

# Polyherbal Formulations New Emerging Technology in Herbal Remedies

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**ABSTRACT:** The use of polyherbal formulation is widespread due to its medicinal and therapeutic benefits. Ayurveda has a unique concept known as polyherbalism, albeit it can be difficult to define in terms of contemporary standards. The Sarangdhara Samhita, a work of Ayurvedic literature, introduced the concept of polyherbalism to achieve better therapeutic efficacy. A polyherbal composition has been used for medical and therapeutic purposes all over the world. Active phytochemical components of individual plants are insufficient to generate the desired therapeutic effects. For polyherbal and herbo-mineral formulations, the medicinal impact is improved and the toxicity is decreased when a variety of herbs are combined in a specific ratio. Instead of using individual plant parts, traditional medicine employs complete plants or combinations of plants. Polyherbalism provides a number of benefits not found in single herbal formulations because of synergism. At safe, high doses, polyherbal formulations exhibit excellent therapeutic efficacy in a number of disorders. Focus is placed on a herb's ability to facilitate the distribution, metabolism, and elimination of other herbs, and active ingredients with comparable therapeutic effectiveness are targeted via various mechanisms of action. The comprehensive elements of polyherbal formulation are fully included in the current review.

**Keywords:** Ayurveda, Polyherbals, Phytochemical, Polyherbalism, Therapeutic efficacy

## I. INTRODUCTION

All around the world, traditional medicines have a significant impact on health care. About 75 percent of people worldwide rely on plants and plant extracts for their medical needs. Since they have a variety of photochemical properties, many Indian medicinal plants are said to have a variety of pharmacological effects. The review of the literature found that different plants found throughout the plant kingdom have distinct methods of preventing skin conditions.<sup>1</sup> Herbal

medicine has become an integral part of standard healthcare based on combination of traditional usage and ongoing scientific research. Burgeoning interest in medicinal herbs has increased scientific scrutiny of their therapeutic potential and safety.<sup>2</sup>

The oldest healthcare system in the world is likely India's herbal medication industry. The Vedas, an ancient sacred text of the Indian people, make reference to an ancient kind of herbal medicine because the history of herbs in ancient India is so old. The use of herbs and natural remedies to treat health concerns is central to the ancient herbal treatment practises of Ayurveda and Unani. Even while it can seem that herbal remedies are something new for western healers and doctors, the majority of prescribed medications still contain plant extracts. Presently, the world appreciates this traditional kind of medicine, and Indian herbal medicines are in high demand, leading to their rapid expansion and approximately 30% yearly growth rate. In recent years, there has been a significant rise in demand for herbal remedies, skin care products, and even cosmetics on a global scale.<sup>3</sup>

## Advantages of polyherbal formulation<sup>4-9</sup>

- It gives the anticipated activity in combination.
- The existence of many active substances that when combined can have a potentiating impact that may not be possible with a single substance.
- Plant-based pharmaceuticals that have a variety of related active principles that can operate in synergistic, potentiative, agonistic, and antagonistic ways.
- Because of synergism, polyherbalism has many advantages over single-herb formulations.
- A multi-constituent formulation can achieve a superior therapeutic impact. In order to obtain the desired pharmacological action for this, a lesser dose of the herbal preparation would be

required, lowering the possibility of harmful side effects.

- By removing the need to take multiple herbal formulations at once, patients can enjoy greater convenience, which in turn improves compliance and has a positive therapeutic impact.
- Polyherbal formulations that contain a variety of compounds that fight illness complications in different ways to offer a whole course of treatment for a disease state.

#### Limitations of polyherbal formulation<sup>10-12</sup>

- Sometime presence of several ingredients could cause chemical incompatibility and instability.
- Toxicology studies and clinical trials on herbal formulations are not required, per acceptable clinical standards, for the filing of patents and granting of manufacturing licences to the maker of ayurvedic herbal formulations, which may be sometime crucial for patient compliance.

#### Categories of Herbs<sup>13-15</sup>

In Ayurveda, herbals are known to regulate bodily functions, cleanse and nourish human body. Each herb has five categories known as rasa, veerya, vipaka, prabhava and karma.

- **Rasa** (taste or sensation that the tongue experiences when in contact with the herbals): There are six tastes (Madhura-Sweet, Amla-Sour, Lavana-Salty, Katu-Pungent, Tikta-Bitter, and Kashaya-Astringent) and each one is made of two out of the five elements. Each of the taste has an effect on dosha.
- **Veerya** (energy a herb releases when ingested): It can be sheeta (cooling) or ushna (heating) The former is said to be present in sweet, astringent and bitter herbs, which refreshes body, reduces irritation and inflammation; whereas the latter is obtained from sour, salty and pungent herbs that improves circulation, helps digestion and promotes sweating.
- **Vipaka** (Post-digestive effect): There are three types of Vipaka: Madhura (sweet), Amla (sour) and Katu (pungent), each having different effects on the dosha.
- **Prabhava** (special and unique power of a herb that has variable action): These herbs does not fit in the category of other herbs that present the same rasa, veerya or vipaka.

- **Karma** (therapeutic action): These are classified as Deepana (Stimulant), Pachana (Digestive), Shodhana (Purification), Anuloman (Carminative) and Virechana (Purgative).

Other than that, the doses, time of intake and Anupana (the carrier which the herbal medicines are prescribed with such as hot water, milk, honey, etc.) are also emphasized in the study of herbals under Ayurveda.

Historically, the Ayurvedic literature "Sarangdhar Samhita" dated centuries ago in 1300 A. D. has highlighted the concept of polyherbalism in this ancient medicinal system. In the traditional system of Indian medicine, plant formulations and combined extracts of plants are chosen rather than individual ones. It is known that Ayurvedic herbals are prepared in a number of dosage forms, in which mostly all of them are PHF.

#### Processing of Polyherbal Formulation

Herbal preparations are traditionally made by processing. Before being employed in Traditional Chinese Medicines, all raw medicinal plants need to be cut, washed, steamed, or fried with various adjuvants. Compatibility, or the use of multiple herbs to produce balanced or synergistic effects, is a popular clinical technique in Traditional Chinese Medicine. Alterations to the quality, efficacy, or safety of herbal medicine may result from processing or compatibility. Therefore, it is crucial for their proper and safe use to analyse the changes of herbal medicines before and after processing and compatibility. A potential representative to research the chemical knowledge base of efficacy and toxicity via processing and compatibility approach on herbal medicines is because diverse processing and polyherbal formulations are being employed clinically.<sup>16-18</sup> Pharmacokinetics, which is frequently combined with herbal medicine processing, might offer hints on how to alter the therapeutic effects of medicinal plants. Additionally, the phytochemistry, toxicity, and compatibility of processed plants with other herbal medicines can make it easier to understand the connections between compounds' efficacy and toxicity. Physical and/or chemical reactions occur often during the production of polyherbal formulations. There have been reports of various processing and compatibility in the use of various plants. Chinese Pharmacopoeia's 2015 edition notes that different "standard" processing techniques for extracts, as documented in historic medical texts and regional customs, may alter the effects of herbal plants.<sup>19</sup>

### Chemistry behind Formulation

Herbal medicine properties serve as the foundation for clinical diagnosis and therapy in the practise of traditional Chinese medicine. For instance, while a plant portion could be peppery and bitter, processing and compatibility will lessen its flavours. While limonoids may be responsible for the bitter taste, volatile oils may be the source of the offensive scent. Thus, a plant's characteristics are intimately linked to its phytochemistry, which is connected to how it is processed or used in combination. From the plant components, more than 100 chemicals have been extracted or named. The main substances are alkaloids, limonoids, volatile oils, carboxylic acids, and flavonoids. It has been demonstrated that alkaloids, limonoids, and certain essential oils are

responsible for the anti-tumor, anti-inflammation, analgesic, and antibacterial effects.<sup>20</sup>

### II. CONCLUSION

Western nations have recently shown increasing interest in using plants as medicines. In the global environment, herbal remedies thrive as the preferred therapeutic approach in many nations. Growing public interest in natural products has recently spurred an increase in demand for herbal medications. Even in industrialised nations, it is currently gaining fresh traction as an alternative to conventional medicine, and more people are using plant-based crude extracts for self-medication.

### List of commercial available Polyherbal products<sup>21-23</sup>

Anti-inflammatory Product	Composition of polyherbal formulation
DHU001	Ficus carica, Liriope spicata, Platycodon grandiflorum, Schisandra chinensis, Glycyrrhiza uralensis, Zingiber officinale, Mentha arvensis
Wu-Zi-Yan- Zong	Cuscuta chinensis, Lycium barbarum, Rubus chingii, Schizandra chinensis, Plantago asiatica, Epimedium brevicornu
IBS-20	20-herb Chinese medicinal formula
Anti-diabetic Products	
Okudiabet	Stachytarpheta angustifolia, Alstonia congenis, Xylopiya aethiopica
Diarun plus	Emblca officinalis, Curcuma longa, Momordica charantia, Eugenia jambolana, Trigonella foenum graecum, gymnema sylvestre and salacia reticulata.
Ayurslim	Garcinia camogia, commiphora wightii, gymnema sylvestre, terminalia chebula, trigonella foenum-graecum
Antioxidant Products	
Panchvalkala	Ficus benghalensis, F. glomerata, F. religiosa, F. virensand, Thespesia populnea
Amalakayas rasayana	P. emblica, A. galanga, A. racemosus, B. diffusa, C. asiatica, D. gangiticum, L. reticulata, T. chebula, T. cordifoli
Shankpushpi	Convolvulus pluricaulis, Evolvulus alsinoides, Clitoria ternatea, Canscora decussata
Anti-Depressant Products	
Smrithi	Bacopa monniera, Hydrocotyle asiatica, Acorus calamus, Asparagus racemosus, Emblica officinalis
Medha gulika	Acorus calamus, Clitoriaternatea, Glycyrrhiza glabra, Elaeocarpus sphaericus, Bacopa monnieri, Centella asiatica, Sarcostemmaacidum

Bramhi Ghrita	Bacopa monneri, Evolvulus alsinoids, Acorus calamus, Saussurea lappa, cow's ghee
<b>Hepatoprotective Products</b>	
<b>Punarnavashtak kwath</b>	<b>Boerhaavia diffusa, Picrorhiza kurroa, Tinospora cordifolia, Zingiber officinalis, Berberis aristata, Terminalia chebula, A. indica, Tricosanthes dioica</b>
<b>Triphala rasayana</b>	<b>Emblica officinalis, Terminalia bellerica, Terminalia chebula</b>
<b>Livol</b>	<b>Boerhavia diffusa, Solanum nigrum, Terminalia arjuna</b>

### REFERENCES:

- [1]. Teschke R, Wolff A, Frenzel C, Schulze J. Review article: Herbal hepatotoxicity- An update on traditional Chinese medicine preparations. *Aliment. Pharmacol. Ther.* 2014;40(1):32–50.
- [2]. Basnyat S, Kolasinski SL. Ayurvedic medicine for rheumatoid arthritis. *Curr. Rheumatol. Rep.* 2014;16(8).
- [3]. Tuhin Kanti Biswas SP and SC. Test on Indian and Peruvian medicinal plants for wound healing. In: Mukherjee PH and PK, editor. *Evaluation of Herbal Medicinal Products*. Pharmaceutical Press. 2009. page 228–41.
- [4]. Bhope SG, Nagore DH, Kuber VV, Gupta PK, Patil MJ. Design and development of a stable polyherbal formulation based on the results of compatibility studies. *Pharmacognosy Res.* 2011; 3(2): 122-129.
- [5]. Benzie IFF, Wachtel-Galor S. *Herbal Medicine: Bimolecular and Clinical Aspects*, 2nd edn. CRC Press/Taylor & Francis 2011.
- [6]. Spinella M. The importance of pharmacological synergy in psychoactive herbal medicines. *Altern Med Rev.* 2002; 7:130-137.
- [7]. Chorgade MS. *Drug Discovery and Development: Drug development Vol. 2*. John Wiley and Sons Inc; Hoboken, New Jersey: 2007.
- [8]. Parasuraman S, Thing GS, Dhanaraj SA. Polyherbal formulation: concept of ayurveda *Pharmacogn Rev* 2014; 8(16): 73-80.
- [9]. Sarwar M, Attitalla IH and Abdollahi M. A review on the recent advances in pharmacological studies on medicinal plants: Animal studies are done but clinical studies needs completing. *Asian J Anim Vet Adv* 2011; 6(8): 867-883.
- [10]. Kavitha AN, Deepthi V, Nayeem N. Design, formulation and evaluation of a polyherbal ointment for its wound healing activity. *Pharmacophore* 2013; 4 (5):175-180.
- [11]. Munshi R, Bhalerao S, Kalekar S. *Proceedings. J Ayurveda Integr Med* 2012; 3:168-72. 59.
- [12]. Rastogi S, Chiappelli F, Ramchandani MH, Singh RH, editors. *Evidence-based Practice in Complimentary and Alternative Medicine Perspective, Protocols, Problems and Potential in Ayurveda*. New York City: Springer; 2012.
- [13]. Hussain SA, Panjagari NR, Singh RRB, Patil GR. Potential herbs and herbal nutraceuticals: food applications and their interactions with food components. *Crit Rev Food Sci Nutr.* 2015;55(1):94–122.
- [14]. Kunwar RM, Shrestha KP, Bussmann RW. Traditional herbal medicine in far-west Nepal: a pharmacological appraisal. *J Ethnobiol Ethnomed.* 2010;6:35.
- [15]. Leonti M, Casu L. Traditional medicines and globalization: Current and future perspectives in ethnopharmacology. *Front Pharmacol.* 2013;4 JUL.
- [16]. Ngo LT, Okogun JI, Folk WR. 21st century natural product research and drug development and traditional medicines. *Nat Prod Rep.* 2014;30(4):584–92.
- [17]. Che CT, Wang ZJ, Chow MSS, Lam CWK. Herb-herb combination for therapeutic enhancement and advancement: Theory, practice and future perspectives. *Molecules.* 2013;18(5):5125–41.

- [18]. Risberg K, Fodstad Ø, Andersson Y. Synergistic anticancer effects of the 9.2.27PE immunotoxin and ABT-737 in melanoma. *PLoS One*. 2011;6(9).
- [19]. Ramaiah M, Chakravathi G, Yaraswini K. In vitro biological standardization, formulation and evaluation of directly compressed polyherbal anthelmintic tablets. *Pharmacogn J* 2013;5(3):130–4. <http://dx.doi.org/10.1016/j.phcgj.2013.04.004>.
- [20]. Subramani Parasuraman, Gan Siaw Thing, and Sockalingam Arumugam Dhanaraj (2014). "Polyherbal formulation: Concept of ayurveda". *Pharmacogn. Rev.* 8 (16): 73–80.
- [21]. Srivastava S, Lal VK, Pant KK. Polyherbal formulations based on Indian medicinal plants as antidiabetic phytotherapeutics. *Phytopharmacology*. 2013;2:1–15.
- [22]. Jayakumar RV. Herbal medicine for type-2 diabetes. *Int J Diabetes Dev Ctries*. 2010;30:111–2.
- [23]. Parasuraman S, Kumar EP, Kumar A, Emerson SF. Anti-hyperlipidemic effect of triglize, a polyherbal formulation. *Int J Pharm Pharm Sci*. 2010;2:118–22.