Ayur Informatics And Fundamentals Of Dravyaguna

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Abstract

Ayurveda comes from the basic concept ie., Panchamahabhautic theory in which the concept of prakriti is used to describe the predisposition and prognosis of disease. This allows the human body to govern the choice of therapy and balance as well as imbalance of the three doshas (vata, pitta and kapha) during the disease development. Ayurveda believes on these theories to plan interventions that corrects the imbalance occurs in body. The medicinal actions are described according to their various properties like rasa, guna, veerya, vipaka, and prabhava which is based upon the elemental composition of Ayurveda. In this modern lifestyle, it is the need to use modern technology to explore the Ayurveda so that they can be interpreted in the scientific language to offer modern healthcare.

Introduction

Ayur informatics and synthesis of Ayurveda with inputs from modern system of medicine is the most important issue in today's current scenario. This science deals with the application of bioinformatics to the Ayurvedic medicines that provides a platform to the Indian System of Medicine. Due to the side effects of allopathic drugs, there is an increase in demand for the phyto-pharmaceutical products of Ayurveda in Western countries. Ayurvedic polyherbal formulations acts on the pharmacological properties of the main ingredient present in them and the rest of drugs are used for the improvement of therapeutic properties or decrease in the untoward effects that are not needed in the condition. This includes the basic concepts and principles of Ayurveda, Pharamceutical research in the pharmacognostical, and pharmacological evaluation of the herbs, minerals, animals and metals, ethnobotanical and clinical research. The biomarker based qualification and fingerprinting of the Ayurvedic formulations using latest techniques like HPLC and HPTLC is a best tool along with various physicochemical and phytochemical parameters in the establishment of the shelf life and identity.

Aims and Objectives

1.   To review the data inherent in fundamentals of Ayurveda
2.   To review the applied aspect of essence of data present in Classics of Ayurveda

Material and methods

1. Review the data inherent in fundamentals of Ayurveda

5 Basic Proto-elements-

On the basis of their predominance, they are classified as- Akashiya, Vayaviya, Agniya, Jaliya and Parthiva.

Akashiya- It symbolizes the empty space or pores

Vayaviya- Responsible for body movements

Agniya- Responsible for the biotransformation in the body

Jaliya- Blood, lymph and other fluids carries the waste products and regulates the body temperature.

Parthiva- Characterizes the stability, rigidity, roughness and permanence.

Tridoshas or Energies-

Tridosha or Energy	Energy counterpart	Elementary Composition
Vata	Kinetic energy	Air + Ether
Pitta	Thermal energy	Fire + Water
Kapha	Potential energy	Earth + Water

Seven constituents of Dravya- imples the mode of action of any herb or drug

According to *Bhavamishra* there are 5 constituents of *Dravya* viz., *Rasa* (Taste), *Guna* (Property), *Veerya* (Potency), *Vipaka* (Metabolite) and *Prabhava* (Non-specific activity).

By Adding *Karma* (Action) and *Dravya* to the above 5 *Acharya Yadavji Trikamji* has mentioned about *Sapta Padarthas* i.e., Seven constituents of Dravya.

Classification of darvyas on the basis of their source of origin-

Jangama (Animal Source) - for eg. Pearl (*Mukta*), *Kasturi* (Musk), etc

Oudbhida (Herbal source) - for eg. *Visha* (Aconite), *Yashtimadhu* (Liquorice)

Bhouma or *parthiva*- for eg. *Parada* (Mercury), *Abharaka* (Mica)

Jangamam- Living creatures that can crawl or walk aare called as Jangama.

Jarayuja- Animals having placental birth. For eg. Cow, Lion, Goat etc.

Andaja- That give birth through eggs. For eg. Fish, Lizards, etc.

Swedaja- That give birth in sweda (dirty water). For eg. Mosquitoes, Flies

Udbhijja- Animals and small creatures that are born in clay or mud. For eg. Frog

Oudhidam- That grows by sprouting through the soil

Vanaspati- Plants that do not possess visible flowers. For eg. *Vata*, *Udumbara*, etc.

Vanaspatya- Plants that possess both fruits and flowers visibility. For eg. *Amra*, *Jambu*, etc.

Viruddha- Plants that can crawl, twin, or climb are called as Vridduha. For eg. *Shalparni*, *Vidari*, etc.

Aushadhi- Plants which die after yielding the fruits or after harvesting. For eg. Wheat, Paddy, etc.

Parthiva- Substances that are present or available beneath the earth. For eg. Salts, metals, etc.

Nomenclature-

In vedas, the number of drugs has been mentioned are- In Rigveda- there are 67 drugs, In Yajurveda there are 82 drugs and in Athrvaveda there are 289 drugs.

In Ancient Vedic period, the drugs has been categorized as-

1. *Udabhava sthana- Varshabhu*

2. *Avyava-*

Patra- Chitraparni, Prishniparni

Pushpa- Shankhapushpi

Phala- Phalvati

Kanda- Kandavisha

Roopa- Peetdaru

Rasa- Madhuka

Gandha- Ashwagandha

3. *Swaroopa- Punarnava, Vishanika*

Karma- Rohini

Rogamoolakakarma- Vishdooshni

Vishishta prabhava- Keshvardini

Prashasti- Peetdru

Akhayana- Ashvatha

Pashu-Pakshi- Ashvamaar

In *Raja Nighantu*, seven factors are described on the basis of nomenclature of drugs mentioned in Ayurveda classical texts. These are named as-

Rudhi (specific term)- In this, the names have no specific meaning but can be used in certain areas. For. Eg., Katam kateri (Daruharidra)

Prabhava (natural power)- Herbs are given on the basis of therapeutic action. For eg. *Nidari* (Kirata tikta)

Deshokti (Place of origin)- Plants are given on the basis of place of their availability. For eg., *Malayaja* (Sami)

Lanchana (special character)- Herbs are given as per their special characters. For eg. *Chitra tandul* (Vidanga)

Upama (simile)- Herbs are mentioned as per the similarity of useful part. For eg., *Panchangula* (Eranda)

Virya (Potency)- Herbs that indicate the potency of herbs. For eg., Seeta (Bala), *Ushna* (Maricha)

Itarahwaya (Miscellaneous)- Various herbs are given on the basis of nomenclature of herbs. For eg., *Anala* name (Chitraka)

Division of *Desha* (Ecology)-

Desha means a part of the country or any geographical area.

There are three types of *desha-*

Jangala desha (Dry area)- Vata dosha prominent. For eg., Amalaki

Anupa desha (Wet area)- *kapha dosha* prominent. For eg., *Kadali*

Sadharana desha (Balanced area of climate)- *Pitta dosha* prominent.

***Guna* (Quality)-**

Total *gunas-* 41

Indriyarthas (qualities of 5 senses)- 5

Gurvadi guna (*Guru, laghu*, etc.)- 20

Paradi guna (Paratwa, Aparatwa)- 10

There are three groups of gunas as per Chakrapani-

1. *Vaisheshika gunas* (specific qualities of sense)- *Shabada* (Sound), *Saprsha* (Touch), etc.

2. *Samaya gunas* (general qualities useful in treating diseases)

These are again sub-divided into two classes-

a) *Gurvadi gunas* (Qualities of human body)

b) *Paradi gunas* (Qualities related to treating diseases)

c) *Atma gunas* (Qualities of soul)

Gurvadi gunas- *Guru* (Heaviness), *Laghu* (Lightness), *Sheeta* (Cold), *Ushna* (Hotness), *Snigdha* (Uncutous), *Rooksha* (Dry), *Manda* (Dull / Mild), *Teekshna* (Sharp), *Sthira* (Immobile), *Sara* (Mobility), *Mridu* (Soft), *Kathina* (Hard), *Vishada* (Clear), *Picchila* (Sticky), *Shalakshana* (Smooth), *Khara* (Rough), *Sookshma* (Fineness), *Sthula* (Bulky), *Sandra* (Solid), *Drava* (Fluidity)

Paradi gunas- *Partwa* (Superior), *Aparatwa* (Inferior), *Yukti* (logic), *Samkhya* (Number), *Samyoga* (Combination), *Vibhaga* (Disentigration), Prithkatwa (Separate), *Parimana* (Measurement), *Samskara* (Changing the originality), *Abhyasa* (Continuous usage)

Rasa (Taste)-

Generally, the rasas are six in number (Shadrasa). The views of various rishis are mentioned below-

No. of Rasas	Detail	Concept propose by
One	*Apya* (Water)	*Bhadrakapya*
Two	*Chedaniya* or *Langhaniya* (Weight reducing) *Upasamaniya* Or *Brhimaniya* (Weight increasing)	*Shakunteya Brahmana*
Three	Two (above) + Sadharna (Ordinary)	*Purnaksha Moudgalya*
Four	*Swaduhita* (Liked and good) *Swadahita* (Liked but not good for health) *Aswaduhita* (Dislike but good for health) *Aswadahita* (Disliked and bad)	*Hiranyaksha Koushika*
Five	*Akashiya*, *Vayavya*, *Agneya*, *Udaka*, *Bhouma*	*Kumarasira Bharadhwaja*
Six	*Guru* (heavy), *Laghu* (lighter), *Seeta* (Cold), *Ushna* (Hot), *Snigdha* (Unctuous), *Ruksha* (Non-unctuous)	*Varyovida Raja*
Seven	*Madhura* (sweet), *Amla* (Sour), *Lavana* (Salt), *Katu* (Pungent), *Tikta* (bitter), *Kashaya* (Astringent), *Kashara* (Alkaline)	*Nimi*
Eight	Above 7 + *Avyakta* (Tastelessness)	*Vadisha Dhamargava*
Inumerable	Indefinite rasas	*Kanakayana*

Vipaka-

1. *Shadvidha vipaka vada* (Concept of six vipakas)

a) *Niyata vipaka vada*- Definite vipaka concept

b) *Aniyata vipaka vada*- Indefinte *vipaka* concept

2. *Pancha vidha vipaka vada*- Concept of five *vipakas*. Eg. *Akasha Bhutagni paka, Vayu bhutagni paka*, etc.

3. Trividha vipaka vada- Concept of three vipakas. Eg. Madhura vipakaa- Madhura and *Lavana Rasa, Amla vipaka- Amla rasa* and *Katu Vipaka- katu, Tikta* and *Kashaya Rasa*

4. *Dvividha vipaka vada*- Concpet of two *vipakas*. *Acharya Sushruta* Has mentioned two types of *vipaka- Madhura vipaka* and *Katu vipaka*. On the basis of their predominant *gunas* these two are respectively known as *Guru* and *Laghu Vipaka*.

Vipaka according to the six tastes-

Madhura rasa- Madhura Vipaka

Amla rasa- Amla Vipaka

Lavana rasa- Lavana Vipaka

Katu rasa- Katu Vipaka

Tikta rasa- Tikta Vipaka

Kashaya rasa- Kashaya Vipaka

But Herbs having *Madhura* and *Lavana* rasa are of *Madhura Vipaka*, *Amla rasa* is of *Amla vipaka* and *Katu, Tikta* and *Kashaya rasa* are of *Katu Vipaka*.

Virya-

Number of *Viryas-*

According to *Yadav ji Trikam ji Acharayas-*

1. *Shakti virya vada (Bahuvidha virya vada)-* Action of drugs are believed to be the outcome of a dravya

2. *Paribhashika Virya vada (Guru virya vada)*

a) *Ashtavidhavirya vada- Guru, Laghu, Sheeta, Ushna, Snigdha, Rooksha, Mridu, Teekshna* (According to Acharya *Charaka*)

b) *Dwividhavirya vada- Agni* (Heat), *Soma* (Cold)

Karma-

Action of the drug can be result of either of the following mentioned below-

1. *Dravya Prabhava* (natural action/ property of the drug)

2. *Guna Prabhava* (Property of the drug's ingredients)

3. *Dravya guna Prabhava* (Combination of both of these factors)

2. Review the applied aspect of essence of data present in Classics of Ayurveda

Five basic proto-elements or *Panchamahabhuta*-

These 5 proto-elements form the structure of living organisms snd are called as the building blocks of life.

Tridoshas or energies-

The composition of these three *doshas* or basic energies act in synergy to maintain the body's health. These are responsible for maintaining the health at physical level.

Seven constituents of Dravya-

5 constituents of *Dravya* viz., *Rasa* (Taste), *Guna* (Property), *Veerya* (Potency), *Vipaka* (Metabolite) and *Prabhava* (Non-specific activity) are helpful in drug standardization so that any drug can be properly tested before it is used as medicine in certain disease by Ayurvedic practitioners. Minerals like *mukta, kasturi, parade, abharaka* etc are used in preparing herbo-mineral formulations as to increase the potency of drug to act on a specific disease.

With the help of nomenclature, we can identify the synonyms of various herbs as per their morphological characters. Some drugs are ethano-botanical and with this we can identify the drugs and their folkfare uses.

Desha (Ecology)-

People belong to a particular desha should use the herbs given as per the example in those specific desha. For example Amalaki used in Jangala desha and Kadali used in Anupa desha. These drugs can be given according to their specific dosha pacifying property.

Guna **(Quality)-**

As per the nature of disease from which the patient is suffering, an Ayurvedic practitioner can prescribe the drug according to its quality. Drug can be given logically, in combination with other drugs and by sanskara guna we can also change the originality of any drug by adding new qualities to it.

Rasa **(Taste)-**

With the help of *rasa* (taste) we can treat the disease because rasa is also the main Ayurvedic property by which a drug can work in treating diseases by pacifying and alleviating *doshas*.

Vipaka-

Vipaka is the transformed state of ingested food after digestion. The stimulation or suppression of doshas are done by vipaka. Building up of various tissues in the body is possible only through digestion. That's why vipaka is also important.

Virya-

Potency by which any drug perform its action is responsible on *virya*. *Ushna virya* drugs work as digestive and show emaciation property while *sheeta veerya* drugs work as anabolic and used as a tonic.

Karma-

Herbs with their respective karma are helpful in pacifying the specific *doshas* and prevents from several diseases.

Results and Observations

As per the above data, the results and observations are as follows-

S. No	Particulars	Numbers
1.	Basic proto-elements	5
2	*Dosha or* Energies	3
3.	*Pancha Padarth*	5
4.	*Sapta Padarth*	7
5.	Nomenclature	7
6.	*Desha* (Ecology)	3
7.	*Guna*	41
8.	*Rasa*	6
9.	*Virya*	2
10.	*Vipaka*	3
11.	*Karma*	3

Discussion and Conclusion

As per the above information and classifying the data, it is concluded that these particulars are helpful in preventing the body from diseases. They are not only increasing the longevity but also encourage us to live a health life by maintaining the body's equilibrium. Diet has a great importance in today's modern world. Development of individual's mental and spiritual health is influenced by the quality of food he or she is consuming as per their body's energy i.e., Tridosha and *desha* (ecology) to which they belong. The food which they consume is transformed into rasa and is based upon the quality, potency and after digestion effect which provides nutrients to the body. Improper food leads to the lack of nutrients and results into several diseases.

References

SARAF S, KAUSHAL S, SOBIT RC. Ayur tech: A blend of the ancient and modern.

Sastry JL. Dravyaguna Vijñāna: Fundamental Principles of Pharmacotherapeutics in Ayurveda. Chaukhambha Orientalia; 2002.

Singh AP, Nighantu R. Chaukhambha Orientalia. New Delhi. 2006.

Dwarakanath C. Fundamental principles of Ayurveda. Bangalore Press Branch; 1952.

Kumar A, Dubey SD, Prakas S, Singh P. Principle of dravyaguna (Ayurvedic Pharmacology). Biomedical & Pharmacology Journal. 2011;4(1):147.

Gore M, Bagchi P, Desai NS, Kar A. Ayur-informatics: Establishing an in-silico-ayurvedic medication for Alzheimer's disease. Int J Bioinformatics Res. 2010;2:33-7.

Kanimozhi KV, Jeyavathana RB, Hameed CS. Prediction of disease and suggestion of specialist using big data techniques. InAIP Conference Proceedings 2022 May 19 (Vol. 2393, No. 1, p. 020027). AIP Publishing LLC.

Ranga V, Ranga S. THE GENERAL PRINCIPLE OF DRAVYAGUNA ACCORDING TO AYURVEDA.