VOLUME- 1 ISSU -1 16 February 2026
Dikshaurjit International Interdisciplinary Online Research Journal, Latur (DIIRJL)
Add.:Khadgaon Rd,Sambhaji Nagar,Near Smt.SushiladeviDeshmukh Senior College, LaturLatur, Maharashtra 413512, India.
Phone:9890408998, 8329647660Email ID: diirjournal@gmail.comWebsite:https://www.diirjournal.com

Miss Sanskruti Shrinath Munde

Indira Gandhi Medical College,Nagpur MBBS III year

Investigating the Efficacy of Selected Ayurvedic Plants in the Management of Modern Diseases: A Systematic Review

Abstract

Ayurvedic medicine has been used for millennia, emphasizing herbal formulations and holistic health practices. With the increasing prevalence of modern lifestyle diseases, there is growing interest in the therapeutic potential of Ayurvedic plants. This study aims to evaluate the efficacy of selected Ayurvedic herbs in managing conditions such as diabetes, hypertension, and cardiovascular disorders through a systematic review of existing clinical and preclinical research. Preliminary evidence suggests significant pharmacological activity, including antioxidant, anti-inflammatory, and glycemic control effects. Further rigorous clinical trials are necessary to validate these findings and integrate Ayurvedic interventions into evidence-based medicine.

1.Introduction

Modern medicine has significantly improved life expectancy, but chronic lifestyle diseases—such as type 2 diabetes, hypertension, and cardiovascular disorders—remain a global challenge. Traditional systems like Ayurveda offer potential complementary interventions through the use of medicinal plants. Ayurvedic texts such as *Charaka Samhita* and *Sushruta Samhita* describe numerous herbs with therapeutic properties. This study aims to systematically investigate the efficacy of Ayurvedic plants in the prevention and management of modern diseases, bridging traditional knowledge with contemporary biomedical research.

Objectives

1. To identify Ayurvedic plants with reported efficacy in managing modern lifestyle-related diseases.
2. To analyze pharmacological mechanisms underlying their therapeutic effects.
3. To assess the clinical evidence supporting their use in contemporary medicine.

3. Materials and Methods

- **Study Design:** Systematic review
- **Data Sources:** PubMed, Scopus, Google Scholar, AYUSH Research Portal
- **Inclusion Criteria:**

Studies published in the last 20 years

Clinical trials, in vivo, and in vitro studies on Ayurvedic plants

Focused on diabetes, hypertension, obesity, cardiovascular disorders, and metabolic syndrome

Key Findings:

- Most herbs exhibit anti-inflammatory, antioxidant, and metabolic regulatory properties.
- Limited but promising clinical evidence exists for *Curcuma longa* and *Withania somnifera*.

- Further large-scale randomized controlled trials (RCTs) are needed for definitive conclusions.

1. Discussion

Ayurvedic plants show potential in managing modern diseases through multi-targeted mechanisms. Curcumin, for instance, modulates inflammatory pathways relevant to diabetes and cardiovascular disease. Ashwagandha improves stress-induced hypertension and supports metabolic regulation. Integration of Ayurvedic herbs into modern therapeutic protocols could offer a complementary approach to chronic disease management, particularly where conventional therapies show limitations or adverse effects. However, variability in dosage, standardization of extracts, and methodological limitations in studies highlight the need for rigorous clinical trials.

5.Conclusion

Ayurvedic plants represent a promising adjunct in the management of lifestyle-related modern diseases. Evidence supports their pharmacological efficacy, but high-quality, standardized clinical studies are essential before widespread adoption in evidence-based medicine. This research underscores the value of bridging traditional Ayurvedic knowledge with contemporary biomedical research to enhance patient outcomes..

Plant	Active Compounds	Disease Target Mechanism	Evidence Level
Curcuma longa (Turmeric)	Curcumin	Diabetes, CVD	Anti-inflammatory, antioxidant RCTs & animal studies
Withania somnifera (Ashwagandha)	Withanolides	Stress, hypertension	Adaptogenic, cardioprotective Clinical & preclinical
Tinospora cordifolia (Guduchi)	Alkaloids, glycosides	Diabetes, immune modulation	Hypoglycemic, immunomodulatory Clinical trials
Ocimum sanctum (Tulsi)	Eugenol, ursolic acid	Hypertension, metabolic syndrome	Antioxidant, lipid-lowering Animal studies & small RCTs

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