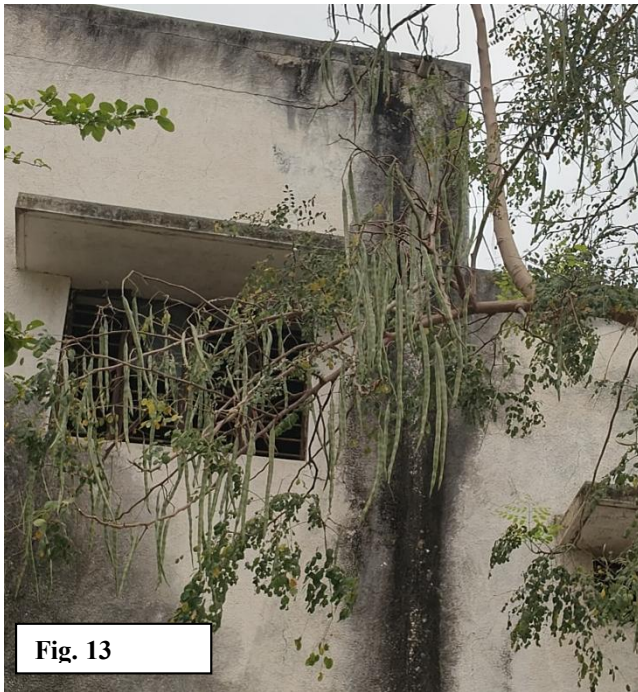


Fig. 13

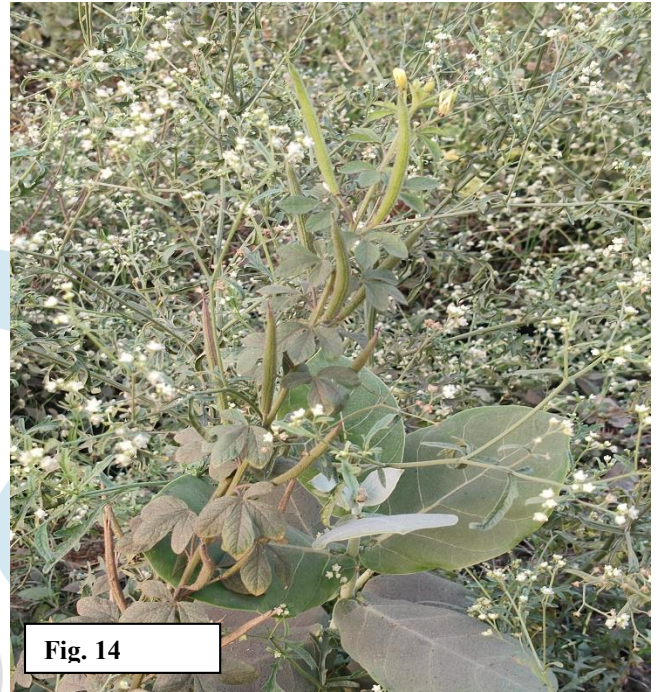


Fig. 14



Fig. 15

### 3.5. Growth Form Analysis

The study revealed that:

- 1) Herbs were dominant
- 2) Followed by trees and climbers

This indicates that herbaceous species are more adaptable to roadside environmental conditions.

### 3.6. Seasonal Variation

Species diversity varied across seasons:

Monsoon: Highest diversity

Winter: Moderate

Summer: Lowest

This pattern aligns with previous findings that seasonal rainfall influences plant growth and diversity (Kala, 2005).

## 4. Discussion

The findings of the present study demonstrate that roadside ecosystems support considerable diversity of wild edible plants, even within a limited geographical area. This highlights the ecological significance of such habitats, which are often neglected in biodiversity studies.

The observed diversity aligns with the findings of the Food and Agriculture Organization (2013), which emphasized the role of wild plants in enhancing food security and maintaining biodiversity. Wild edible plants contribute significantly to rural nutrition and livelihood support. The seasonal variation observed in this study is consistent with the work of C. P. Kala (2005), who noted that environmental conditions during the monsoon season promote plant growth and increase species availability.

The importance of traditional knowledge in identifying and utilizing these plants has also been highlighted by S. K. Jain (1991). However, modernization and changing lifestyles have led to a decline in the use of wild edible plants, resulting in the erosion of traditional knowledge systems.

Thus, there is a need to promote awareness, conservation, and sustainable utilization of these plant resources to ensure their continued availability.

The results of the present study demonstrate that localized surveys can provide valuable insights into plant diversity and resource availability. Even within a limited geographical area, roadside habitats support a range of wild edible species with ecological and socio-economic significance. The study of wild edible plants emphasized the adaptability of these plants to different ecosystems and their critical role in providing year-round nutrition, particularly during periods of food scarcity. These findings are consistent with earlier studies conducted in the Vidarbha region, which reported similar diversity and seasonal availability of wild edible plants. (Kiran et al., 2019)

## 5. Conclusion

The study documents the diversity of wild edible plants along the Akot–Wadner Gangai roadside ecosystem. A total of 15 species were recorded, indicating significant biodiversity in a localized habitat. The findings emphasize the importance of documenting and conserving such plant resources for ecological sustainability and future utilization.

Furthermore, the present study highlights the significant role of wild edible plants in supporting nutritional security and traditional healthcare practices in rural communities. Many of the documented species possess considerable nutritional and medicinal value, reinforcing their importance as supplementary food resources. The study also highlights the need for further research on the nutritional and pharmacological properties of these species.

## 6. References

- Bharucha, Z., & Pretty, J. (2010). The roles and values of wild foods in agricultural systems. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365(1554), 2913–2926. <https://doi.org/10.1098/rstb.2010.0123>
- Grivetti, L. E., & Ogle, B. M. (2000). Value of traditional foods in meeting macro- and micronutrient needs: The wild plant connection. *Nutrition Research Reviews*, 13(1), 31–46.
- Kala, C. P. (2005). Indigenous uses, population density, and conservation of threatened medicinal plants in protected areas of the Indian Himalayas. *Conservation Biology*, 19(2), 368–378.
- Jain, S. K. (1991). *Dictionary of Indian folk medicine and ethnobotany*. New Delhi: Deep Publications.
- <https://archive.org/details/dictionaryofindi00jain>
- Maikhuri, R. K., Nautiyal, S., Rao, K. S., & Saxena, K. G. (2004). Role of medicinal plants in traditional health care system: A case study from Nanda Devi Biosphere Reserve, India. *Current Science*, 86(3), 372–378.
- <https://www.jstor.org/stable/24109392>
- Kiran, K. C., et al. (2019). Diversity and seasonal availability of potential wild edible plants from Vidarbha region of Maharashtra State, India. *International Journal of Current Microbiology and Applied Sciences*, 8(2), 1434–1446. <https://doi.org/10.20546/ijcmas.2019.802.168>
- FAO. (2013). *The State of Food and Agriculture: Food Systems for Better Nutrition*. Rome: Food and Agriculture Organization.