



Comparative Study of Native and Invasive Plant Species in Champa, Chhattisgarh

Neelima Pandey, Ph.D., Department of Botany
Government M.M.R.P.G College Champa, Chhattisgarh, INDIA

ORIGINAL ARTICLE



Author

Neelima Pandey, Ph.D.

E-mail : neelima.aashish@gmail.com

shodhsamagam1@gmail.com

Received on : 12/07/2025
Revised on : 13/09/2025
Accepted on : 23/09/2025
Overall Similarity : 02% on 15/09/2025



Plagiarism Checker X - Report

Originality Assessment

2%

Overall Similarity

Date: Sep 15, 2025 (06:49 AM)
Matches: 21 / 1083 words
Sources: 2

Remarks: Low similarity detected, consider making necessary changes if needed.

Verify Report:
Scan this QR Code



ABSTRACT

This study investigates the floristic composition of native and invasive plant species in the semi-urban region of Champa, Chhattisgarh. Invasive alien species (IAS) pose serious ecological threats by displacing native flora, altering habitats, and reducing biodiversity. Through field surveys, species identification, and local consultation, 64 plant species were documented, comprising 42 native and 22 invasive species. The findings emphasize the need for regular monitoring and strategic control of invasive species to conserve local biodiversity.

KEY WORDS

Invasive Species, Native Flora, Biodiversity, Champa, Plant Invasion, Floristic Diversity.

INTRODUCTION

Biological invasions have emerged as a significant driver of biodiversity loss globally (Early et al., 2016). In India, over 1,599 alien species have been identified, out of which several have turned invasive (Reddy, 2008). The semi-urban regions like Champa, situated in Chhattisgarh, present a unique mixture of natural and human-influenced environments. This study focuses on comparing the occurrence and ecological impact of native and invasive plant species within the area.

Study Area

Champa, located in Janjgir-Champa district, is a rapidly growing town in Chhattisgarh with a mix of urban settlements, farmlands, and open spaces. The area receives moderate rainfall and supports tropical dry deciduous vegetation. The region offers an excellent setting to study how invasive species penetrate and establish in both natural and disturbed habitats.

Objectives

- To identify and document native and invasive plant species in Champa.
- To analyze the distribution and dominance of invasive species.
- To understand ecological consequences of plant invasions on native diversity.

Methodology

- **Field Surveys** were conducted from June to September 2025 across different sites: roadside vegetation, abandoned lands, agricultural margins, and gardens.
- **Plant Identification:** Botanical names were confirmed using standard floras (Sharma, 2006; Singh et al., 2001).
- **Classification:** Species were classified as native or invasive based on global and Indian databases (e.g., *Global Invasive Species Database*, Reddy, 2008).

Results

1. Total Species Recorded

- **Total Species:** 64
 - **Native Species:** 42
 - **Invasive Species:** 22

2. Common Invasive Species in the Region

Botanical Name	Local Name	Family	Habitat Preference	Origin
<i>Parthenium hysterophorus</i>	Congress grass	Asteraceae	Roadsides, waste lands	America
<i>Lantana camara</i>	Lantana	Verbenaceae	Forest edges, urban areas	South America
<i>Eichhornia crassipes</i>	Jal kumbhi	Pontederiaceae	Water bodies	Amazon Basin
<i>Chromolaena odorata</i>	Siam weed	Asteraceae	Abandoned lands	Central America
<i>Ageratum conyzoides</i>	Goat weed	Asteraceae	Cultivated fields, gardens	Tropical America
<i>Leucaena leucocephala</i>	Subabul	Fabaceae	Wastelands, field margins	Central America
<i>Cassia tora</i>	Chakramard	Fabaceae	Cultivated land, semi-dry soils	Tropical Asia
<i>Amaranthus spinosus</i>	Kantawari Chaulai	Amaranthaceae	Roadsides, disturbed soils	Tropical America
<i>Alternanthera philoxeroides</i>	Alligator weed	Amaranthaceae	Wetlands, agricultural drains	South America
<i>Ipomoea carnea</i>	Besharam	Convolvulaceae	Wetlands, stream banks, ditches	Tropical America
<i>Calotropis gigantea</i>	Safed Ak	Apocynaceae	Dry, barren lands, roadsides	SE Asia, Indi

<i>Xanthium strumarium</i>	Chota Dhatura	Asteraceae	Crop fields, riverbank	America
<i>Dhatura stramonium</i>	Dhatura	Solanaceae	Road edges, sandy soils	America
<i>Solanum viarum</i>	Tropical soda apple	Solanaceae	Grasslands, degraded forests	South America
<i>Bidens pilosa</i>	Spanish needle	Asteraceae	Road margins, garden beds	Tropical America
<i>Panicum maximum</i>	Guinea grass	Poaceae	Open grasslands, pastures	Africa
<i>Prosopis juliflora</i>	Vilayati babul	Fabaceae	Arid wastelands, overgrazed lands	Mexico
<i>Cenchrus ciliaris</i>	Buffel grass	Poaceae	Arid rangelands, degraded soils	Africa/Asia
<i>Heliotropium indicum</i>	Indian heliotrope	Boraginaceae	Waste places, garden edges	Tropical America
<i>Rottboellia cochinchinensis</i>	Itchgrass	Poaceae	Paddy fields, humid disturbed lands	Africa/Asia
<i>Senna spectabilis</i>	Tree cassia	Fabaceae	Roadsides, forest margins, plantations	South America

Native Plant Species

Botanical Name	Local Name	Family	Habit
<i>Azadirachta indica</i>	Neem	Meliaceae	Tree
<i>Ocimum sanctum</i>	Tulsi	Lamiaceae	Herb
<i>Mangifera indica</i>	Aam	Anacardiaceae	Tree
<i>Ficus religiosa</i>	Pipal	Moraceae	Tree
<i>Ficus benghalensis</i>	Bargad	Moraceae	Tree
<i>Syzygium cumini</i>	Jamun	Myrtaceae	Tree
<i>Phyllanthus emblica</i>	Amla	Phyllanthaceae	Tree
<i>Moringa oleifera</i>	Munga / Drumstick	Moringaceae	Tree
<i>Clerodendrum infortunatum</i>	Bhant	Lamiaceae	Shrub
<i>Tinospora cordifolia</i>	Giloy	Menispermaceae	Climber
<i>Tridax procumbens</i>	Coat buttons	Asteraceae	Herb
<i>Calotropis procera</i>	Akanda / Madar	Apocynaceae	Shrub
<i>Ricinus communis</i>	Arandi	Euphorbiaceae	Shrub
<i>Ziziphus mauritiana</i>	Ber	Rhamnaceae	Tree
<i>Dalbergia sissoo</i>	Shisham	Fabaceae	Tree

<i>Butea monosperma</i>	Palash	Fabaceae	Tree
<i>Aegle marmelos</i>	Bael	Rutaceae	Tree
<i>Cynodon dactylon</i>	Doob grass	Poaceae	Herb
<i>Coccinia grandis</i>	Kundru	Cucurbitaceae	Climber
<i>Ipomoea aquatica</i>	Kalmi	Convolvulaceae	Herb
<i>Solanum xanthocarpum</i>	Kantakari	Solanaceae	Herb
<i>Lawsonia inermis</i>	Mehndi	Lythraceae	Shrub
<i>Aloe vera</i>	Gwarpatha	Asphodelaceae	Herb
<i>Boerhavia diffusa</i>	Punarnava	Nyctaginaceae	Herb
<i>Leucas aspera</i>	Dronapushpi	Lamiaceae	Herb
<i>Cassia fistula</i>	Amaltas	Fabaceae	Tree
<i>Albizia lebbek</i>	Siris	Fabaceae	Tree
<i>Pongamia pinnata</i>	Karanj	Fabaceae	Tree
<i>Argemone mexicana</i>	Satyanashi	Papaveraceae	Herb
<i>Desmodium triflorum</i>	Shalaparni	Fabaceae	Herb
<i>Andrographis paniculata</i>	Kalmegh	Acanthaceae	Herb
<i>Emilia sonchifolia</i>	Lal bihari	Asteraceae	Herb
<i>Mimosa pudica</i>	Lajwanti	Fabaceae	Herb
<i>Ocimum gratissimum</i>	Ram Tulsi	Lamiaceae	Herb
<i>Cajanus cajan</i>	Arhar	Fabaceae	Shrub
<i>Trichosanthes dioica</i>	Parwal	Cucurbitaceae	Climber
<i>Sesbania grandiflora</i>	Agasti	Fabaceae	Tree
<i>Curcuma longa</i>	Haldi	Zingiberaceae	Herb
<i>Zingiber officinale</i>	Adrak	Zingiberaceae	Herb
<i>Centella asiatica</i>	Brahmi	Apiaceae	Herb
<i>Eclipta prostrata</i>	Bhringraj	Asteraceae	Herb
<i>Terminalia arjuna</i>	Arjun	Combretaceae	Tree

3. Impact on Native Species

Invasive species such as *Lantana camara* and *Parthenium hysterophorus* were found to:

- Outcompete native undergrowth like *Clerodendrum infortunatum* and *Leucas aspera*.
- Alter soil nutrient levels and native plant regeneration.
- Reduce available space for indigenous herbs and shrubs.

Discussion

Invasive species flourish in disturbed areas due to their fast growth, high reproductive capacity, and allelopathic properties (Sharma & Raghubanshi, 2009). Their unchecked growth is often facilitated by lack of public awareness, open grazing, and urbanization. Native species, on the other hand, play critical ecological roles such as supporting native pollinators and maintaining soil health.

1. Conservation Implications

- **Monitoring:** Establishment of regular ecological surveys.
- **Awareness:** Community education programs on invasive plant impacts.
- **Restoration:** Native species replantation and biological control methods.

CONCLUSION

The comparative study highlights the growing dominance of invasive species in the Champa region, posing a serious threat to native flora. To ensure long-term ecological balance, it is imperative to develop strategies for invasive species control and strengthen native plant conservation efforts.

REFERENCES

1. Early, R.; Bradley, B. A.; Dukes, J. S.; Lawler, J. J.; Olden, J. D.; Blumenthal, D. M.; ... & Tatem, A. J. (2016) Global threats from invasive alien species in the twenty-first century and national response capacities, *Nature Communications*, 7, 12485, <https://doi.org/10.1038/ncomms12485>
2. Reddy, C. S. (2008) Catalogue of invasive alien flora of India, *Life Science Journal*, 5(2), 84–89.
3. Sharma, O. P. (2006) *Plant Taxonomy*, TTata McGraw-Hill Publishing Company Limited, New Delhi.
4. Sharma, G. P. & Raghubanshi, A. S. (2009) Lantana invasion: An overview, *Weed Biology and Management*, 9(4), 199–208.
5. Singh, N. P.; Khanna, K. K. & Mudgal, V. (2001) *Flora of Madhya Pradesh, Vol III*. BSI, Botanical Survey of India, Kolkata.
