



## ALLEVIATIVE EFFECT OF HERBAL COMBINATION-A GLANCE

Vijayakumar R

Professor, Department of Physiology, Sri Lakshmi Narayana Institute of Medical Sciences, Affiliated to BIHAR, India.

Latha S\*

Associate professor, Department of physiology, Sri Lakshmi Narayana Institute of Medical Sciences, Affiliated to BIHAR, India. \*Corresponding Author

## ABSTRACT

In the scenario of growing population, many new diseases are affecting the people in many ways. On the other hand development of new synthetic drugs is increasing day by day. These drugs are highly expensive and also produce some side effects when it is used for long time. Hence considerable number of people shifts to ancient herbal medicines. Now-a-days two or more herbs are used simultaneously than the individual herb. Preparation of the herbal medicine by using different herbs in various ratios to get complete healing effect of individual ingredients is known as polyherbal formulation. In earlier studies, it was recognized that in the polyherbal formulation, the action of one herb increase the effect of the other herb due to synergism. Because of synergetic effect many formulations are used to prevent as well as cure many diseases. The present review shows the literature evidences of different polyherbal formulations on different pathological conditions. These evidences will be constructive for the future study in the relevant field.

**KEYWORDS :** Synthetic Drugs; Herbal medicine ; Synergism.

## INTRODUCTION:

Traditionally majority of the herbal medicines are given in the form of formulations. Recently the traditional Herbal formulation has becoming widely used and getting higher global attention. This situation is apparent as major increase in the herbal formulation usage has been noticed throughout the world. In the polyherbal formulations one herb acts as principle herb and the others used as supporting herbs. The supporting herbs help to strengthen the principal herb<sup>1</sup>. This produces significant desirable effect of active constituents present in the herbs. The fact of beneficial herb-herb interaction is known as synergism. On the basis of their nature of interaction the mechanism of synergism is classified into pharmacokinetic and pharmacodynamic.<sup>2</sup> In the pharmacokinetic synergism, the ability of herb to facilitate the absorption, distribution, metabolism and elimination of the other herbs is explained and the pharmacodynamic synergism shows the favorable effect when active chemicals with similar medicinal activity are targeted to a similar physiological system.

Due to synergism, polyherbal formulations (PHF) possess some benefits which are not available in single herbal formulation. Recently PHF's getting attention among the population in consequence of the fact that their improved potency, low cost and convenient to use. This accounts for increasing demand worldwide especially in rural areas and some developing nations. Beyond this it is obvious that polyherbal formulations reducing the risk of side-effects if any by offering better pharmacological actions with a lower dose. Apart from this the major advantage of the PHFs is which indirectly improves patience compliance by providing convenience for patients by eliminating the need of taking more than one different single herbal formulation at a time to get desirable effect. Because of these benefits the PHF gained popularity in the market when compared to single herbal formulation. Since PHFs are a product of the nature, better therapeutic efficacy, safety, economical and better acceptance by the people, made that an ideal treatment of choice.

## Therapeutic Benefits Of Herbal Combinations

During ancient days these Polyherbal formulations with their active components are widely used to treat broad range of human disease. Such herbal combinations with various healing properties principally work together in a specific way

to get greatest therapeutic effects with minimum or no side effects. When the herbs are administered in combinations, they produce rejuvenation, potentiation, restraint and detoxification<sup>1</sup>. Herbal combinations shows greater effect when compared to single herb at the equivalent or at low dose such interactions were referred to as synergism. Williamson *et al.*, (2001),<sup>3</sup> was highlighted that the herbal interactions in the animal model as well as in the clinical trials. Furthermore, the concept of synergism and fundamental mode of action between the herbs was given by Wagner and Ulrich-Merzenich<sup>4</sup>. According to them the following four mechanisms are possible: First, synergetic catalytic effect on several substances such as DNA/RNA, ribosomes, receptors, enzymes, ion channels, etc; Second, synergism in pharmacokinetic effect such as absorption, metabolism, bioavailability excretion etc; Third, synergism in elimination of pathogenic microorganisms with resistance mechanisms; and finally, synergism in the removal or neutralization of unwanted effects caused by certain substances present in the mixture. Many research studies have done to explain synergetic effects of herbs in several diseases. Some of the evidences are

1. The anti-anxiolytic effects of the polyherbal formulation contain hydroalcoholic extract of *C. asiatica*, *O. sanctum* and *W. somnifera* was greater than its individual herbs treatment<sup>5</sup>.
2. The isobolographic analysis of synergetic interaction between total glycosides of *Paeonia* root and total flavonoids of *Glycyrrhiza* root on neuropathic pain in rats<sup>6</sup>.
3. The combination of the active ingredients of *Rhodiola rosea* (i.e., Rhodioloside, Rosavin, Rosarin, and Rosin) exert more potent antidepressant activity than its each individual component when evaluated in a forced swimming rat model<sup>7</sup>.
4. A combination of the rhizomes of *Corydalis yanhuosuo* and *Curcuma phaeocaulis* at a ratio of 3:2 exhibited the strongest anti-proliferative effect on the MDA-MB-231 human breast cancer cell line<sup>8</sup>.
5. A combination of the roots of *Astragalus membranaceus* and *Rehmannia glutinosa* (in 2:1 ratio) significantly reduced the wound area of rats in a foot ulcer animal model, whereas no wound-healing effect was observed when individual herb was applied to the wound<sup>9</sup>.

## Herbal Combination In Diabetes Treatment

Several polyherbal formulations are prepared by the

researchers and tested in the animals to show their effectiveness in diabetes mellitus. In India, many polyherbal antidiabetic formulations are marketed and which is used by most diabetic patients. Recently many anti diabetic polyherbal formulations are marketed in India. Beyond that many polyherbal formulations are under research. For instance, H.G. Raghavendra *et al.*, (2011)<sup>10</sup> reported that the polyherbal formulation of *tribulus terrestris* and *annona squamosa* extracts more significantly decreased the blood sugar and serum lipid level when compared to their individual herbs treatment in alloxan induced diabetic rats. Ashish *et al.*, (2011)<sup>11</sup> demonstrated that the effect of antidiabetic polyherbal formulation containing *Tribulus terrestris*, *Piper nigrum*, and *Ricinus communis* on alloxan induced diabetic animals. The four-week oral administration of this formulation significantly reduced the blood glucose level which was comparable to that of a standard drug Glibenclamide. Satyanarayana *et al.*, (2010)<sup>12</sup> studied the hypoglycemic effect PHF containing *Trigonella foenum graecum*, fruits of *Momordica charantia* and fruits of *Emblia officinalis* in STZ induced diabetic rats. They have concluded that this polyherbal formulation possess synergistic activity in glucose lowering effect when compared to the individual extracts. The study conducted by Srivastava *et al.*, (2013),<sup>13</sup> have reported that the number of anti-diabetic PHFs in the market such as Dihar, Diabet, Diasol, Dianex, Diashis, Diabrid, Diakyur, Diasulin etc., which are confirmed to have similar effect as those of standard synthetic drug. A polyherbal formulation named GLY-13-C contains *Pterocarpus marsupium*, *Azadirachta indica*, *Swertia chirate*, *Curcuma longa*, *Gymnema sylvestre*, *Emblia officinalis*, *Eugenia jambolana*, *Salacia reficulata*, *Trigonella foenum graecum*, *Vinca rosea*, *Aegle marmelos* and two minerals showed better glycemic control than the standard antidiabetic drug<sup>14</sup>.

Patel *et al.*, (2009)<sup>15</sup> studied Dihar, a polyherbal formulation containing eight different herbs *Syzygium cumini*, *Momordica charantia*, *Emblia officinalis*, *Gymnema sylvestre*, *Enicostemma*, *Azadirachta indica*, *Tinospora cordifolia* and *Curcuma longa*. Treatment with Dihar (100mg/kg bw) for 6 weeks decreased serum glucose and lipid levels and increased insulin, antioxidant enzyme levels in STZ induced diabetic rats when compared to control. This PHF also caused significant decreases in serum creatinine urea level and lipid peroxidation in diabetic rats.

Diasol, a polyherbal antidiabetic formulation containing plant extracts of *Eugenia jambolana*, *Trigonella foenum graecum*, *Terminalia chebula*, *Quercus, infectoria*, *Cuminum cyminum*, *Taraxacum officinale*, *Emblia officinalis*, *Gymnema sylvestre*, *Phyllanthus nerui* and *Enicostemma littorale*. Studies revealed that 125, 250mg/kg bw i.p administration of Diasol caused 63.4 % reduction of blood glucose level [13].

Modak *et al.*, (2007)<sup>16</sup> showed that the hypoglycemic activity of the polyherbal formulation containing *Juglans regia*, *Berberis vulgaris*, *Erythraea centaureum* and *Millefolium*.

The other polyherbal formulations available in the market which has the antidiabetic activity are Diabrid, contains *Gymnema sylvestre*, *Momordica charantia*, *Eugenia jambolana* and *Trigonella Graeceium* [17]); APKJ-004, prepared from the seeds of *Eugenia jambolana* and barks of *Cinnamomum zeylenicum*<sup>18</sup>; Dianex, a polyherbal formulation contains *Aegle mermelose*, *Gymnema sylvestre*, *Eugenia jambolana*, *Momordica charantia*, *Azadirachta indica*, *Cassia auriculata*, *Withania somnifera* and *Curcuma longa*<sup>19</sup>.

#### CONCLUSION:

The above studies showed that synergism of polyherbal formulations confers benefits that will not available in single herbal formulation. It also has proved that better healing

effect can be achieved with a polyherbal formulation than a individual herbal formulation.

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