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Review Article

Common threatened medicinal plants of Bihar and Jharkhand states, India

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Abstract: Medicinal plants constitute an integral component of traditional healthcare systems in India and play a significant role in rural livelihood. Bihar and Jharkhand, owing to their diverse forest ecosystems and rich indigenous knowledge, harbour numerous medicinal plant species. However, increasing anthropogenic pressures, habitat degradation, overharvesting and lack of region-specific conservation assessments have resulted in the decline of several valuable taxa. The present study compiles and analyses commonly reported threatened medicinal plants from Bihar and Jharkhand based on published literature. A total of nine medicinal plant species belonging to eight families were documented as threatened across the two states. The study highlights inconsistencies and gaps in existing reports and emphasizes the need for systematic field-based validation, region-specific threat categorization and community-driven conservation strategies. Present compilation aims to provide a baseline reference for researchers, forest managers and policymakers to strengthen conservation planning in eastern India.

Keywords: Biodiversity conservation, Eastern India, indigenous knowledge, overexploitation, regional assessment

Background

India is recognized as one of the world's mega-biodiversity countries (Vattakaven et al., 2016), with medicinal plants forming the backbone of traditional systems such as Ayurveda, Unani and folk medicine (Arora et al., 2003). Bihar and Jharkhand, located in eastern India, are characterized by tropical deciduous forests and are home to diverse tribal and rural communities that rely heavily on plant-based remedies (Ambasta et al., 2016; Singh et al., 2017). Despite this richness, medicinal plant resources in both states are under severe threat due to deforestation, mining, agricultural expansion, unsustainable extraction and a lack of scientific monitoring. Although several studies have reported threatened medicinal plants from Bihar and Jharkhand, the available literature often shows discrepancies in species status, distribution and conservation assessment. In many cases, national-level threat categories are generalized without adequate regional validation. The situation creates a knowledge gap that hampers effective conservation and management. Therefore, a focused study on commonly reported threatened medicinal plants from these two states was necessary to identify priority species and guide future research.

Methodology

The present study was based on an extensive review of the published literature on threatened medicinal plants in Bihar and Jharkhand during 2025-2026. Peer-reviewed research articles, regional floristic studies and conservation-oriented publications were examined (Kumar, 2025). Species were included in the study if they were explicitly reported as rare, threatened or requiring conservation attention within Bihar or Jharkhand. The collected information was organized into a tabular format to facilitate comparison and interpretation. No primary field surveys were conducted in this study.

Results and discussion

A total of nine medicinal plant species belonging to eight families were identified as commonly reported threatened species from Bihar and Jharkhand (Table 1). Among these, *Asparagus racemosus*, *Pueraria tuberosa* and *Rubia cordifolia* were reported from Bihar, while *Dillenia pentagyna*, *Gloriosa superba*, *Oroxylum indicum*, *Pterocarpus marsupium* and *Rauvolfia serpentina* were reported from Jharkhand. Fabaceae emerged as the most represented family, indicating its high medicinal importance and vulnerability. Many of the listed species were highly valued for their roots, tubers, bark or whole plant, making them particularly susceptible to overexploitation. *Rauvolfia serpentina* and *Pterocarpus marsupium* were extensively harvested for pharmaceutical use, while *Gloriosa superba* is threatened due to the destructive extraction of tubers. The study also revealed a significant limitation in existing literature, where threat status was often based on secondary information rather than systematic population assessment. Moreover, discrepancies exist between national-level threatened lists and regional reports, highlighting the need for state-specific conservation assessments. Without accurate, ground-level data, conservation priorities may remain poorly defined.

Table 1: Commonly reported threatened medicinal plants of Bihar and Jharkhand states, India

Name	Family	State	Source
Asparagus racemosus Willd. (Figure 1)	Asparagaceae	Bihar	Ambasta et al., (2016)
Chrysopogon hamiltonii (Hook.f.) Haines	Poaceae	Bihar	Gowthami et al., (2021)
Dillenia pentagyna Roxb.	Dilleniaceae	Jharkhand	Singh et al., (2017)
Gloriosa superba L.	Colchicaceae	Jharkhand	Singh et al., (2017)

(Figure 2)			
Oroxylum indicum (L.) Kurz (Figure 3)	Bignoniaceae	Jharkhand	Singh et al., (2017)
Pterocarpus marsupium Roxb.	Fabaceae	Jharkhand	Singh et al., (2017)
Pueraria tuberosa (Roxb. ex Willd.) DC.	Fabaceae	Bihar	Ambasta et al., (2016)
Rauvolfia serpentina (L.) Benth. ex Kurz	Apocynaceae	Jharkhand	Singh et al., (2017)
Rubia cordifolia L. (Figure 4)	Rubiaceae	Bihar	Ambasta et al., (2016)

Figure 1: Habitat of *A. racemosus*

Figure 2: Flowers of *G. superba*

Figure 3: Flowers of *O. indicum*

Figure 4: Leaves of *R. cordifolia*

Future aspects and conclusion

The present study suggests that there is an urgent need for comprehensive, field-based studies on threatened medicinal plants in Bihar and Jharkhand. Future research should focus on population ecology, habitat assessment, regeneration potential and harvesting pressure of priority species. Standardized threat evaluation following IUCN criteria at the regional level is essential to avoid misclassification and ensure effective conservation planning. Involving local communities and traditional healers in conservation initiatives can enhance sustainable utilization and protection of medicinal plant resources. Additionally, promotion of *ex situ* conservation, cultivation practices and awareness programs can reduce pressure on wild populations. Although Bihar and Jharkhand possess rich medicinal plant diversity, several important species are under threat due to anthropogenic pressures and insufficient scientific attention. The present study provides a baseline overview and highlights critical gaps in the existing knowledge, serving as a foundation for future conservation-oriented research and policy formulation.

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