

Ayurveda and Drug Standardization

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Ayurveda was preached by seers like *Atreya, Charaka, Sushruta, Madhva and Kashyapa*. These people established fundamental aspects of the science and they are still valid today. Later on scholars like *Vaga-bhatta, Chakra-pani, Arun-dutta, and Dalhan* did wonderful job in preserving the ancient wisdom. Ayurveda as a science has witnessed many changes and today it is a globally accepted system of medicine. Ayurvedic sciences are expected to play significant role in future healthcare system.

Standardization is a burning topic in Ayurvedic drug industry today. Tremendous work is going on herbal drug standardization, but it is not an easy task as preparations described under diverse systems of medicines like Ayurveda have their own concept. Before screening a drug, following parameters are followed:

1. Substance (Dravya).
2. Taste (Rasa).
3. Property (Guna).
4. Potency (Virya).
5. Post-digestion effect (Vipaka).
6. Therapeutics (Prabhva).
7. Pharmacological activity (Karma).

Dravya is described as substance used for formulation purpose. According to Ayurvedic theory, each and every component of the universe is dravya and has medicinal utility. Drugs derived from herbs, minerals and animal source, all are dravya. Charaka Samhita, the Ayurvedic classic has described dravya to be the nucleus of Ayurvedic pharmacy. To sum up.

- Dravya is an organized thing. Property of a substance can be changed but not the substance. Ayurveda uses drug as a whole for therapeutic activity therefore it remains organized.
- Parameters like taste, property are present in the dravya only. According to Ayurveda, a drug works on seven parameters and these have been provided to the dravya naturally. It again proves the significance of dravya.
- In preparing Ayurvedic poly-herbal drug, dravya is main ingredient. Decoctions, infusions, and powders are prepared from drugs of natural source.

Taste has got significant place in Ayurveda. A diagnosis of a disease is based on three biological humours vatta, pitta and kapha and treatment is based on six tastes. Our tongue experiences these tastes when drug is administered orally. The taste parameter reveals dynamic of Ayurvedic preparations. Six tastes are known sweet, sour, salt, pungent, bitter and astringent.

Three tastes increases each of the biological humours and three decreases them. This is basic principle of Ayurveda but exceptions are always there.

1. Vatta is increased by bitter, astringent and pungent. It is decreased by sour, sweet and salt.
2. Pitta is increased by sour, pungent and sour. It is decreased by bitter, astringent and sweet.
3. Kapha is increased by sweet, salt and sour. It is decreased by pungent, bitter and astringent.

The concept of taste apparently seems to be theoretical but proper studies have proven that combination of rational tastes has therapeutic activity. As an instance combination of bitter and pungent drugs leads to cleansing action. Similarly, combination of sour and salt has tonic effect on digestive system.

Property (guna) parameter is vast topic. Ayurveda has described forty-one properties, which are comparable to physical and pharmacological activity of the drugs. Each property described has specific role to play in Ayurvedic drug formulation.

Virya (potency) is described as active constituent of the drug. This constituent is responsible for pharmacological activity of the medicinal herb. The drugs have cold and hot potency. During ancient days, Ayurvedic drugs were most probably formulated on basis of virya of the drug. Scholars of Vedic era were not advanced as modern age scientists but they were aware of virya, which is responsible for mechanisms of action of Ayurvedic formulations. Charaka-Samhita describes in detail about the laxative action of Terminalia chebula (harade) and today drug finds wide application in Ayurvedic prescriptions for constipation.

The concept of Poly-herbal formulations is not strict principle of Ayurveda. Single drugs have been indicated in Ayurvedic Materia Medica. Ayurvedic pharmacy is a multipurpose

subject. Patala-yantra described in Rasa-Shastra (alchemy) was used to isolate aromatic oils from herbs. Some, but not all of the Ayurvedic drugs are time-tested because traditionally they have been used for centuries. Triphala, Trikatu and Hinga-vashtaka-churana are classical examples.

Vipaka and prabhava parameters are comparable with metabolism and therapeutic activity of the drug. In synthetic system of medicine, extensive pharmaco-kinetic and pharmaco-dynamic studies are done. This is major drawback of Ayurvedic system as no efforts have been done for carrying out pharmaco-kinetic and pharmaco-dynamic studies of formulations used in Ayurveda. Various authors have reported about kinetic and dynamic data for Ayurvedic drugs which is a welcome step.

Karma parameter describes pharmacological activity of a drug in detail. Ayurveda has classified drugs according to pharmacological activity.

These herbs have been standardized chemically. Proper Ayurvedic drug standardization requires rational approach and in this regard fundamental aspects of Ayurvedic drug should be preserved. Main obstacle in Ayurvedic drug standardization is biological source of the drug. The active constituent may vary according to geographical source of the drug and it may not be easy to standardize drug chemically. Ayurveda gives importance to immunity instead of microbes, thus drugs have pharmaco-therapeutic effect instead of having pharmaco-dynamic effect.

Standardization of Ayurvedic drugs is necessary seeing the growing popularity of medicine in western countries. The standardized medicinal herbs are listed below:

- *Adhatoda vasica* (Vasicine 0.5%).
- *Allium sativum* (Allicin 0.6%).
- *Andrographis paniculata* (Andrographolide 10%).
- *Asparagus racemosus* (Saponin 30%).
- *Azadirachita indica* (Azadiractin 2%).
- *Bacopa monneri* (Bacoside 20%).
- *Boswellia seratta* (Boswellic Acid 40% & 70%).
- *Capsicum frutescens* (Capsaicinoids 0.62%).
- *Centella asiatica* (Asiaticoside 3%).
- *Commiphora mukal* (Guggul-sterones 5%).
- *Curcuma longa* (Curcumin 95%).
- *Embelia ribes* (Embelin 8%).
- *Glycyrrhiza glabra* (Glycyrrhizin 20%).
- *Gymnema sylvestre* (Gymnemic Acid 75%).

- *Momordica charantia* (Bitters 3%).
- *Ocimum sanctum* (Ursolic Acid 8%).
- *Phyllanthus niruri* (Bitters 2%).
- *Picrorrhiza kurroa* (Kutkosides 10%).
- *Pueraria tuberosa* (Disogenin 7%).
- *Saraca indica* (Tannins 8%).
- *Terminalia arjuna* (Tannins 8%).
- *Terminalia belerica* (Tannins 40%).
- *Terminalia chebula* (Tannins 60%).
- *Tribulus terrestris* Saponin (20% & 40%).
- *Trigonella foenum graecum* (Saponin 10%).
- *Valeriana officinalis* (Valerenic acid. 0.8%).
- *Withania somnifera* (Withanolides 1.5%).
- *Zingiber officinale* (Gingerols 5%).

Note: I strongly recommend the potential readers to accept the article with open mind and send me critics via the email.