

# Ethnobotanically significant herbs and shrubs of the Indian flora: A systematic review

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## Abstract

India is one of the world's twelve mega-biodiversity hotspots, harboring over 8,000 species of medicinal plants that form the backbone of traditional healthcare systems Ayurveda, Unani, Siddha, Sowa-Rigpa, and folk medicine practiced by over 70% of the country's rural population. Medicinal herbs and shrubs of the Indian flora represent an inexhaustible reservoir of structurally novel and pharmacologically potent secondary metabolites that have been the basis for numerous modern pharmaceuticals. Despite this rich heritage, a comprehensive systematic review integrating pharmacognostic, phytochemical, and pharmacological data is lacking for many key species. This review systematically compiles and analyzes the current state of knowledge on twelve pharmacologically significant medicinal plants native to or extensively cultivated in India, encompassing their ecological distribution, habitat preferences, macroscopic and microscopic morphological characteristics, complete phytochemical profiles across all plant parts, and the spectrum of biological activities validated through *in vitro*, *in vivo*, and clinical studies. The twelve species reviewed *Ocimum tenuiflorum*, *Withania somnifera*, *Azadirachta indica*, *Tinospora cordifolia*, *Curcuma longa*, *Embllica officinalis*, *Bacopa monnieri*, *Terminalia chebula*, *Andrographis paniculata*, *Gynemna sylvestre*, *Adhatoda vasica*, and *Piper longum* represent diverse plant families and phytochemical classes, and collectively span therapeutic applications ranging from immunomodulation and neuroprotection to anti-cancer, anti-diabetic, hepatoprotective, and antimicrobial activities. This review aims to serve as a valuable reference for pharmacognosists, pharmacologists, phytochemists, and clinicians, and to identify promising avenues for further research and drug development.

**Keywords:** Medicinal plants, Indian herbal medicine, phytochemistry, pharmacognosy, biological activity, secondary metabolites, Ayurveda, ethnopharmacology

## 1. Introduction