

## MERITS OF USING HERBS IN WHOLE STATE (AYURVEDA'S CONCEPT) OVER ISOLATED FRACTIONS

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Received on: 17/12/2010 Revised on: 28/01/2011 Accepted on: 10/02/2011

### ABSTRACT

Herbs are precursors of animals and human beings. The plants growing around his vicinity fulfill all the basic needs of human life like food, water and shelter. Similarly plants act like natural tools to treat the ailments. Ayurveda i.e. the total science of human living has identified this natural truth and perfected it.

At the outset, two schools of thought prevail regarding the use of herbs as drugs. The ancient school advocated and practiced by Ayurveda prefers using the herbs in the whole state, without disturbing naturally designed integrity of them. The second school insists on isolation of pharmacologically active chemicals present in the herbs preparing synthetic equivalents if possible and using them for therapeutic applications.

This paper discusses the logic, eco-friendly design and merits of whole drug application against the isolated fractions with apt examples.

**KEY WORDS:** Whole drug, Ayurveda, side benefits, drug's behavior, Sub animate, bio-laboratories, Eco-design

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### INTRODUCTION

Herbs, like foods are manufactured naturally in the Bio-laboratories, i.e., Plants. Herbs are Eco-designed drugs consist several phyto-chemical ingredients in each, possessing divergent pharmacological activities. It is apt, in the light of growing global awareness on medicinal plants to analyze and review their utilization for the benefit of ailing humanity.

At the outset, two schools of thought prevail regarding the use of herbs as drugs. The ancient school advocated and practiced by Ayurveda i.e. the science of human living prefers using the herbs in the whole state, without disturbing naturally designed integrity of them. The second school insists on isolation of pharmacologically active chemicals present in the herbs preparing synthetic equivalents if possible and using them for therapeutic applications. (Table 1)

#### Evolution of man

The mode of whole herbs application would be better appreciated by peeping back into the evolution of their fellow being i.e., Homo sapiens. Plant cell is evolved before the animal cell and the later depended on the prior for the maintenance of all vital functions like nutrition, respiration and metabolism. Animals unlike plants

cannot derive their essentials directly from the chemicals. Innumerable chemical interactions under controlled conditions through billions of years have percolated the human machine. Every component of the machine i.e. cell is designed to receive, process and use the plant products, for the sustenance of life and reproduction. Certain aspects of human physiology have been made clearer on identifying the phytochemicals. Ex. Asperagine - Asperagine (Amino acid) and Morphine - Endorphins etc. It is difficult to imagine the existence of human life without plants.

Foods for the maintenance of health and herbs for the modification of health are logically cradled in plants. Human body does not irk to receive herbs in disturbed states of health as it is accustomed to receive and process the foods from the same source.

It is the evolutionary fact, which suggests using the herb in whole state as a medicine. Plants and man are the fellow beings and their inter-relation, mode of co-existence form the basis of the prevailing Eco-system. In the light of ecological influence on the human life, the herbs can be considered as Eco-designed drugs.

Certain amounts of Carbon, Oxygen, Hydrogen and few other chemicals may act as fuel to run the human

machine. Carbohydrates if at all synthesized in the factories would have been solved the food problem, provided they were accepted by the human body. Cultivation of food is still in force for their virtues of acceptability safety and economy. The same logic can further be extended to the whole herbs too.

#### **Safety of the whole drug**

With the fore-going discussions, it is obvious that the herb used in whole is more acceptable and wholesome. They encounter no rejection hence untoward effects are not seen.

Various means of estimation lead to the conclusion, that the per capita in-take of Caffeine in United States average is about 200 mg daily in the form of xanthine beverages (Goodman, L.S.; Gilman, A.G.; 1980). 90% of this amount results from drinking coffee. On toward effects of Caffeine or Theophylline are rarely observed in this greater junk of population.

The use of Nuxvomica in Ayurvedic preparations stands as one more example of total herb application without encountering side effects of strychnine. Because recent pharmacological studies have indicated that many of the therapeutic applications of strychnine have little or no rationale. The medicinal use of strychnine has been largely abandoned.

The herb is composed of several active principles with divergent pharmacological activities. There is possibility that these principles act in a synchronized fashion and exert a cumulative beneficiary effect on the human system. Few known examples are mentioned in (Table 2)

#### **DISCUSSION**

Opium contains more than twenty distinct alkaloids; Cinchona bark is a combination of 20 alkaloids. 29 alkaloids have been found in *Holarrhena antidysenterica*.

The wide range of active ingredients in each herb can be grossly grouped into three.

Agonists: Molecules with prime pharmacological effect

Antagonists. Molecules, which exhibit contrary effect to the main acting molecule.

Balancing agents: Certain other ingredients help the main ingredients enhancing bio--availability; retaining their self-life etc. These can also be called as Bio promoters

One ingredient of Opium (Nalarphine) prevents or reverses effects of another ingredient i.e. Morphine. But in the absence of Morphine, Nalarphine produces effects clearly similar to that of Morphine.

Allin the active principle of *Allium sativum* is found non-bactericidal. Alliance, an enzyme present in Garlic converts Allin into Allicin, which is proved highly bactericidal.

Herbs used in totality exert an ultimate action always beneficial to the human system. All the ingredients in the each herb probably rise to a level of behavior rather than action in order to support the human beings. The various interactions among these phytochemicals can be tokenized as “**drug’s behavior**” when used in whole state. Herbs are considered as “**ANTAH CHETANA**” (Semi animate) and their behavior is an act of beings (semi). Herbs helping the human beings might be indicating the phenomenon of inter-dependence among the fellow beings of this Eco-system.

#### **WHOLE HERB - BETTER EFFECT**

The current researches on medicinal plants carried in India many a times proved that herb used as whole are in the form of whole extracts have been found possessing greater activity than the fractionated chemicals. Certain examples are cited in **Table 3**.

Herbs used in whole state have performed better than isolated fractions. One clinical study conducted with natural coconut water stands as an interesting example. An average quantity of 432.1 ml of natural coconut water introduced intravenously has effectively relieved dehydration in 16 patients. 15 patients of dehydration have to receive an average of 1910.7 ml of normal saline and glucose solution to get rid of the symptoms.

Fractions of *Mucuna pruriens* seeds free from LiV-dopa have exhibited anti-parkinsonian effect in mice. The study states that L-dopa alone is not responsible to control Parkinsonism in the seeds of *Mucuna pruriens*. More over the seeds used in whole state are devoid of side effects of L-dopa.

The method of herb extractions, isolation and type of solvents used etc, may be needed to review, while conducting researches on medicinal plants. Because there are, certain non-isolatable fractions of the herb are responsible for the whole drug to perform in a better way. The activity of non-fractional contents would be neglected if the drug were not used in whole. Hence, whole drug application seems to be wiser.

Opium is the herb worked out extensively among all. A detailed study of all herbs may reveal vital information about “**Whole Drug’s Behavior**”.

#### **CONCLUSION**

To sum up all the discussions based on the examples cited the following conclusions may be drawn.

Herbs used in totality remain in natural state as they retain original Eco-design. Alike food they are homogenous and readily accepted by the human body.

Isolated fractions and synthetic equivalents devoid of natural design and integrity turn heterogeneous to human body. They rejection is reflected in the form of untoward effects.

Active ingredient of an herb is essentially associated with agonist, antagonists and balancing agents in whole herb. All together, they exhibit a synchronized, beneficiary effect on human body. Herbs in whole state provide “side-benefits”, contrary to the side effects caused by isolated chemicals.

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**Table 1: Popular synthetic drugs derived from herbs**

DRUG	HERB
Acetyl Salicylic Acid	Salix alba
Pilocarpine	Jacaranda sp.
Digitalis	Digitalis purpurea
Vasicine	Adathoda vasica
Vinchestine & Vinblastine	Catharanthus roseus
Glycirhizine	Glycirhiza glabra
Emetine	Ipicacuna
Sinuosids	Cassia angustifolia
Reserpine	Rauwolfia serpentina
Morphine	Papaverum somniferum
Caffeine	Coffea arabica

**Table 2: Herbs & Active principles – with Divergent effects**

HERB	ACTIVE PRINCIPLES	PHARMACOLOGICAL EFFECT
Papaverum somniferum	Morphine	Narcotic & Analgesic
	Codeine	Lowers Intestinal motility
	Papaverine	Smooth muscle relaxant No-Narcotic effect
	Nalorphine	Antagonist of morphine
Rauwolfia	Reserpine	Reduces B.P. Blood pressure
	Rauwolfine	Increases B.P. Blood pressure
	Azmodine	Neutral on B.P. Blood pressure
Holarrhena antidysenterica	Conessine	Potent amoebicidal
	Conkurchine	Hypotensive
Nelumbo nucifera	Nuciferine	Blocks Dopamine receptor
	Atherospermine	Stimulates dopamine receptor

**Table 3: Herbs -total drug extractions contra isolated fraction variations in effect**

Biological Source	Material examined	Effect found
Alstonia scholaris (bark)	Total alkaloids & Ditamine, Echitamine etc, individually	No Anti Malarial effect
	Total drug	Used in Malaria
Apium graveolens (Fruits)	Nitrogenous portion of Essential oil	Tranquilizer
	Non Nitrogenous portion of essential oil	No CNS activity
Areca catechu (Fruits)	Arecoline (Alkaloid)	Not inhibited the growth of Staphylococcus aureus
	Total aqueous extract & Ethyl acetate extract	Inhibited the growth of same even in 1/10,000 dilution
Bacopa monnieri Total plant	A glycoside fraction	Spasmodic action
	Total alcoholic & aqueous extracts	Relaxed smooth muscles in rats
Boerhaavia diffusa (Root)	Punarnavine (alkaloid)	Less anti inflammatory effect
	Aqueous and Acetone extracts	Anti inflammatory effect
Butea monosperma (seeds)	Fractions of Alcoholic extract	No anti implantation activity
	Total Alcoholic extract	Anti fertility
Commiphora mukul (Exudate)	Total alcoholic extract	Reduced Blood Cholesterol
	Isolated fractions	No such action is found
Curcuma longa (Rhizome)	Decoction	Lowered Fasting blood sugar
	50% Ethanolic extract	No significant Hypoglycemic effect
Momordica charantia (Fruit)	Fresh juice	100% mortality against Ascaridia galli
	Petroleum ether extract	Less potent
Hedychium spicatum Var. acuminatum (Rhizome)	Essential oil	Anti bacterial effect Anti fungal activity
	50% Ethanolic extract	No such activities
Hibiscus rosa-sinensis (Flowers)	Isolated compounds of Benzene extract	No anti fertility activity
	Mother liquor	60% Anti-fertility effect
Cyperus rotundus (Roots)	Essential oil	Estrogenic activity
	Other fractions	No such activity