



**INTERNATIONAL JOURNAL OF  
PHARMACEUTICAL SCIENCES**  
[ISSN: 0975-4725; CODEN(USA): IJPS00]  
Journal Homepage: <https://www.ijpsjournal.com>



## Review Paper

# Combination Of Herbal Formulations: A Comprehensive Review

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## ARTICLE INFO

Published: 22 June 2025

### Keywords:

Herbal formulations,  
Polyherbal formulations,  
Synergistic phytotherapy,  
Herb-herb interactions,  
Traditional medicine,  
Ayurveda, Traditional Chinese  
Medicine (TCM), Unani  
medicine, Phytocomplex,  
Botanical synergy,  
Plant-based therapy, Natural  
products, Multi-target therapy,  
Phytochemical synergy,  
Holistic medicine,  
Ethnopharmacology,  
Bioavailability enhancement,  
Herbal pharmacology,  
Complementary and  
alternative medicine (CAM),  
Integrative medicine, Network  
pharmacology,  
Phytotherapeutics,  
Standardization of herbal  
drugs, Herbal drug  
development, Systems  
biology in herbal medicine.

### DOI:

10.5281/zenodo.15652813

## ABSTRACT

The utilization of polyherbal formulations—combinations of multiple medicinal herbs—has been a cornerstone in traditional medicine systems and is gaining renewed interest in modern pharmacotherapy. These formulations are designed to enhance therapeutic efficacy, reduce toxicity, and target multiple physiological pathways simultaneously. This review delves into the scientific rationale behind combining herbal extracts, explores traditional practices, examines modern applications, and discusses the challenges and future prospects of polyherbal formulations. Emphasis is placed on the importance of synergy, bioavailability enhancement, and multi-targeted actions, supported by extensive references from recent studies.

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**Relevant conflicts of interest/financial disclosures:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.



## INTRODUCTION

Herbal medicine has been integral to healthcare systems worldwide, particularly in Ayurveda, Traditional Chinese Medicine (TCM), Unani, and Siddha. These systems often employ polyherbal formulations, combining multiple herbs to address complex health conditions holistically. The resurgence of interest in natural and holistic therapies has prompted scientific investigations into the efficacy and mechanisms of these combinations.

Herbal formulations have been an integral part of traditional medicine systems for centuries and continue to gain global recognition as complementary or alternative therapeutic options. Derived from natural plant sources, these formulations encompass a wide variety of preparations—ranging from simple extracts to complex polyherbal mixtures—used to treat, manage, or prevent a range of health conditions. Their therapeutic potential is primarily attributed to the synergistic effects of multiple bioactive phytochemicals, which can exert antioxidant, anti-inflammatory, antimicrobial, immunomodulatory, and other pharmacological activities.

In recent years, the resurgence of interest in herbal medicine is driven by a growing awareness of the limitations and side effects of synthetic drugs, coupled with a global shift toward natural and holistic health approaches. Furthermore, advancements in phytochemistry, pharmacognosy, and drug delivery technologies have enabled a more scientific exploration and standardization of herbal formulations, enhancing their efficacy, stability, and safety profiles.

Despite their widespread use and historical significance, herbal formulations face several challenges, including variability in plant material, lack of standardized dosage forms, and limited clinical validation. Therefore, integrating traditional knowledge with modern scientific

research is essential to fully harness the therapeutic potential of herbal products. This review aims to provide an in-depth overview of current advancements, challenges, and future perspectives in the development and application of herbal formulations.

Let me know if you'd like the introduction tailored toward a specific disease area (e.g., cancer, diabetes, neurodegeneration), formulation type (e.g., nanoparticles, hydrogels, polyherbal extracts), or regional tradition (e.g., Ayurveda, Traditional Chinese Medicine).



## 2. Scientific Rationale for Combining Herbal Extracts

### 2.1. Synergistic Effects

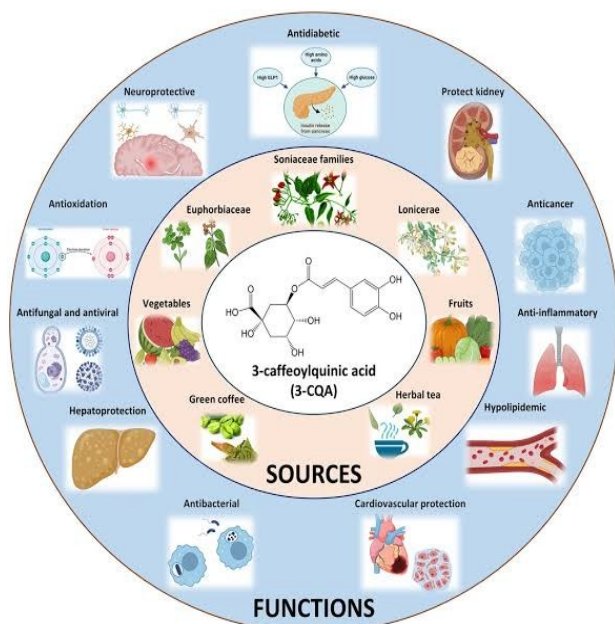
Synergy occurs when the combined effect of herbs exceeds the sum of their individual effects. For instance, the combination of *Zingiber officinale* (ginger) and *Curcuma longa* (turmeric) exhibits enhanced anti-inflammatory properties compared to each herb alone.

### 2.2. Bioavailability Enhancement

Certain herbs can enhance the absorption and efficacy of others. *Piper nigrum* (black pepper) contains piperine, which increases the bioavailability of curcumin from turmeric by inhibiting hepatic and intestinal glucuronidation.

### 2.3. Multi-Targeted Action

Polyherbal formulations can simultaneously modulate various physiological pathways, making them effective against multifactorial diseases like diabetes, cancer, and neurodegenerative disorders.



## 3. Traditional Herbal Formulation Systems

### 3.1. Ayurveda

- **Triphala:** A combination of *Embolica officinalis*, *Terminalia bellirica*, and *Terminalia chebula*, known for its antioxidant and digestive benefits.
- **Dashamoola:** A ten-root formulation used for its anti-inflammatory and analgesic properties.

### BENEFITS

- Helpful in Indigestion & Constipation.
- Boost Digestion Process.
- Reduces Gastric Problems.
- Reduces Acidity and Bloating.
- Naturally Improves Bowel Movement.
- Good source of Anti-Oxidants.
- Beneficial for Skin, Hair & Eyes.



### 3.2. Traditional Chinese Medicine (TCM)

- **Liu Wei Di Huang Wan:** A six-herb formula used to treat kidney yin deficiency.
- **Shosaiko-to (Xiao Chai Hu Tang):** Combines Bupleurum root with other herbs to treat liver disorders and viral infections.

### 3.3. Unani and Siddha Systems

These systems utilize polyherbal formulations to balance bodily humors and detoxify the body, employing various tonics and decoctions.

## 4. Modern Applications and Research

Recent studies have employed advanced techniques like network pharmacology and metabolomics to understand herbal interactions. Examples include:

- **Ashwagandha (*Withania somnifera*) and Brahmi (*Bacopa monnieri*):** Combined use has shown improved cognitive function and stress reduction.
- **Gymnema sylvestre and Momordica charantia:** Their combination exhibits

synergistic glucose-lowering effects in type 2 diabetes.

Emerging technologies like nanotechnology are also being applied to enhance the delivery and stability of polyherbal formulations.

## 5. Challenges and Limitations

- **Standardization:** Variability in plant species and extraction methods complicates standardization.
- **Pharmacovigilance:** Herb-herb and herb-drug interactions are underreported and require careful monitoring.
- **Lack of Clinical Trials:** Many formulations lack robust evidence from randomized controlled trials.
- **Regulatory Barriers:** Inconsistent regulations across countries hinder the development and global acceptance of polyherbal products.

## CONCLUSION AND FUTURE PROSPECTS

Polyherbal formulations offer a holistic approach to healthcare, targeting multiple pathways and potentially reducing side effects. Scientific validation, standardization, and regulatory support are crucial for their integration into mainstream medicine. Interdisciplinary research combining ethnopharmacology, pharmacognosy, and biotechnology will be instrumental in unlocking their full therapeutic potential.

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**HOW TO CITE:** Satyashila Mhaske, Amrapali Borde, Dr. G. R Sitaphale, Dr. P. R. Tathe, Combination Of Herbal Formulations: A Comprehensive Review, *Int. J. of Pharm. Sci.*, 2025, Vol 3, Issue 6, 3028-3032. <https://doi.org/10.5281/zenodo.15715209>

