

**REPORT ON POLYHERBAL EXTRACT: A REVIEW**Parikshit D. Shirure<sup>1\*</sup>, Anjali Anil Ghodke<sup>2</sup>, Rutuja Ramesh Pandhare<sup>3</sup>Assistant Professor, Department of Pharmaceutical Chemistry, Shivai Charitable Trust's College of Pharmacy,  
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Koregaonwadi Tq. Omerga Dist.Dharashiv.DOI: <https://doi.org/10.5281/zenodo.18814755>**How to cite this Article:** Parikshit D. Shirure<sup>1\*</sup>, Anjali Anil Ghodke<sup>2</sup>, Rutuja Ramesh Pandhare<sup>3</sup> (2026). Report On Polyherbal Extract: A Review. World Journal of Advance Healthcare Research, 10(3), 11–13.  
This work is licensed under Creative Commons Attribution 4.0 International license.**INTRODUCTION**

Herbal medicines have been an integral part of traditional healthcare systems since ancient times, particularly in Ayurveda, Siddha, Unani, Traditional Chinese Medicine (TCM), and various indigenous systems across the world. Plants are rich sources of bioactive compounds such as alkaloids, flavonoids, tannins, glycosides, terpenoids, phenolic acids, and essential oils, which contribute to their therapeutic potential. In recent decades, there has been a renewed global interest in herbal medicines due to their perceived safety, cultural acceptability, cost-effectiveness, and holistic approach to disease management. This growing interest has led to extensive scientific research aimed at validating traditional claims and developing standardized herbal formulations. Polyherbal formulations represent a key concept in traditional medicine, where two or more medicinal plants are combined in a single preparation to enhance therapeutic efficacy and reduce adverse effects. The rationale behind polyherbalism is based on the principle of synergy, where the combined effect of multiple herbs is greater than the sum of their individual effects. This synergistic interaction may occur through pharmacodynamic mechanisms (multiple constituents acting on the same or different biological targets) or pharmacokinetic mechanisms (one herb enhancing the absorption, distribution, metabolism, or bioavailability of another). Such formulations are believed to offer broader therapeutic coverage, improved efficacy, and better patient compliance compared to single-herb preparations. A polyherbal extract is obtained by extracting a mixture of selected medicinal plants using suitable solvents and extraction techniques. The extraction process plays a crucial role in determining the quality, safety, and efficacy of the final product, as it influences the yield and stability of bioactive constituents. Commonly used extraction methods include maceration, percolation, Soxhlet extraction, reflux extraction, and advanced techniques such as ultrasound-assisted extraction, microwave-assisted extraction, and supercritical fluid extraction. The choice of solvent (water, ethanol, methanol, hydroalcoholic mixtures, etc.) is equally important, as different phytochemicals exhibit varying solubility profiles. Scientific research on polyherbal extracts has expanded significantly, focusing on their pharmacological activities such as antioxidant, anti-inflammatory, antimicrobial, antidiabetic, hepatoprotective, cardioprotective, immunomodulatory, neuroprotective, and anticancer effects. Experimental studies using in vitro assays, in vivo animal models, and clinical evaluations have provided evidence supporting the therapeutic potential of polyherbal extracts. Compared to synthetic drugs, polyherbal formulations often target multiple pathways involved in disease progression, making them particularly useful in the management of chronic and multifactorial disorders such as diabetes mellitus, cardiovascular diseases, arthritis, neurodegenerative diseases, and metabolic syndromes. Standardization and quality control are major challenges in polyherbal extract research. Variability in plant species, geographical origin, harvesting season, processing methods, and storage conditions can significantly affect phytochemical composition and biological activity. Therefore, modern research emphasizes the need for standardization using physicochemical parameters, phytochemical profiling, chromatographic techniques (HPTLC, HPLC, GC-MS, LC-MS), and marker-based analysis to ensure batch-to-batch consistency. Safety evaluation through acute and chronic toxicity studies is also essential to establish the safe use of polyherbal extracts.

In the context of increasing antibiotic resistance, adverse effects of synthetic drugs, and rising healthcare costs, polyherbal extracts offer a promising alternative and complementary approach to modern medicine. Integration of traditional knowledge with contemporary scientific research can lead to the development of evidence-based, safe, and effective polyherbal products. Hence, detailed research on polyherbal extracts is of great importance to explore their therapeutic potential, understand their mechanisms of action, ensure quality and safety, and facilitate their acceptance in mainstream healthcare systems.

## AIM AND OBJECTIVE

**Aim:** Report on polyherbal extract overview

## OBJECTIVES

1. To study the basic concept and principle of polyherbal formulations and understand the scientific rationale behind the use of multiple herbs in a single formulation.
2. To review and analyze available literature related to polyherbal extracts and their reported pharmacological activities.
3. To identify the role of synergistic interactions among phytochemical constituents present in polyherbal formulations.
4. To study different methods of extraction employed in the preparation of polyherbal extracts and their significance in obtaining bioactive compounds.
5. To evaluate the therapeutic applications of polyherbal extracts in the management of various diseases.
6. To understand the importance of standardization, quality control, and safety evaluation of polyherbal formulations.
7. To highlight the challenges associated with polyherbal extracts and emphasize the need for scientific validation and clinical studies.

## METHODOLOGY

### 1. Plant Collection and Authentication

Fresh whole plant of *Cynodon dactylon* was collected from a local area during its growing season. The plant material was carefully washed with tap water followed by distilled water to remove dirt and foreign matter. The collected plant was authenticated by a qualified botanist from a recognized institute. A voucher specimen was prepared and deposited in the herbarium for future reference.

The authenticated plant material was shade-dried at room temperature for 7–10 days to preserve thermolabile constituents and then stored in clean, dry conditions until further use.

### 2. Extraction Method

- Drying and Pulverization

The shade-dried plant material was coarsely powdered using a mechanical grinder and passed through a sieve to

obtain uniform particle size. The powdered material was stored in airtight containers.

- Preparation of Extract
1. The powdered *Cynodon dactylon* was subjected to extraction using a suitable solvent (ethanol / hydroalcoholic / aqueous).
  2. Soxhlet extraction method (commonly used):
  3. A known quantity of powdered plant material was packed in a Soxhlet apparatus
  4. Extraction was carried out using ethanol for 6–8 hours
  5. The extract was filtered using Whatman filter paper
  6. The filtrate was concentrated using a rotary evaporator or water bath at controlled temperature
  7. The dried extract was collected, weighed, and stored in airtight containers at 4°C

### ➤ Chemical constituents

- **Flavonoids:** Apigenin, luteolin, orientin, vitexin – responsible for antioxidant and anti-inflammatory activity.
- **Phenolic compounds:** Phenolic acids and polyphenols – contribute to free radical scavenging activity.
- **Alkaloids:** Provide antimicrobial and antidiabetic effects.
- **Tannins:** Show astringent, wound-healing, and antimicrobial properties.
- **Saponins:** Exhibit immunomodulatory and antimicrobial activities.
- **Glycosides:** Contribute to cardioprotective and metabolic regulatory actions.
- **Terpenoids:** Possess anti-inflammatory and hepatoprotective effects.
- **Steroidal compounds:** Support anti-inflammatory and membrane-stabilizing activity.
- **Carbohydrates:** Provide nutritional value and energy.

### ➤ Phytochemical Constituents

- Flavonoids
- Alkaloids
- Tannins
- Saponins
- Glycosides
- Phenolic compounds

### ➤ Pharmacological activity

The extract was evaluated for various biological activities such as.

- Antioxidant activity
- Antimicrobial activity
- Anti-inflammatory activity
- Antidiabetic activity

## CONCLUSION

Polyherbal extracts are an effective and holistic approach in herbal medicine, based on the principle of synergism,

where multiple herbs enhance therapeutic efficacy and reduce side effects. Proper extraction methods and solvent selection are essential for obtaining bioactive compounds. *Cynodon dactylon* contains important phytochemicals such as flavonoids, phenolics, alkaloids, and tannins, which contribute to its antioxidant, antimicrobial, anti-inflammatory, and antidiabetic activities. Despite their benefits, standardization and quality control remain major challenges. Overall, polyherbal extracts show significant potential as safe and effective alternatives to synthetic drugs, warranting further scientific and clinical validation.

Polyherbal formulations offer multi-targeted therapeutic action, making them particularly suitable for the management of chronic and complex diseases where single-drug therapy is often less effective.

### RECOMMENDATION

Extensive *in vitro* and *in vivo* studies to explore unexplored pharmacological activities of polyherbal extracts. Clinical trials to establish therapeutic efficacy, safety, and dosage standardization in human subjects. Application of advanced extraction and formulation technologies to enhance yield, stability, and bioavailability of active constituents. Identification and development of marker compounds for improved quality control and standardization. Development of commercially viable polyherbal formulations for chronic diseases such as diabetes, inflammation, and metabolic disorders. Integration of polyherbal extracts into evidence-based complementary and alternative medicine (CAM) practices.

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