

Review of the Principles and Application of Polyherbal Formulations

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ABSTRACT

Ayurveda is a medical system primarily practiced in India that has been known for nearly 5000 years. It includes diet and herbal remedies, while emphasizing the body, mind and spirit in disease prevention and treatment. Ayurveda is one of the traditional medicinal systems of Indian. The philosophy behind Ayurveda is preventing unnecessary suffering and living a long healthy life. Ayurveda involves the use of natural elements to eliminate the root cause of the disease by restoring balance, at the same time create a healthy lifestyle to prevent the recurrence of imbalance. Formulations restrain two or more than two herbs are called polyherbal formulation. Drug formulation in Ayurveda is based on two principles: Use as a single drug and use of more than one drug. The last is known as polyherbal formulation. The idea of polyherbalism is peculiar to Ayurveda even though it is tricky to explain in term of modern parameters. Polyherbal formulation has been used all around the earth due to its medicinal and therapeutic application. It has also recognized as polyherbal therapy or herb-herb combination. A review mainly highlighted the importance of Ayurveda and polyherbal formulations and as well as it focuses on scope and opportunities of polyherbal medicines on local and global level.

Keywords: Ayurveda, Polyherbal, Diseases, Herbal, Medicines

I. INTRODUCTION:

WHO has also issued Guidelines for the Assessment of Herbal Medicines (WHO, 1996). These guidelines defined the basic criteria for the evaluation of quality, safety and efficacy of herbal medicines with the goal of assisting national regulatory authorities, scientific organizations and manufacturers in assessing documentation, submissions and dossiers in respect of such products. It was recommended that such assessments take into account long-term use in the country (over at least several decades), any

description in the medical and pharmaceutical literature or similar sources or documentation of knowledge on the application of a herbal medicine, and marketing authorizations for similar products [1]. Although prolonged and apparently uneventful use of a substance usually offers testimony of its safety, investigation of the potential toxicity of naturally occurring substances may reveal previously unsuspected problems. It was also recommended that regulatory authorities have the authority to respond promptly to new information on toxicity by withdrawing or limiting the licenses of registered products containing suspect substances, or by reclassifying the substances to limit their use to medical prescription. The guidelines stressed the need for assessment of efficacy including the determination of pharmacological and clinical effects of the active ingredients, and labeling which includes a quantitative list of active ingredient(s), dosage, and contraindications [2]. During the latter part of the 20th century herbalism has become main stream worldwide. This is due in part to the recognition of the value of traditional and indigenous pharmacopeias, the incorporation of some derived from these sources into pharmaceuticals, the need to make health are affordable for all, and the perception that natural remedies are somehow safer and more efficacious than remedies that are pharmaceutically derived. For a variety of reasons more individuals nowadays prefer to take personal control over their health, not only in the prevention of diseases but also to treat them. This is particularly true for a wide variety of chronic or incurable diseases (cancer, diabetes, arthritis) or acute illnesses readily treated at home (common cold etc.) In this respect many individuals have become disenchanted with the worth of allopathic treatments, and the adverse effects that can be anticipated [3].

Herbal formulations

Herbs and products containing herb(s) have been in trade and commerce and are currently

used for a variety of purposes [4]. The WHO defines an herb as being fresh or dried, fragmented or powdered plant material, which can be used in this crude state or further processed and formulated to become the final herbal product. Treatment of herbs by squeezing, steaming, roasting, decocting or infusing in water, extracting with alcohol, or sweetening and baking with honey can create herbal products such as juices, tinctures, decoctions, infusions, gums, fixed oils, essential oils, and resins. These may be used medically or as the starting material for additional processing and as food ingredients. Depending on the sophistication of the “herbal preparation” these products may be subject to any number of physical, chemical, or biological processes, including pulverization, extraction, distillation, expression, fractionation, purification, concentration, or fermentation. Formulation of the “final product” may require mixing one or more plant preparations with minerals or animal products and constituents isolated from herbal materials or synthetic compounds. These phytotherapeutic formulations may also be referred to as drugs or botanicals, or when taken orally to provide health benefits, they may be called dietary supplements or even food ingredients in some cases [5]. Herbal medicines are plant derived materials and preparations with therapeutic or other human health benefits, which contain either raw or processed ingredients from one or more plants, inorganic materials or animal origin. Herbal medicine preparations are developed and created drugs by the modern pharmaceutical industry. Nowadays, they are manufactured and sold most widely on the pharmaceutical market for curing diseases and promoting public health in India [6]. Of the 2, 50,000 higher plant species on earth, more than 80,000 are medicinal. India is one of the world’s 12 biodiversity centres with the presence of over 45000 different plant species. India’s diversity is unmatched due to the presence of 16 different agro-climatic zones, 10 vegetation zones, 25 biotic provinces and 426 biomes (habitats of specific species). Of these, about 15000- 20000 plants have good medicinal value. However, only 7000-7500 species are used for their medicinal values by traditional communities. In India, drugs of herbal origin have been used in traditional systems of medicines such as Unani and Ayurveda since ancient times. The Ayurveda system of medicine uses about 700 species, Unani 700, Siddha 600, Amchi 600 and modern medicine around 30 species [7]. India is sitting on a gold mine of well-recorded and traditionally well-

practised knowledge of herbal medicine. This Country is perhaps the largest producer of medicinal herbs and is rightly called the botanical garden of the world. There are very few medicinal herbs of commercial importance which are not found in this country. India officially recognizes over 3000 plants for their medicinal value. It is generally estimated that over 6000 plants in India are in use in traditional, folk and herbal Medicine, representing about 75% of the medicinal needs of the Third World countries [8].

Scope of polyherbal formulations in modern society

Polyherbal formulations

Formulations restrain two or more than two herbs are called polyherbal formulation. Drug formulation in Ayurveda is based on two principles: Use as a single drug and use of more than one drug. The last is known as polyherbal formulation. The idea of polyherbalism is peculiar to Ayurveda even though it is tricky to explain in term of modern parameters. The Ayurvedic literature Sarangdhar Samhita tinted the idea of polyherbalism to attain greater therapeutic efficacy. Polyherbal formulation has been used all around the earth due to its medicinal and therapeutic application. It has also recognized as polyherbal therapy or herb-herb combination. The active phytochemical constituents of individual plants are inadequate to attain the desirable therapeutic effects. When polyherbal and herbo-mineral formulations combining the multiple herbs in a meticulous ratio, it will give an enhanced therapeutic effect and decrease the toxicity [9]. The active constituents used from individual plant are inadequate to provide attractive pharmacological action. There are evidences that crude plant extracts often have greater potency rather than isolated constituents. In traditional medicine whole plants or mixtures of plants are used rather than isolated compounds. In the Ayurvedic system of medicine mainly polyherbal compounds are used for treatment of various infections. Bharangyadi polyherbal is a mixture of Clerodendrumserratum, Hedychium spicatum and Inula racemosa. IndukanthaGhritha (IG) is a polyherbal preparation consisting of 17 plant components widely prescribed by ayurvedic physicians for various ailments. The Unani system of medicine is also gaining global acceptance due to the amazing clinical efficiency of the formulations. Although Unani medicines have long been used, there is negligible documented evidence regarding their

safety and effectiveness [10]. The lack of evaluation has, in turn, slowed down the development of regulations and legislations. Majoon Suranjan (MS) is a polyherbal formulation consist of Lawsonia inermis, Foeniculum vulgare, Capparis spinosa, Terminalia chebula, Ipomoea turpethum, Apium graveolens, Zingiber officinalis, Convulvulus scammony, Colchicum luteum, Cassia angustifolia, Piper nigrum, Coriandrum sativum, Rosa damascus, Origanum vulgare, Pyrethrum

indicum, Plumbago zelanicum, Verbascum thapus, Ricinus communis oil used in Unani system of medicine for the treatment of rheumatoid arthritis (RA). A successful attempt has made using Cissus rotundifolia leaf extracts, Cassia abbreviate bark extract, Zanthoxylum chalybeum bark extract and Zanthoxylum chalybeum leaf extract form the polyherbal formulation and further evaluated for in-vitro studies [11].

Table 1: Pharmacological activities of herbal formulations.

Commercial Name	Formulation with scientific names	Country	Pharmacological Activity	Scientific evaluation	Reference
Diabrid	Gymnemasylvestre, Momordica charantia, Eugenia Jambolana, Trigonella graecium	India	Anti-diabetic	Clinical trial Phase-1	12
Hepax-A	Plumbago zeylanica, Picrorrhizakurroa, Piper nigrum, Zingiber officinale, Sodii carbonas impura, Phyllanthus emblica, Terminalia chebula, Calcii oxidum Potassii carbonas impura.	India	Hepatoprotective	In-vivo	13
Majoon Suranjan	Lawsonia inermis, Foeniculum vulgare, Capparis spinosa, Terminalia chebula, Ipomoea turpethum, Apium graveolens, Zingiber officinalis, Convulvulus scammony, Colchicum luteum, Cassia angustifolia, Piper nigrum, Coriandrum sativum, Rosa damascus, Origanum vulgare, Pyrethrum indicum, Plumbago zelanicum, Verbascum thapus, Ricinus communis oil	India/Pakistan	Antiarthritic activity	In-vivo	14
Praneem	Azadirachta indica (Neem) along with purified Saponins from Sapindus mukerosi and Mentha citrata oil	India	Vaginal microbicides	Clinical trial Phase-2	15



Zyflamen d	Ocimum sanctum, Curcuma longa, Zingiber officinale, Camellia sinensis, Rosmarinus officinalis, Polygonum cuspidatum, Berberis vulgaris, Origanum vulgare, Scutellaria baicalensis and Coptis chinensis	The United State of America	Prostate cancer	In-vitro	16
VarunadiGhritha	Crataeva religiosa, Strobilanthes ciliatus, Asparagus racemosus, Plumbago zeylanica, Chenomorpha fragrans, Aegle marmelos, Aristolochia bracteolata, Solanum melongena, Aerialanata, Pongamia glabra, Holoptelia integrifolia, Premnacorymbosa, Terminalia chebula, Moringa olifera, Desmostachya bipinnata, Semicarpus anacardium,	India	Head and neck cancer	Clinical trial Phase-1	17-19
Ovoutoline	Glycyrrhiza glabra, Saraca indica, Symplocos racemosa, Tinospora cordifolia, Asparagus racemosus, Valeriana walchii and Holarrhena antidysenterica	India	post-menopausal symptoms	In-vitro	20
Daouri	Khaya senegalensis, Odinaacida, Lophira lanceolata, Paullinia pinnata L. and Pteleopsis suberosa	Togo/Ghana	Anti-diarrhoeal, anti-malarial	In-vivo	21
Yoyo Bitters	Unknown	Nigeria	Anti-Oxidant	In-vivo	22
KOB03	Atractylodes Rhizoma Alba, Astragalus Radix, Saposhnikovia Radix, Osterici Radix, Scutellaria Radix	South Korea	Anti-allergic	In-vivo	23
DHU001	Ficus carica Linn, Liriodendron spicatum Lour., Platycodon grandiflorum Jacq., Schisandra chinensis Baill., Glycyrrhiza	South Korea	contact dermatitis	In-vivo	24

	uralensis Fisch., Zingiber officinale Roscoe., Mentha arvensis Linne var piperascens				
Okudiabet	Stachytarphetaangustifolia, Alstoniacongensis bark and Xylopi aethiopica fruits extract	Nigeria	Anti-diabetic	In-vivo	21
Joshanda	Zizyphus jujuba ,Onosmabracteatum and Glycyrrhiza glabra	Pakistan	Anti-bacterial, common cold	In-vitro	18

Advantages of polyherbal formulation over single herb

Herbal medicines have long history of use and better patients' tolerance as well as acceptance. Medicinal plants have a renewable source, which is our only hope for sustainable supplies of cheaper medicines for the world growing population. Availability of medicinal plant is not a problem especially developing countries like india having rich agro-climatic, cultural and ethnic biodiversity. The cultivation and processing of medicinal herbs and herbal products is environmentally friendly. Prolong and apparently uneventful use of herbal medicines may offer testimony of there safety and efficacy. Throughout the world, herbal medicines has provided many of the most potent medicines to the vast arsenal of drugs available to modernmedical science, both in crude form and as pure chemical upon which modern medicine are structured. They do not provoke allergic reaction and do not have negative side effect. They are easily incorporated with skin and hair. 9 With small quantity they are very effective as compared synthetic cosmetic. Extract of plant decreases the bulk property of cosmetics and gives appropriate pharmacological effects. Easily available and found in large variety and quantity. Easy to manufactures and chief in cost [19].

The Opportunities in Herbal Medicines:

- 1 Medicinal plants cultivation.
- 2 Medicinal plants Exports.
- 3 In Drug Manufacturing Companies.
- 4 Teaching profession - Herbal medicine is being taught more in medical schools and pharmacy schools.
- 5 In the field of Plant monographs
- 6 Drug inspectors in ISM.
- 7 Medical taxonomist
- 8 Pharmacognosist.
- 9 Herbalist & Chiropractors

10 AYUSH practitioners , Doctors

11 SRF & JRF in Clinical trials.

12 Clinical and Research opportunities- Without doubt, the therapeutic potential of many herbs is yet to be fully discovered.

Example, Recent discovery of „artemisinins“, new class of antimalarial drugs, in Chinese herbs supports this assertion.

13 Carrier options in the various newer fields. E.g. Molecular biology, Nano technology etc [20].

Limitations of polyherbal formulation

When combinations of plants with these constituents are combined together it may show better activity when compared to the individual extract. But at the same time presence of many constituents may lead to chemical incompatibility which may result in instability. In India, whereas most of the Ayurvedic PHFs are manufactured and exported, the regulation of Ayurvedic herbal preparation manufacturing is somewhat less stringent, despite the establishment of Drugs and Cosmetic Act to control the manufacture and quality control. According to the good clinical practices, toxicity studies and clinical trials on herbal formulations are not mandatory for application of patents and grant of manufacturing licenses to the Ayurvedic herbal formulation manufacturer [21].

Preference of herbal drugs in modern societies

Recent years have witnessed a renewed interest in plants as pharmaceuticals in the western world. In the global context, herbal medicines flourish as the method of therapy of choice in many parts of the world. In recent years, the increasing demand for herbal medicines is being fueled by a growing consumer interest in natural products. Now it is finding new popularity as an alternative conventional medicine even in the industrialized

countries and the adoption of crude extracts of plants for self-medication by the general public is in the increase [24].

II. CONCLUSION:

In the rising countries increased cost of medicine as well as their side effects has become a great task when the public health is concerned. The scientific advancement carries with it the improvement in polyherbal formulations, through the study of various phytoconstituents and discovery of useful herbs combinations which work synergistically to produce desirable effect. Although polyherbal formulation is commonly used in many parts of the world, but scientifically it has not been explored. PHFs provide treatment of diseases in a holistic approach.

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