

AYURVEDA

The term “Ayurveda” combines the Sanskrit words **ayu (life) and veda** (science or knowledge). Ayu is the combination of physical body containing each of **five sensory and executive organs, mind (satwa) and soul/spirit**. Veda is the collection of supreme knowledge achieved by ancient seers in the stage of deep contemplation. Veda is divided into 4 parts (**Rig, Yajur, Sam and Atharvaveda**). Each veda is again divided into 4 parts Samhita/mantras, Brahmamanas, Aranyaka and Upanishads. Ayurveda is considered as sub discipline of atharvaveda.

It is based on the belief that health and wellness is the balanced and dynamic integration between our environment, body, mind, and spirit. Good health is achieved when your mind, body, and spirit are in harmony with the universe.

Goals of Ayurveda

- ❖ To promote and maintain health of healthy people
- ❖ To cure and remove illness / disease of ill people
- ❖ To restore Balance between body, mind and sprit
- ❖ To Improve quality of life
- ❖ To prolong longevity
- ❖ To eliminating impurities
- ❖ To increasing resistance to disease
- ❖ To increasing harmony in the people’s life

Objectives of Ayurveda: There are two complementary aims of this discipline.

- ❖ **Swasthya Swasthya Rakshanam (Preventive and Social medicine):** Maintain the health of those who are well. This entails specific diet and nutrition, hygiene, living habits, exercises and stabilizing techniques. Following these guidelines enables a healthy person to maintain health and increase their life span
- ❖ **Aturasya Vikar Purashamanam (Therapeutics):** Cure diseases of those who are sick. This aspect relates to various diseases, their causes, diagnosis, remedies and therapies to cure and prevent relapses of illness.

Unique features of Ayurveda

- ✓ It provides comprehensive cure
- ✓ It is psychosomatic approach
- ✓ Every Ayurveda medicine is tonic
- ✓ Medicines are simple, affordable and easily available
- ✓ It cures the disease from root
- ✓ It helps in conservation of ancient medical tradition
- ✓ It helps in strengthening country’s economy

Evolution of Ayurveda

A. Mythological approach: The demons on the earth and gods on the heaven interested to obtain ambrosia (Amrit) for eternity from ocean of milk (Ksheer sagar). Since it was not possible for them working individually, both decided to work together and share the outcome. Accordingly both groups churned the ksheer sagar using Meru parvat (a large mountain) as the protector and Adishesu (a large and long snake) as a rope. The churning first resulted in powerful poison, which lord shiva swallowed for the sake of universe. Then later ambrosia was obtained. It is said that Dhanwantari emerged out of the ksheer sagar with a vessel of in one hand and groups of herbs in another. Still today, Dhanwantari is said father of Ayurveda.

Another saying is that Brahma, the creator of universe evolved the science of Ayurveda at the time of creation of universe and taught to Dashkya Prajapati. Prajapati imparted the knowledge to Ashwini kumar. Ashwini taught this to Indra (King of gods). Indra taught this to Bharadwaja (Rishi/Sage). He

taught to his student Atreya Punarvasu and along with him conducted a great medical conference on the lap of Himalayas for 3 years (Conference of Rishi and Muni). During this conference there was long and complex discussion and debates. This led the basis for practice Ayurvedic medicine on earth.

B. Historical Perspective

1. **Vedic era (5000 BC):** Historical descent of Ayurveda upto Indra is vedic era.

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2. **Samhita era (1000- 600 BC):** Three major texts of ayurveda (Brihat Trahi)

- ✓ **Charaka samhita:** Compiled by Charaka (Text on internal medicine)
- ✓ **Sushruta samhita:** Compiled by Sushruta (Text on medicine and surgery)
- ✓ **Astanga Hridayam:** Compiled by Vagbhata (Text on anatomy and physiology)

In this period Ayurveda was developed into eight branches.

Eight Branches (Ashthanga) of Ayurveda

- ❖ Internal medicine (Kayachikitsa)
- ❖ Surgery (Shalya Tantra)
- ❖ Ears, eyes, nose and throat (Shalaky Tantra)
- ❖ Pediatrics (Kaumarabhritya Tantra)
- ❖ Toxicology (Agada Tantra)
- ❖ Purification of the genetic organs (Bajikarana or Vajikarana Tantra)
- ❖ Health and Longevity (Rasayana Tantra)
- ❖ Spiritual Healing/Psychiatry (Bhuta Vidya)

3. Buddhist era (600 BC – 5th Century AD)

It was a golden period of Ayurveda. Every brach of Aurveda was nourshieddue to contribution of diferent schoars. Nagarguna (Father of Rasashastra) lived in this era.

4. Medieval era (8th – 18th Century AD)

Tremendous decline occur during Mugal and British rule. Although various scholars wrote new Ayurvedic books in this period (Lagu trahi –three minor texts)

- ✓ Madhavanidan by Madhavkar (Text on clinical patology and diagnosis)
- ✓ Sarangadhar samhita by Sarangadhar (Text on Pharmaceutics)
- ✓ Bhavaprakash nigantu by Bhava Mishra (material medica of medicinal plants)

5. Modern era

Several efforts erformed to uplift the Ayurveda. Most important book Bhaissajja ratnawali written by Gobinda Das about pharmaceutical preparations (18th Century AD)

Principle of Ayurveda

1. The Five Elements (Panchamahabhutas):

Ayurveda believes that everything in this universe is made up of five basic elements: **earth** (prithvi), **water** (jal), **fire** (Agni or tej), **air** (Vayu) and **ether or space** (akash) and collectively they are termed as Panchmahabhuta. Every thing, including drugs, herbs and living beings are made of these basic elements. Every matter contains all of these five elements. Depending on the predominance of the elements, the matter is classified as **Parthiva, Apya, Taijasa, Vayaviya and Akashiya**. The **permutation and combination** of these elements and its quantity in a given matter determines its properties. Each mahabhuta has its own characteristic feature, properties, effect and means of identification. They are combined in an infinite variety of relative proportions such that **each form of matter is unique**. The body is balanced with the perfect symmetry of these elements and when it is disturbed, an unhealthy condition is developed which is called as illness.

The basic role of **Earth** is form and shape of body. The role of **Water** is to maintain moisture, liquidity and lubrication. The role of **Fire** is to produce heat and energy. The **Air** is considered as 'Prana' a vital force, which controls respiration. The **Space** is considered as vacuoles and pores responsible for transportation of nutritional elements.

A single living cell is a unique combination of these five elements. The earth element gives structure to the cell. The water element is present in the cytoplasm or the liquid within the cell membrane. The metabolic processes being carried out in the cell symbolize the fire element. The gaseous exchange-taking place symbolizes the air element. The space occupied by the cell symbolizes the Space or ether element. The pores or channels through which nutrition reaches the cell and the waste metabolic products that are formed are excreted out denote the space element.

In the case of a complex, multi-cellular organism as a human being, spaces within the body (mouth, nostrils, abdomen etc.) denotes the ether or space element; the gases and the impulses or movements denote the air element; The functioning of enzymes (intelligence, digestive system, metabolism) denotes the fire element; All body fluids (as plasma, saliva, digestive juices) denotes the water element; Solid structure of the body (bones, teeth, flesh, hair etc.) denotes the earth element.

2. Tridosha/ Three humours of body: Ayurveda describes three fundamental energies (Tridosha), **Vata Pitta, and Kapha**. Tridosha are the basic governing factors of pathophysiology of body. The central concept of Ayurveda is that health exists when there is a balance or dynamic equilibrium between three fundamental bodily humours or doshas.

a. Vata dosha is created from **Air and Space**, which is characterized, by lightness and mobility. It relates respiration and simulation. *It is* the impulse principle necessary to mobilize the function of the nervous system. It is the most important of the three doshas.

Vata provides the following functions:

- ✓ All eliminations: fetus, semen, feces, urine, sweat, and a few others
- ✓ Assists with all the various metabolisms in the body (called Agni in Ayurveda)
- ✓ Controls all of the various movement of body (both physical & mental), including such things as respiration, heart beat, motivation and contraction of muscles
- ✓ Relays all sensory input from the various sense organs to the brain

The five sub-doshas of Vata includes:

- ✓ **Prana-** controller of the senses, is found in the head;
- ✓ **Udana-** controls voice and intellectual abilities, is found in the chest area;
- ✓ **Vyana-** controls all the controlled bodily actions, is found in the heart;
- ✓ **Apana-** controls discharges through the urinary tract, is found in the anal region, and
- ✓ **Samana-** controls digestive processes, is found in the stomach.

b. Pitta dosha is organized form **Fire and Water** that is characterized as hot, bright and acidic nature. Pitta is the energy principle, which uses bile to direct digestion, and hence metabolism into the venous system so it relates digestion, metabolism and energy production

Pitta provides the following functions:

- ✓ Metabolism - at all the various levels from digestion of food to transformation of all other material
- ✓ Thermogenesis - maintains the proper body temperature
- ✓ Vision - converts external images into optic nerve impulses
- ✓ Appetite - the feeling of hunger and thirst
- ✓ Comprehension - of information into knowledge, also reasoning and judgment

- ✓ Courage & Braveness - to face the situation
- ✓ Complexion - gives color and softness to skin

The five sub-doshas of Pitta includes:

- ✓ **Ranjak**- production of Rakta or blood and is found in the stomach;
- ✓ **Aalochak**- provision of sight, and is found in the eyes;
- ✓ **Sadhak**-although found in the heart, it governs the psychological capabilities;
- ✓ **Pachak**- located in the duodenum part of the small intestines, it mainly maintains digestive functioning, and
- ✓ **Bhrajak**- found in the skin, it controls skin pigmentation.

c. Kapha dosha is made up of **Earth and Water**. It is watery and heavy in character. It is the body fluid principle, which relates to mucous, lubrication and the carrier of nutrients into the arterial system so it is responsible for lubrication of joints and stability of the body. It is the heaviest of the three doshas.

Kapha provides the following functions:

- ✓ Strength - to perform physical tasks
- ✓ Moistness & Lubrication - to prevent excessive friction from occurring between the various parts of the body
- ✓ Stability - to add the necessary grounding aspect to both mind and body
- ✓ Mass & Structure - to provide fullness to bodily tissues
- ✓ Fertility & Virility - to produce healthy offspring

The five sub-doshas of Pitta includes:

- ✓ **Kledak**- for assimilation of food, and is found in the stomach;
- ✓ **Shleshak**- for lubrication of joints, and is found in all the joints of the body;
- ✓ **Tarpak**- governs intelligence, and is found in the head;
- ✓ **Avalambak**- lubricated the heart and throat, and is found in the chest;
- ✓ **Bodhak**- governs and is found in the sensory organ of taste.

3. Panchsheel/Rasapanchaka Siddhanta (Bhavamishra 16-17AD): Panchsheel means five principles or five pillars or five important **pharmacological principles of Drug** (Dravya)

a) Rasa (Therapeutically active agent). Rasas are the taste of the substances sensed by the taste buds. They are six in numbers and are the indicators of properties, composition and probatic action of action. **Six types of Rasas** are due to different combination of mahabhutas and their resultant activities. These are **Sweet, Sour, Salty, Pungent, Bitter and Astringent**. Sweet provides the highest and Astringent provides the lowest amount of energy respectively. The **potency decreases** as one travels down the list.

- ❖ **Madhura (Sweet): [Prithvi + Jal]:** Pleasant, nourishes and strengthen dhatus. Improves the complexion, strengthens the body, heals wounds and ulcers, purifies the *rasa* (essence from food) and the blood
- ❖ **Amla (Sour): [Prithivi + Tejas]:** Cause salivation, sweating, appetizer, burning sensation in mouth and throat
- ❖ **Lavana (Salty): [Jala + Tejas]:** Retains water, easily soluble, appetizer, burning sensation in mouth. Purifies tissues, digestive, relaxing, separates impurities, causes the body to lose tone (relaxes it), clears the outlets of the system, produces softness of all the structures of the body

- ❖ **Katu (Pungent): [Vaju + Tejas]:** Cause salivation, lacrimation, headache and tingling sensation in tongue. Increases digestive power, purifies the body, prevents obesity, causes relaxation of the ligaments and of the system in general; diminishes formation of milk, semen, and fat.
- ❖ **Tikta (Bitter): [Vayu + Akash]:** Cleans mouth, digestive, appetizer, purifying, overshadows all other tastes. Improves secretion of breast milk, and reduces the quantity of feces, urine, perspiration, fat, marrow, and pus.
- ❖ **Kasaya (Astringent): Vayu + Prithivi]:** Produces stiffness, blocks the throat and Srotas. Separates impurities from tissues, reduces obesity and superfluous moisture.
- ✓ **Relationships with Doshas:** Madhura, Amla and Lavana increase Kapha and decrease Vata. Katu, Tikta and Kasaya increase Vata and decreases kapha. Madhura, Tikta and Kasaya decrease Pitta. Katu, Amla and Lavana increase Pitta.
- ✓ **Relationships with Dhatus:** Madhura, Amla and Lavana increase the quantity of Dhatu. Katu, Tikta and Kasaya decrease the quantity of Dhatu.
- ✓ **Relationships with Malas:** Madhura, Amla and Lavana help in the excretion of waste product (hence help during constipation). Katu, Tikta and Kasaya retain the waste product (hence beneficial during diarrhoea).

b) Guna (Quality): It is the property, which will have inherent reaction with dravya but remain inactive. Acharya Charaka has mentioned **41 Gunas** and classified these mainly on three types i.e., **Vaisheshika Guna, Samanya Gunas, and Atma Gunas**. The Vaisheshika Gunas are: Shabda, Sparsha, Roopa, Rasa and Gandha. The Samanya Gunas (general Ayurvedic properties of material/object) are 30 in number. They are divided into Guruvadhi and Paradi Guna.

Guruvadi Gunas (20 in number: 10 opposite pairs)

- | | |
|---------------------------------------|---|
| ❖ Heavy (Guru) and Light (Laghu) | ❖ Soft (Mridu) and Hard (Kathina) |
| ❖ Mild (Manda) and Strong (Tiksna) | ❖ Stable (Sthira) and Unstable/Mobile (Sara) |
| ❖ Cold (Shita) and Hot (Ushna) | ❖ Microfine (Suksma) and Dense/Bulky (Sthula) |
| ❖ Greasy (Snigdha) and Dry (Ruksha) | ❖ Non-Sticky (Visada) and Sticky (Picchila) |
| ❖ Smooth (Slakshan) and Rough (Khara) | |
| ❖ Solid (Sandra) and Liquid (Drava) | |

Paradi Gunas (10 in number): Para, Aparā, Yukti, Samyoga, Vibhaga, Pruthakatva, Abhyasa, Samskara, Parimana and Sankhya.

Atma Gunas (6 in number): They are- Ichchha, Dwesh, Sukha, Dukha, Prayatna and Buddhi.

Note: Samanya Guna will increase the dhatus etc. and Visheshha Gunas will decrease the dhatus.

c) Virya (an active principle by which potency is characterized): This may be considered as the un-metabolized pharmacologically active ingredient of the drug, which perform pharmacological activities. *On the basis of potency (Virya), Dravya is classified into Shita (cold) Virya and Ushna (hot) Virya.* The efficacy or action of a medicine depends upon its **dilating and constricting effects**. Medicines are classified according to those which dilate generate heat, and those which constrict and cause a cooling sensation. In general, **sour, salty and pungent medicines** generate heat, and sweet, **bitter and astringent medicines** have cooling effects. An important point to grasp is that any medicine whose heating or cooling action does not follow its taste as just described will be more medicinally powerful. Medicines that are warming help counteract the pathogenic agents present in the properties of mucus (Kapha dosha) and gas (Vata dosha). Medicines that are cooling help counteract the pathogenic agents present in the properties of bile (Pitta dosha).

d) Vipaka (The end product of digestion): It is a property of a drug, which is responsible for change in original taste on exposure to GIT enzymes. *On the basis of post digestion effect, Dravya is classified into Madhura (sweet) vipaka, Amla (sour) vipaka and Katu (pungent) vipaka.* The tastes of some foods and medicines change after digestion, and this affects its action on the body, and the bowel in particular. Such changes make the medicine more powerful in effect than predicted by taste alone. Medicines that become sweet after digestion help moisten the bowel (increase mucus), clear stool and urine, and increase semen (general vital force). Medicines that become sour after digestion help stimulate stool and urine and increase bile secretion. Medicines that become pungent after digestion dry the stool (cause constipation) and increase gas.

e) Prabhava (The actual therapeutical activity of drug in the individual): Prabhava can be defined as that specific property of a drug on virtue of which it is able to produce a specific and different action from another drug having same set of rasa, guna, virya & vipaka. When a drug produces action which is not in accordance with the constituent is called as prabhava. E.g. danti possesses same rasa, guna, virya & vipaka as those of citraka still it causes purgative action unlike citraka and this specific purgative property is attributed to its prabhava. The emetic and purgative effects of various drugs are also said to be due to their Prabhava. The various effects of wearing gemstones are also attributed to their prabhava.

4. Dhatus/Constructing element: In Ayurveda, there are seven fundamental elements that support the basic structure and functioning of the body. The dhatus maintain the functions of the different organs, systems and vital parts of the body. They play a very important role in the development and nourishment of the body. It takes approximately 35 days after food is ingested to go through all the dhatu levels.

- ✓ **Rasa (plasma/fluid)** contains nutrients from digested food and nourishes all the tissues, organs and systems. The primary function of rasa is to strengthen blood and provide nourishment. Basically the tissue fluid consists of lymph and blood plasma. Accessory tissues are the breast milk and the menstrual blood.
- ✓ **Rakta (blood)** governs oxygenation in all tissues and vital organs and maintains life. It is constituted from the metabolic refinement of rasa dhatu. It is said to be the preserver of life.
- ✓ **Mamsa (muscle)** covers the delicate vital organs, performs the movements of the joints and maintains the physical strength of the body. It is formed from rasa and rakta dhatu.
- ✓ **Meda (fat)** maintains the lubrication and oiliness of all the tissues. It is the finer part of the mamsa dhatu.
- ✓ **Asthi (bone)** gives support to the body structure. It is the finer essence of the meda dhatu, which are converted into most solid form of the dhatus.
- ✓ **Majja (marrow and nerves)** fills up the bony spaces and carries motor and sensory impulses. It is the finer essence of asthi dhatu. It is basically a semisolid substance, yellow and red in colour.
- ✓ **Shukra and Artav (reproductive fluid and semen)** contain the ingredients of all tissues and are responsible for reproduction. It is responsible for vitality and energy of body. It is produced from the most refined essence of the majja. It is the cause of Ojas, which is actually the essence of all the seven dhatus.

Food in human body is transformed first into chyle or Rasa and then successive processes involve its conversion into blood, muscle, fat, bone, bone-marrow, reproductive elements and **Ojas**. Oja is the essence of dhatus, which gives strength to the body, improves immunity power and takes care of well

being of the body. The function of Oja is to maintain the condition of the good health it nourishes all the body constituents and mind. In Ayurveda it is believed that life cannot exist without Oja in the body.

Thus, food is basic to all the metabolic transformations and life activities. Lack of nutrients in food or improper transformation of food lead to a variety of disease conditions

5. The Digestive Fire (Agni)

Ayurveda considers that Agni is the cause of life, complexion, strength, health, nourishment, lusture, oja, teja (energy) and prana (life energy). It is the biological fire inside the human body and is regulated by Pitta. Agni controls all the metabolic activities in the body including the process of decomposition and transformation of the food drugs along with the oxygenation and replacement of worn tissues. Agni may be correlates with digestive and different kinds of hormones, enzyme and co-enzymes activities etc., which participate, in these digestive & metabolic functions. If Agni is impaired, the proper transformation of food, Dhatus and Malas are impaired and this will lead to accumulation of waste products in the body called ama (by product of undigested food), which turns to toxic waste clogging the channels leading to a state of disease.

Types of Agni

✓ According to Charaka: 13

- ❖ **1 Jatharagni:** Most important of all, digest food, operates the abdomen (refers to the whole process of digestion in G.I.T).
- ❖ **5 Bhutagni:** pertaining to the panchamahabhutas (refers to the final digestion in liver). All the nutrients in this world that we eat also consist of the same five basic elements with their respective Agni or bioenergies. Jatharagni leads to the breakdown of the food into five distinct physiochemical groups (aakash, vayu, jal, tej, prithvi) and activates the Bhutagni present in each one of them. The Bhutagni thus activated digests the substances of that group
- ❖ **7 Dhatwagni:** Present in the seven types of dhatu forming the body (refers to tissue metabolism). The dhatwagni present in the mamsa dhatu can digest the nutrient material required. Each of the seven dhatus (tissues) of the body, and each one is called by name of the dhatu in which it is present such as Rasagni, Raktagni, etc. Each of them is specific by itself (in its composition and function) and suitable only to particular dhatu in which it is present (dhatu visista) e.g for mamsa dhatu only but cannot digest those of other dhatus, similarly is the case with the other dhatwagnis. Foods containing the nutrient materials of the dhatus can be of help to the dhatus, only after they are cooked (digested) well by the Agni.
- ✓ **According to Sushruta:** five types of Agnis are illustrated, viz. Pachakagni, Ranjakagni, Alochakagni, Sadhakagni and Bhrajakagni.
- ✓ **According to Vagbhata:** 24, viz. -Audaryagni-1, Bhutagnis-5, Dhatvagnis -7, Dhoshagni-3 and Malagni-3, Pitta -5.

6. The Malas: Waste products derived from food. They are also called Aahar Malas .

- ❖ Purisha (Faeces)
- ❖ Mutra (urine)
- ❖ Sweda (Sweat)

The Malas have their unique combination of the Panchamahabhutas.

- ✓ Purisha or feces is composed mainly of the element earth
- ✓ Mutra or urine is composed mainly of water and fire
- ✓ Sveda or sweat is composed mainly of water.

Note: Like Dosha and Dhatu, the nature of Mala is very useful to understand the functioning of a body. Any abnormality in quality or quantity of the Malas leads to disease.

7. The Channels/Srotas: The pathways within the human body, which **communicates and links the different corners** is called Srota. It helps in transportation of essential ingredients, which support the life entity, the basic amenities needed to manufacture and create the tissues of the body and to flush out the unnecessary things, which contaminate the inner sanctum. When it **gets blocked, choked, clogged or contaminated leads to serious damages, diseases and also death.**

8. Triguna Theory/ three psychic energies (Quality of Nature): Just as the Doshas are the essential energies of the body, the three Gunas, namely **Sattva, Rajas and Tamas**, are the three essential energies of the mind. Genetically determined, an individual's psychological characteristic is dependent on the relative dominance of the three Gunas. In equilibrium, the three Gunas maintain a healthy mind (and indirectly a healthy body). **Any disturbance in this equilibrium results in various types of mental disorders.**

The general Triguna can be explained as:

- a. Sattva:** It is considered supreme and spiritual quality of mind. It is evident by positive attitude, happiness, lightness, spiritual connection and consciousness. Sattvic state can be defined as disease free body. Sattva stimulates the senses and represents intellect and knowledge. Under sattvic influence the mind is free, calm and the person is free from any doubts. Nonviolence, kindness, meditation, self-control, silence, are the basic traits of his personality.
- b. Rajas:** It is the active quality of mind. It is supposed to be active among Trigunas and characterised by stimulation and motion. When Rajas guna dominates the body person becomes energetic, restless and aggressive, it also gives rise to passion, desire, and greed. Rajas dominant person takes risk and seeks approval for his work. Strength is the key feature of Rajasic guna dominant people.
- c. Tamas:** It is the material quality of mind. A Tamasic person is full of false hopes, self-interest and illusions, which produces idleness, fantasy, and ambiguity. When Tamasic guna dominates the person it produces the inaccuracy, laziness, unfulfilled desires which leads to sorrow and sadness. Development of intelligence is also effected by Tamas. Tamas Gunas tend to pull down the bearer into the darker side of society

Pathogenesis of disease/ Disease Process (Shatkriyakala) in Ayurveda

Ayurvedic literature discusses a series of six steps outlined in the disease process.

- 1. Sanchaya (Accumulation):** Accumulation of the dosha in its primary site; vata-colon, pitta-small intestine, kapha-stomach. Each produces its own characteristic symptoms, for example: kapha creates lethargy, heaviness of the limbs, pallor, bloating, and loss of appetite with weakened digestion; pitta produces burning sensations, increased body heat, a bitter taste in the mouth, yellowness of the skin, acidity of the stomach, and increased anger; vata causes weakness and dryness of the body, desire for warmth and hot articles, stiffness and fullness of the abdomen, flatulence and/or constipation, disturbed sleep, and increased fear. This initial stage occurs usually due to dietary factors and is the starting place for the disease process.
- 2. Prakopa (Aggravation):** Accumulated doshas undergo irritation in their own places. Vata causes pain in abdomen with gurgling, Pitta causes burning sensation and Kapha causes nausea and anorexia.
- 3. Prasara (Overflow or Spreading):** Dosha in the original site is full so disperses throughout the body through different channels.
- 4. Sthana-sanshraya (Relocation):** Doshas get localized at a site due to channels obstruction by congestion. First clear symptoms appear. Prodromal stage.
- 5. Vyaktaavastha (Manifestation):** Disease becomes apparent showing sign and symptoms.

6. **Bhedaavastha (Chronic):** last stage where the disease course ends in relief or if continuous it attain chronicity, giving origin to some other disorders and final they may lead to death.

Note: In ayurveda the causation of disease is attributed to dosha hence it is essential to know the movement of doshas or stages of movement at a given point. Among the six states the first three i.e. Sanchaya, Prakopa and Prashamana are the state or conditions of doshas but not of disease. Sthanasamshraya and Vyaktaavastha indicate disease condition. Bhedaavastha indicates final course of disease or beginning of other disease or death.

The shatkriyakalas can be compared with modern pathogenesis of the disease in following ways.

- ❖ Sanchaya,Prakopa,Prasara – Period of incubation – pre prodromal stage.
- ❖ Sthanasamshraya – Period of activation - prodromal stage.
- ❖ Vyaktaavastha- Period of manifestation – real nature or picture or form of disease.
- ❖ Bhedaavastha – period of complication – complication stage

Nidana/Diagnostic methodology/Modes of diagnosis

1. Eight fold examination (Astabidh parikchya)

- | | |
|---------------------------|--|
| ✓ Nadi (Pulse) | ✓ Jihwa (Tongue) |
| ✓ Mala (Faeces) | ✓ Shabda (Voice) |
| ✓ Mutra (Urine) | |
| ✓ Sparsha (Skin or touch) | ✓ Akriti (Appearance of face/overall appearance) |
| ✓ Drik (Sight/Eyes) | |

2. Ten fold examination (Dasbidh Parikchya)

- ❖ **Body Constitution (prakriti):** Determined by relative predominance of doshas during foetal development the prakriti can be any of vatika, paittika, kaphaja, vata paittika, vata kaphaja, pitta kaphaja or samdosha.
- ❖ **Pathological State (vikruti):** Related to the biological history of the diseases in its entirety, it enables physicians to consider the signs & symptoms of the disease in order to assess the strength of the disease, the causes, the doshas, the affected body elements, body constitution, time and strength of an individual.
- ❖ **Tissue Vitality (sara):** Lymph in the skin is assessed by its smoothness, softness, clearness, thinness and whether the skin is covered with short, deep rooted and delicate hair. Percentage of blood in body is evaluated from the condition of the eyes, mouth, tongue, lips, nails and soles of the feet. When muscles are in perfect condition, the temples, forehead, nape of the neck, shoulders, belly, arms, chest, joints of the body, jaws and cheeks are covered firmly with the skin. People with healthy adipose tissue have oily skin and healthy hair, nails, voice and teeth. The health of bones is determined by pliable but firm forearms, chin, nails, teeth, ankles, knees and other joints of the body. Healthy bone marrow leads to good complexion and stout, long, round & stable joints. Those in whom the semen is perfectly healthy, are strong and cheerful.
- ❖ **Physical Build (samhanana) :** Body examination is carried out by direct perception – a healthy body being well- built with symmetrical bones, strong & stable joints and enough flesh & blood.
- ❖ **Body Measurement (pramana):** In Ayurveda, body measurement is given in terms of finger breadth and any person in close proximity to the ideal measurements is termed as normal and healthy.
- ❖ **Adaptability (satmya):** Indicating substances intrinsic to the body, it refers to two types of people - those that are strong, adjust easily to difficulties and have excellent digestive capacity and those that are generally weak, intolerant to change and can have only few food options.
- ❖ **Psychic Constitution (satwa):** Refers to the mind which controls the body in contact with the soul (atma). Depending on degree of mental strength, it is considered to be high, moderate or low. To know more about your body type,

- ❖ **Digestive Capacity (ahara shakti):** This has to be judged from the individual's capacity to ingest and digest food substances.
- ❖ **Capacity for Exercise (vyayama shakti):** Assessed by capacity for hard work, it is either low, moderate or high.
- ❖ **Age (vaya):** Broadly categorised into childhood, middle age and old age, it provides vital clues for the diagnosis & treatment and is a must consideration in clinical examinations.

Types/Methods of Treatment

Treatment of the disease consists in avoiding causative factors responsible for disequilibrium of Doshas (bioregulating principle) and Dhatus through the use of Panchakarma procedures, medicines, suitable diet, activity and regimen for restoring the balance and strengthening the body mechanisms to prevent or minimize future occurrence of the disease.

1. Purification Treatment/Panchakarma/Shamsodhana/Detoxification of body

Panchakarma is an integral part of Ayurveda, which helps achieve a balanced state of body, mind and consciousness through detoxification and rejuvenation. Panchakarma therapy is performed in 3 stages:

- ❖ **Purvakarma** - preparatory procedures that help the body discard the toxins present in the stomach and tissues and help facilitate the toxins to move to the alimentary canal. The process of Panchakarma generally starts with two sets of therapies: Oleation/Snehana (oral or external application of medicated oil/ghee on the body) and Fomentation/Swedana (generation of sweat in the body by heating). Elimination of Ama (toxins) becomes easy if purvakarma is carried out properly, which can otherwise be a difficult task. It helps in liquefying the accumulated Ama (toxins), in cooling the irritated dosha (basic body elements), in opening the blocked strotas (body channels) and in lubricating the passages of mala (waste products).
- ❖ **Pradhanakarma** - main treatment that is designed as per each individual's needs.
- ❖ **Paschatkarma** - post treatment care includes the diet regimen and the other do's and don'ts.

The following 5-fold treatment during Panchakarma has not only been intended for elimination of disease-causing toxins but also to replenish the tissues with nourishment. This is why it is often termed as Rejuvenation Therapy.

a. Vamana (Vomiting): Vamana is a medicated emesis therapy, which removes Kapha toxins collected in the body and the respiratory tract. This is given to people with high Kapha imbalance. Daily treatment involves loosening and mobilizing the toxins in an effort to finally eliminate them.

Benefits: Bronchial Asthma, Chronic Allergies, Hay Fever, Vitiligo, Psoriasis, Hyperacidity, Chronic Indigestion Nasal Congestion, Edema, Obesity, Psychological disorders, Skin disorders.

b. Virechana (Purgation): Virechana is medicated purgation therapy, which removes Pitta toxins from the body that are accumulated in the liver and gallbladder. It completely cleanses the gastro-intestinal tract. It is a safe procedure without side effects. Benefits of Virechana help root out Chronic Fever, Diabetes, Asthma, Skin disorders such as Herpes, Paraplegia, Hemiplegia Joint disorders, Digestive disorders, Constipation, Hyperacidity, Vitiligo, Psoriasis, Headaches, Elephantiasis and Gynecological disorders.

c. Basti (Enema or colonic irrigation): It is considered as the mother of all Panchakarma treatments. It cleanses the accumulated toxins from all the 3 doshas: Vata, Pitta and Kapha, through the colon. Basti is also highly beneficial as a rejuvenating treatment. Medicated oil or ghee and an herbal decoction is given as enema to clean the colon and increase the muscle tone. This treatment is provided for several days, based on the medical condition of a person.

Benefits: For Hemiplegia, Paraplegia, Colitis, Convalescence, Cervical Spondylosis, Irritable Bowel Syndrome, Constipation, Digestive disorders, Backache & Sciatica, Hepatomegaly & Splenomegaly, Obesity, Piles, Sexual Debility & Infertility.

d. Nasya (Nose cleaning): Nasya involves administration of medicated oil through the nose to cleanse accumulated Kapha toxins from the head and neck region. Based on the medical condition of a person, it can be given up to 30 days. Nasya benefits include Trigeminal Neuralgia, Bell's Palsy, improves memory & eye sight, insomnia, elimination of excess mucus, hyper pigmentation in the face, pre-mature graying of hair, clarity of voice, headaches of various origins, Hemiplegia, loss of smell and taste, frozen shoulder, migraine, stiffness of the neck, nasal allergies, nasal polyp, neurological dysfunctions, Paraplegia and sinusitis.

e. Raktamokshana: It removes impurities from the blood through leech therapy or other methods. It is advised only in extremely rare conditions. It is NOT advised during general Panchakarma. Most Ayurveda Centers do not offer Raktamokshana due to the high risk of infection involved in blood cleansing. This therapy is particularly useful in various skin diseases such as psoriasis, eczema, and also in local lesions such as abscesses and pigmentation.

Benefits of Panchakarma

- ✓ Eliminate toxins and toxic conditions from your body and mind
- ✓ Restore your constitutional balance improving health and wellness
- ✓ Strengthen your immune system and become more resistant to illness
- ✓ Reverse the negative effects of stress on your body and mind thereby slowing the aging process
- ✓ Enhance your self-reliance, strength, energy, vitality and mental clarity
- ✓ Bring about deep relaxation and sense of well-being

2. Samshamana therapy (Palliative Treatment for reconstitution of humor-doshas): The disequilibrium of Doshas are calmed down by use of medication, diet etc. so the disease ceases.

- ✓ Vata disorders: Use substances with Madhura, Amala and Lavana rasas.
- ✓ Pittic disorders: Use substances with Madhura, Tikta and Kasaya rasas.
- ✓ Kaphaj disorders: Use substances with Katu, Tikta and Kasaya rasas.

3. Ahara (Diet) and Vihara (Lifestyle/Daily activities like exercise. Sleep etc.): Special measures to increase resistance power and inner vitality so that disease is easily overcome.

- ✓ **Ahara:** Balanced diet and well chosen diet improves functioning of the body and mind. Different diet pattern for different persons along with pattern for different times of day, season and depending upon the age of dieter.
- ✓ **Vihara:** Routines of daily activities. Helps in self development.
 - ❖ **Dinacharya:** Rising at Brahma Muhurta (1.5 hours before sunrise), Defecation, Cleaning, Brushing teeth, Oil massage of head and body, Oiling nose and ear, Physical exercise, Yoga/Meditation, Prayer, bath, Selection of clothes, Jewellery and perfumes, taking regular meals, study, work and Sex activities at regular and proper time.
 - ❖ **Ritucharya:** (Seasonal regimen)

Prakriti

The word Prakriti is derived from Pra + Kriti (to create or to act). Ayurveda says each & every individual is unique. This is because of the predominant panchamahabhutas, doshas (vata, pitta & kapha), tri-gunas (sattva, rajas & tama) formed by at the time of union of Shukra (sperm) and Shonita/Artava (ovum) in the garbhashaya (uterus) decides their constitution.

For example, at time of birth if vata-dosha is predominant as compared to pitta and kapha, then individual is having vatajaprakriti. Predominant vata-dosha affect anatomy, physiology, psychology & immunity of that person. Features are seen according to properties & functions of vata-dosha. Qualitative and quantitative, unchangeable dosha predominance from birth to death is called as Prakriti. Shushruta has

explained that: 'the insect born in the poison does not die due to its own poison similarly dosha that is dominant according to one's Prakriti does not harm the individual.

Once this constitution is set, it is permanent for that individual. Prakriti is not changeable.

Types of prakriti

In Ayurvedic texts many types of classification has been described for prakriti. These are as follows.

1. **Doshaja/Deha Prakriti:** Doshaja prakriti is also known as Deha Prakriti/Sharirika Prakriti. There are seven types of dosha prakriti described in Ayurveda on the basis of predominance of one or more doshas. Vata, Pitta and Kapha are ekadoshaja i.e. due to the predominance of one dosha. Vata-Pitta, Vata- Kapha and Pitta-Kapha are dvidoshaja i.e. due to the predominance of two doshas. Sama-prakriti occurs due to the predominance of all three doshas.
2. **Manasa Prakriti:** On the basis of triguna, there are three types of manasa prakriti. Satvaja, Raja and Tama. These three types of manas prakriti further divided into sixteen types. Brahma, Mahendra, Varun, Kaubera, Gandharva, Yamy and Rishi Sattva are comes under satvaja manasa prakriti. Asura, Rakshasa, Paishacha, Preta, Sarpa and Shakuna are included in rajasa manasa prakriti. Pashava, Matsya and Vanaspatya are the subtypes of tamasa manasa prakriti.
3. **Bhautika Prakriti:** Sushruta has also described five types of Prakriti according to the dominance of PanchMahabhutas called Bhautika Prakriti. These are:
 - a. Parthiva due to the predominance of Prithvi Mahabhuta.
 - b. Apya due to the predominance of Jala Mahabhuta.
 - c. Taijas due to the predominance of Agni Mahabhuta.
 - d. Vayaviya due to the predominance of Vayu Mahabhuta.
 - e. Akashiyadue to the pre dominance of Akasha Mahabhuta.
4. **Jatyadi Prakriti:** Acharya Charaka described six types of jatyadi prakriti. These are:
 - a. Jatiprasakta (racial peculiarities)
 - b. Kulaprasakta (familial predisposition)
 - c. Deshanupatini (demographic)
 - d. Kalanupatini (Seasonal effect)
 - e. Vayonupatini (natural changes according to age)
 - f. Pratyatmaniyata (personal habits & individuality, idiosyncrasy)

Study of Prakriti will help in the following respects: (Prakriti Parikchya is the component of Dashavidha pariksha/ 10 fold examination)

- ❖ Early prediction of disease susceptibility and prevention of possible diseases.
- ❖ Successful prognostication in disease state.
- ❖ Selection of appropriate and specific treatment in a given disease.
- ❖ A physician can understand the prognosis of a disease easily if the Prakriti is known very well.
- ❖ It is possible to customize poly herbal formulations for ones Prakriti (Psycho Somatic constitution) because it is more efficacious and produce no ill effects.
- ❖ Restorative treatment or panchakarma (five purificatory measures) treatment has to be properly adopted according to the constitution in an appropriate season
- ❖ It helps identify the nature of your family members or colleagues, thus helping you to interact appropriately with the family and society in harmony.
- ❖ It helps you to take control over your food habits. Selecting food items according to your Prakriti will keep you healthy.

Bhaissajya Kala/ Time of drug administration in Ayurveda/ Aoushadha sevana kala

- a. **Abhakta:** In empty stomach. Abhaktam should not be used for children, old age people, women, weak individuals etc. After the drug is completely digested/metabolized then only food may be consumed. it should be given after one Yaam (three hours) after sunrise.
- b. **Pragbhakta:** Just prior to meal. Drugs, which are applicable or indicated in lower parts of the body, are given at this time.

- c. **Madhyabhakta:** Middle of meals. It is also helpful in conditions like GI tract disease, Acidic disorders), diseases of head and neck.
- d. **Adhobhakta:** after morning meals. This time of administration is helpful in increasing body weight.
- e. **Samabhakta:** Along with food. Where there are symptoms of Anorexia, the drugs, which are sour in the taste, are given with food to create taste. It is useful to children, who cannot tolerate severity of drugs, who have aversion to drugs etc. It is very useful in systemic diseases.
- f. **Antarabhakta:** After digestion of morning food. If drug is administered in the afternoon after the morning food is digested, it is known as Antarabhakta. This should be followed by lunch once the drug is totally digested.
- g. **Samudga:** Before and after meals. In the disease like Hikka (Hiccup), Kamp (tremors), Akshepak (Convulsion) &Urdhvaadhoghat (Upper & lower body part diseases).
- h. **Sagra:** With each morsel or bolus of food. Especially for the appetizing &aphrodisiac drugs are given along with bolus of food.
- i. **Sagrasanthara:** Between two morsels/bolus. This time is advised for the Heart disease.
- j. **Muhurmuhu** (repeated administration or at minimum time interval)- This time is indicated for the diseases like Shawas (Asthma), Kasa (dry cough), Hikka (Hiccup), Chardi (Vomiting), Visha (Poisoning) and Pipasa (Thirst). The drug is to be administered repeatedly for several times.
- k. **Nisha** (At bed time). This time is advised for the drug administration in diseases occurs above the Neck part.

Bhaissajya marga/Aushadha Sewan Marga (Route of drug administration):

- a. **Mukh marga:** oral
- b. **Basti:** given through rectum as enema.
- c. **Nasya:** (Nasal drug administration of medicated oils, herbal extract or solutions)
- d. **Dhumpan:** Inhalation of medicated cigarette
- e. **Kawal and Gandoosh:** It is the practice of gargling and holding medicated decoctions and oils in the mouth and throat every day early in the morning after brushing ones teeth
- f. **Pratisarana:** Rubbing with fingers on gums
- g. **Aalep:** applying paste on skin on effected area
- h. **Abhayanga:** Whole body massage with medicated oil
- i. **Shirodhara:** Head massage with medicated oil.
- j. **Pizhichi:** Oil Therapy with head, face and body massage
- k. **Shirovasti:** Medicated oil is retained on the head for specified period of time using cap fitted on head such that oil doesn't leaks out.
- l. **Karanpurana:** The ear is filled with medicated dravyas in various disease for diferent time periods, which are: Ear disease: about 3 mins, Throat disease: about 15 mins, Disease of head: about 30 mins.
- m. **Netra marga:** Medicated ghee is retained for prescribed time over the eyes.
- n. **Medicated Steam Bath:** Herbal leaves and certain medicinal powders are boiled and that steam is passed on to the body, inducing sweat, which opens the blocked pores of the skin, thus eliminate impurities from the body through sweat glands.

Bhaishajya Kalpana/Ayurvedic Dosage form (The Ayurvedic Pharmaceutics)

The word Bhaissajya Kalpana is derived from the word 'Bhaissajya' meaning a Drug/ Ausadha and 'Kalapna' meaning Formulation. The specific processing of Dravya obtained from plant, animal and minerals to acquire a form of palatable drug/Aushadha is called Bhaissajya Kalpana/Ayurvedic pharmaceutics.

The Ayurvedic drug formulation is based on “Pancavidha Kasaaya Kalpana” concept. According to this concept there are five basic forms of formulation known as Swarasa, Kalka, Hima/Sheeta, fanta and Kwatha. From these basic forms, a number of other formulations are derived.

1. Swarasa-the expressed juice: It is obtained from freshly collected plants. The useful plant parts leaf, stem, fruit or whole plant etc. is cut to pieces and ground to prepare a bolus. The finely ground bolus is then collected and is mechanically squeezed to extract as much juice as possible. The juice so obtained termed as ‘swarasa’-is collected and put to use immediately.

Sometimes the plant parts may not be containing enough moisture to obtain the juice by applying mechanical pressure. In such cases two parts of water is added to the ground plant material and it is left to soak overnight. The soaked material is then squeezed to extract all the juice from it by applying mechanical pressure. Alternatively if the plant material is dry it is pulverized to yield fine powder. Eight parts of water is then added to the powder. The contents are then subjected to heating to retain one fourth of the water. In fact this is nothing but a type of decoction since the concentration of active ingredients in this decoction is similar to ‘swarasa’ it is classified as ‘swarasa’. The general advocated dose of ‘swarasa’ obtained from freshly collected plants is 20 ml whereas that of ‘swarasa’ prepared from dried plant is 40 ml.

2. Kwatha: The decoction: It is obtained by boiling the finely powdered plant material in required quantity of water (four, eight and sixteen parts of water is added to soft, hard and very hard plant material respectively) till all the active ingredients are extracted completely in the water. The retained liquid after boiling is then filtered through a muslin cloth. The filtrate so obtained is termed as ‘kwatha’-the decoction. The suggested dose of ‘kwatha’ is 80 ml.

3. Fanta: The hot water infusion: ‘Fanta’ is prepared from the plant material requiring low grade temperature for extraction of water soluble ingredients, which are likely to be sensitive to high temperature. Finely powdered plant material is soaked in four parts of hot water and thoroughly mixed. The mixture is then filtered through a four-layered muslin cloth. The filtrate so obtained is termed as ‘Fanta’. The dose of ‘Fanta’ is 80 ml.

4. Sheeta/Hima: The cold water infusion: Heat sensitive plant material is subjected to cold water infusion and the product so obtained is termed as ‘Sheeta’ or Hima. Finely powdered plant material is soaked overnight in six parts of water. The contents are then filtered through a four-layered muslin cloth. The filtrate so obtained is ‘Sheeta’. The dose of ‘Sheeta’ is 80 ml.

5. Arka is a liquid preparation obtained by distillation of certain liquids or drugs soaked in water using the Arkayantra (a type of steam distillation apparatus) or any convenient modern distillation apparatus. It is a suspension of the distillate in water having slight turbidity and colour according to the nature of the drugs used and smell of the predominant drug.

6. Aasava or Aristas- these are fermented preparations of medicinal plants. Aasavas are usually prepared by fermenting expressed juice (‘swarasa’), whereas ‘Aristas’ are prepared from fermentation of decoction (Kwatha). Sugar or jaggery and powders (churna) of other medicinal plants as required along with a natural fermenter are added and they are left in a closed container till the fermentation is completed. This facilitates the extraction of the active principles contained in the drugs. The alcohol generated in this process serves as a self-preserved. Both function as weak wines but rich and fortified with active principles.

7. Avaleha- it is a semi-solid preparation of the drugs meant for licking. It acquires the consistency of a thick paste. After strained decoctions (Kwaatha) are boiled down, sugar or jaggery is added to it. The other similar forms are known as Modaka, Guda, Khanda, Lehya, Praasa etc.

8. Churna is a fine powder of drug or drugs. Drugs mentioned in a particular formulation are cleaned and dried properly. They are finely powdered and sieved. Where there are a many number of drugs, the drugs are separately powdered and sieved. Powder of each drug is weighed separately and mixed thoroughly. This will ensure proper mixing in comparison to mixing the drugs and preparing the powder of the drug-mix. Asafoetida and salt may also be roasted, powdered and then added. Sometimes it is necessary to use plant ingredients in fresh form in such a case drug paste is prepared, dried, and then added. The powder should be fine at least of 80 mesh sieves. It should not adhere together or become moist. The finer the powder, the better is its therapeutic value.

9. Siddha Tailas (Medicated oils) and Siddha Ghritas (Medicated Ghee)- are preparations in which oil or ghee is boiled with prescribed kasaayas (decoction) and kalkas (fine paste) of drugs according to the formula. This process ensures absorption of the active therapeutic properties of the ingredients used, into the oil base. In these preparations three ingredients are essential- sneha (ghee or oil), drava (liquid)- which may be decoctions, expressed juice etc., and kalka-the fine paste of the ingredients. The ratio of the ingredients, unless specified otherwise, is oil four part, kalka- one part and liquid sixteen parts (however, there are several exceptions). During preparation the fine paste and liquids are mixed together and then oil or ghee is added and boiled on mild fire and continuously stirred to ensure that the fine paste does not stick to the vessel. The boiling is continued till the liquid portion gets evaporated; at this stage the moisture of the fine paste starts evaporating. This is tested with the help of a ladle to determine the paaka (cooking stage). The paaka is categorized in to mridu (soft)- if the paste is waxy when rolled between fingers, madhyama (moderate) if the paste is hard and fires without cracking noise when put in to fire and khara (hard) if it burns with cracking sound when placed in fire. The ideal condition of the medicated oil is attained when uniform froth comes out and subsides in case of medicated ghee.

10. Lepa- drug formulation in the form of a paste used for external application is called lepas. The drugs are made into a fine powder. Before use on the body part, the powder is mixed with some liquid or other medium indicated for each preparation and made into a soft paste. Water, Cow's urine, oil, and ghee are some of the media used for mixing.

11. Sattva- is the water extractable solid substance collected from a plant. The plant is cut into small pieces, macerated in water and kept overnight. Then it is strained through cloth and the solid matter is allowed to settle. The supernatant liquid is decanted and the remaining Sattva is washed with water and decanted and the process is repeated several times. The Sattva so sedimented is allowed to dry and is powdered. This can be preserved in a closed container.

12. Vati and Gutikas- drug forms prepared in the form of tablet or pills. They are made of one or more drugs of plant, animal or mineral origin. The plant ingredients are dried and made into fine powders, separately and ground to soft pastes before they are rolled in to pills with the help of fingers. Sometimes minerals are also used as ingredients in such cases the mineral is converted to Bhasmas (calcined metallic compounds) and used as ingredients. The criterion to determine the final stage of the formulation before making pills is that it should not stick to the fingers when rolled. Pills may be dried in shade or under direct sunlight as specified in the texts. Pills made of plant drugs when kept in air tight containers can be used for two years. Pills containing minerals can be used for an indefinite period.

13. Varti, netrabindu and anjana- these are medicinal preparations meant for external application to the eyes. Vartis are made by grinding the fine powders of the drugs with the fluids in the formula to form a soft paste. This is then made into thin sticks of about 2 centimeters in length and dried in shade. Netrabindu is prepared by dissolving the semisolids of drugs to be applied with Netra-salaka (type of drug applicator to the eye). These can be preserved for one year if kept in airtight container. In case of formulations in which minerals are used, the drugs are preserved for indefinite period.

14. Bhasma: The powdered form of the substance obtained by calcination of metals, minerals or animal product by a special process in a closed crucible.

15. Parpati: It is prepared by cooking Kajjali (amalgum made by triturating equal quantity of mercury and sulphur) at temperature of 150-120°C. Once the Kajjali completely melts, it is poured onto a ghee smeared banana leaf put on a cow dung platform. This is quickly covered with another banana leaf and pressed with a flat plate. After self-cooling, the prepared parpati is collected into a jar. By doing so mercury is freed of its toxic effect and impregnated with rejuvenating properties.

Rasa Shastra/Vedic Chemistry/Rasayana

Rasashastra deals with the study of minerals, metals, precious stones, animal originates, marine originates and poisons etc. are found in nature in crude form. These substances are purified, processed and converted into a suitable form (which mainly comprise of metallic ashes called Bhasma) for therapeutic usage. The drugs thus prepared are called Rasayana. Nagarjuna is considered to be the father of Rasa Shastra (6-7th century AD).

Elements-/Minerals used in Rasashastra

- | | |
|--|--|
| ❖ Parad (Hg) | ❖ Suddha Manshila (Sulfide of Arsenic) |
| ❖ Abhraka (Satva) (Black mica) | ❖ Hingula (Mercury Sulfide) |
| ❖ Vaikranta (Calcium Fluoride) | ❖ Swarna (Gold) |
| ❖ Swarna Makshika (copper and iron pyrite) | ❖ Rajata (Silver) |
| ❖ Silajit | ❖ Lauha (Iron) |
| ❖ Sasyaka (Copper sulfate) | ❖ Hiraka (diamond) |
| ❖ Gandhaka (Sulphur) | ❖ Manika (Ruby) |
| ❖ Suddha Hartala (Arsenic trioxide) | ❖ Suryakanta (Sun stone) |
| | ❖ Rajavarta (Lapis Lazuli) |

Procedure of Rasayana preparation

- 1. Sodhana Process:** Shodhana means a process of not only purification detoxification, enhancing the efficacy of the drugs. The poison or toxins of the plant/ part of the plant will be converted to safe, effective and life saving medicine by subjecting them to the process of shodhana. Everything should be purified/detoxified first and then must be converted into Bhasma (ash).

Types of Sodhana

- a. Samanya (General):** It is generally applied for the drugs, which are come into one category like Maharasa, Uparasa, Ratna, Dhatu. The drugs of one group having some similar types of impurities. So that with the help of Samanya shodhana general impurities can be removed. E.g. Dhatu- Samanya Shodhan.
- b. Vishesh (Specific):** It is specifically applied for the drugs, which contain high concentrated chemicals. Each drug of the group may have different types of impurities, which are vary from substances to substances & are removed by Vishesh Shodhana.

The objectives are:

- To remove physical impurities (Sand, mud, stone e.g..Silajit)
- To remove chemical impurities (Naga, Vanga in parada)
- Neutralizing toxicity/increase safety (Sulphur- by milk)
- Enriching therapeutic value/potency/Efficacy (Sodhana of Abraka – Triphala)
- Suitable for marana (sukshma by grinding)
- To produce synergistic effect with other plant preparations as herbal formulation

Different Procedures & its Pharmaceutical action of Sodhana

Procedure	Meaning	Pharmacological action
Svedana	Vaporizations of raw drugs in certain liquid materials.	Brittleness occurs by removing external impurities
Mardana	Trituration with Swarasa, Kashaya, Godugdha, Gomutra	Particle size of drug becomes synergistic additives which causes an agonistic effect
Murchana	Trituration up to fine disintegration By giving heat to substances so that it vaporizes & the extract is collected	Particle size reduces. Separation of adulterants
Aavap/Dhalan	Melting solid raw drug and dipping in cold liquid.	Separation of adulterants & reducing brittleness
Nirvap	Heating solid drug & dipping into cold liquid	Reduces brittleness
Galan	Filtration	Separation of adulterants & heterogeneous particles
Prakshalan	To clean or proper washing	Removes dust particles & insects
Nimjjan (dipping)	Keeping raw drug in certain liquid for certain time.	Chemical Changes from higher concentration to lower concentration takes place.
Bharjan	To fry / to dehydrate	Unwanted part evaporates
Sanyog	Addition of drug into another drug	Minimises toxicity or works as antidote.
To Peel	To remove Skin	Separates unwanted Part
To dehusk	Remove husk from from grains	Separates unwanted Part

2. Bhasma Preparation: The marana i.e. Ayurvedic calcinations/ incineration converts hardness, roughness and heaviness of the metals in lightness, softness and sliminess. The process is known to disintegrate macro particles into micro particles and make the substance inert, organic, potentiated, colloidal and ready to be digested, absorbed and assimilated in body. Bhasma work as carriers (yogavahi) and carry the herbs mixed with them faster to the desired site and start the action immediately. They act as catalysts and increase the bioavailability of the herbs to the cell. After performing the desired action, the bhasmas are eliminated through our excretory systems, specifically via mutra and mala (urine and stool).

Tests for Bhasma preparation

- ❖ **Waritara (Water/flooded):** If the Bhasma is fully prepared, it will float on the surface of water, indicating lightness.
- ❖ **Rekhapurna (Lines/full):** Indicates that the Bhasma in prepared form should be fine. When taken between thumb and forefinger, the fine powder will fill the lines of the fingerprint.
- ❖ **Apunarbhav (Unchanged):** Indicates that the Bhasma should retain its original form, especially color, despite mixing with other substances: the mitrapanchak or five substances; molasses, gunja, sohaga, honey, and ghee, when heated.
- ❖ **Niswadu (Taste):** The Bhasma should be completely tasteless. Sour, bitter, or sweet tones indicate incomplete preparation
- ❖ **Nischandra (Sparkling):** There should be no shining or sparkly particles in the Bhasma; they show unchanged substance, particularly for gold, silver, and mica
- ❖ **Awami (Biological):** When a tiny bit of the Bhasma has been put on the tip of the tongue, there should be no effect. Impure Bhasma will cause nausea or vomiting
- ❖ **Amla (Sour):** When Bhasma is put with citrus juice, especially lemon, it should retain its color and original form.

- ❖ **Nirdhum (Smokeless):** Finished Bhasma will not emit any smoke when put over fire, while the impure form emits smoke.

Present Issues in Ayurvedic system of medicine in Nepal

Ayurveda on all fronts, education, research, clinical practice, industry, and regulation, is in crisis and facing formidable challenges. Ayurveda practice needs to be dynamic, scientific, ethical, and integrative. It must be liberated from emotional, pride-based, blind-following practices, and refrain from spurious advertisements, mysticism, and self-propagation.

Several factors might contribute to such issues & discrepancies, for example:

- Lack of standardization and quality control of the herbal drugs used in clinical trials
- Use of different dosages of herbal medicines
- Inadequate randomization in most studies, and patient's batch not properly selected
- Numbers of patients in most trials are insufficient for the attainment of statistical significance
- Difficulty in establishing appropriate placebos because of the taste and aroma etc;
- Wide variations in the duration of treatments using herbal medicines.

Suggestions to Empower Ayurvedic system of medicine in Mainstreaming

- Standardizing Ayurvedic diagnostic and treatment protocols by in situ studies and documentation of clinical practices.
- Explanation for origin or proof of concept.
- Provide data about rigorous proof of safety and efficacy by modern standards of clinical trial.
- Provide high quality pharmaceutical standards to assure consistent quality of preparations.
- Ability to match dramatic outcomes with antibiotics, antiulcer agents etc.
- Proper integration and linkage to Modern Technology
- Ayurvedic scholars need rigorous training in the Shastras, science and medicine along with exposure to appropriate research methodology.
- Proper integration and linkage to Modern Technology

AYURVEDIC PHARMACY [BOARD QUESTION COLLECTIONS]

2061

1. Describe the Rasa (taste) its types and Pancha – Bhautic composition with examples. 10
2. Describe Virya and its types with function. 10
3. Describe Panch-VidhaKasayaKalpana and its types with definition. 10
4. Write notes on purification and detoxification. 10

2062

1. Write the name of Rasa with the panchbhauti composition and side effects if used in excess amount.
2. Write the Panch-VedhaKalpana with their preparation method. 10
3. Write about measurement in Ayurveda and their relation with metric system with example. 10
4. Write short notes on: 5+5=10
 - a. Purification
 - b. Detoxification

2063

1. Write Pancha Kalpana and their importance. 10
2. Write the determination of Rasa type and their effects after their excessive use. 10
3. Write the Ayurveda and their importance in the modern era. 10
4. Write short notes on: 4+3+3+10
 - a. Purification
 - b. Prabhava
 - c. Detoxification

2064

1. Write the name of Rasas with their panchbhautic composition. 5
2. What would be the side effects of Rasas if used in excess amount? 5
3. What is Panch-Veda Kalpana? How many types do you know and define them. 5
4. Describe the methods of preparation of Panch-VedhaKalpana. 5
5. What is Virya and what is its function? 10
6. Write short notes on: 5+5=10
 - a. Ayurvedic measurement system
 - b. Trifala

2065

1. What is Panch-Bhautic composition of Rasas and describe the action of Rasas with harmful effects of excess use of Rasas. 10
2. Write the measurement of weights according to ayurveda and describe the Magadh Man. 10
3. Describe the route of administration according to ayurveda with examples. 10
4. Write importance of ayurvedain Nepal and its benefits. 10

2066

1. What is the Ayurvedic drugs? Write the sources of Ayurvedic drugs with examples? 10
2. Describe the Panch-VidyaKasayaKalpana. 10
3. Write the types and definition of Rasas with Panchbhatic compositions. 10
4. Write short notes on: 5+5=10
 - a. Detoxification
 - b. Shilajeet

2067

1. Explain the Rasa, its type and action of Doshas. 10
2. Write the Panch-VidhaKasayaKalpana and its strength according to preparation. 10
3. Define the MagadhMan(posology) and its importance in Ayurveda. 10
4. What are the sources of Drugs according to Ayurveda with examples 10

2068

1. What are the panchbhautic composition and normal actions when Rasas are used. 10
2. Being a pharmacist, elaborate the present status and the future prospects of ayurveda focusing on its research aspects. 10
3. How many types of Kasayakalpana do you know? Describe each of them with example. 10
4. Write the route of drug administration in Ayurveda? 10

2069

1. Describe Veerya, its types and the action with examples. 10
2. List the types of Gunas. Describe Gurvadigunas and its action with examples. 10
3. What do you mean by Maan? Describe it according to ayurveda. 10
4. What is the importance of Ayurvedic Pharmacy in modern drug industries? Describe briefly.

2070

1. Write the number of Rasas, their Pancha-Bhautic composition, dosha-karma and diseases due to over intake of Rasas. 10
2. What are the measurements described in Ayurveda. Give the details of weight in Magadha mana.
3. Describe the route and time of drug administration in Ayurveda. 10
4. Describe the Pancha-vidha Kasaaya Kalpanaa with examples. 10

2071

1. Explain Rasas, their Pancha-bhautik composition, their indication and contraindications. 10
2. Write Magadha Mana and their uses in context of Nepal. 10

3. Write route and time of drug administration in Ayurveda. 10
4. Write purification and detoxification of Ayurvedic drugs with example. 10

MODEL QUESTIONS

1. Discuss the classification and functions of various fundamental energy of the body (Tridosha). [10]
2. What is Panchabhautic composition of Rasas and describe the action of Rasas with harmful effects of excess use of Rasas. [10] **OR**

Write down the historical development of Ayurveda.

3. Describe Veerya, its types and the action with examples. [10]
4. Write short notes on (Any Two) [5 X 2 = 10]
 - a. Panchakarma
 - b. Chandraprabhavati
 - c. Charaka Samhita

1. Discuss the metric system in Ayurveda with its significance.
2. Describe the Panchasheel Sidhhantha in Ayurvedic system of medicine.
3. Define Rasashastra. Discuss the principle, procedure and quality analysis of Bhasma preparations.
4. Write short notes on
 - a. Philosophy of Ayurveda
 - b. Detoxification of Shilajit

Mana (Measurement/Metric System in Ayurveda)

Acharya Charaka has mentioned two types of system for measurement system. Magadha Mana and Kalinga Mana. Magadha mana is considered more popular and superior to Kalinga mana. Ayurveda has also followed Magadha Mana and adopted for all practical purposes.

Measurement systems adopted in Ayurveda (Magadha Mana)

- | | |
|-------------------------------------|--------------------------------------|
| ❖ Time measurement (Kala maana) | ❖ Mass measurement (pautava maana) |
| ❖ Linear measurement (Payvya maana) | ❖ Volume measurement (druvaya maana) |

Measuring volume /Druvaya maana

- | | |
|-------------------|----------------------|
| ❖ Mushti: 61 Lt | ❖ Drona: 15,616 Lt |
| ❖ Cudava: 244 Lt | ❖ Cumbha: 312,320 Lt |
| ❖ Prastha: 976 Lt | |

A. Measurement of weight

Ayurvedic metric system	Modern metric equivalent
1 Vamsi (0.05mg)	30 Paramanu (Atom) 0.0016mg
6 Vamsi	1 Marici
6 Marici	1 Rajika
3 Rajika	1 Sarsapa
8 Sarsapa	1 Yava
4 Yava	1 Ratika/Gunja
6 Ratika/Gunja	1 Masa
4 Masa	1 Sana
2 Sana	1 Kola
2 Kola	1 Karsa/Tola (12g)
2 Karsa/Tola	1 Sukti
2 Sukti	1 Pala (48g)
2 Pala	1 Prasrta (96g)
2 Prasrta	1 Kudawa (192g)
2 Kudawa	1 Manika
2 Manika	1 Prastha (768g)
4 Prastha	1 Adhaka (3kg 73g)
4 Adhaka	1 Drona
2 Drona	1 Surpa
2 Surpa	1 Droni
4 Droni	1 Khari (4096 Pala)
2000 Pala	Bhara (96kg)
100 Pala	1 Tula (4 kg 800g)

Importance of Mana

- ❖ Weight and measures are always essential for processing/combination of raw materials to final product
- ❖ Mana is always essential starting from selection of the drug to the administration of the medicine
- ❖ Accurate dose of Dravya is always essential for optimal drug action

What is Panch-Bhautic composition of Rasas? Describe the action of Rasas with harmful effects of excess use of Rasas.

1. Madhura (Sweet)

Madhura means very appealing, pleasant or very sweet. Sweet taste is due to the Water and Earth elements. The sweet taste shows qualities or gunas such as cooling, heavy and unctuous.

B. Measurement of time

Ayurvedic metric unit	Modern metric equivalent
1 Ksana	0.38s
1 Lava	0.77s
1 Nimesha	1.55s
1 Kastha	4.66s
1 Kala	2 min 20s
1 Ghati	24min
1 Muhurta	48min
1 Ahoratra	24 hour
1 Paksa	15 days
1 Masa	30 days (1 Month)
1 Ritu	60 days (2 Months)
1 Ayana	6 Months
1 Samvatsara	12 Months
1 Yuga	5 Years

B. Linear measurement

Ayurvedic metric unit	Modern metric equivalent
1 Yavodara	2.4mm
1 Angula	1.95cm
1 Bitahasti	22.86cm
1 Aratni	41.91cm
1 Hasta	45.72cm
1 Rajahasta	55.88cm
1 Vyama	182.88cm

Limitations of ancient measuring systems

- ❖ Vary from one person to the next, so if you need accuracy or repeatability, they're not the best choice.
- ❖ The subjective interpretation on one's senses and so usually varies
- ❖ They are not easily reproducible
- ❖ Inexpedient compared to modern measuring systems

- a. **Physical effects:** The sweet taste is related to strength and stability of the body. It pacifies the Vata and Pitta doshas. However, an excess of sweet can aggravate Kapha dosha. Sweet taste is homologous to body since birth; small babies enjoy the sweet taste of breast milk. Food with sweet taste is wholesome; it promotes longevity when consumed in moderation. It enhances the growth of all seven tissue-elements. It is beneficial to the health of skin, senses and general growth of the body.
- b. **Psychological effects:** Sweet taste is very pleasant and exhibits pronounced satisfying and gratifying effects. It increases cheerfulness, love and compassion. It gives the feeling of love but if consumed in excess, it increases greed and attachment
- c. **Adverse effects:** If a person consumes excess sweet food, then his Kapha dosha aggravates. It can lead to many diseases like obesity, diabetes, lethargy, increased cholesterol etc
- d. **Source:** Foods with sweet taste include sugar, honey, sugarcane juice, maple syrup and dates to name a few. Foods like rice, wheat, milk and fruits like mango and grapes are also good source of sweetness.

2. Amla (Sour)

Amla means sour taste and is made up of Earth and Fire elements. This taste has qualities like lightness, hot and unctuous.

- a. **Physical effects:** Sour taste increases the digestive power. It exhibits a sharp taste, which stimulates salivation and increases the appetite. It pacifies Vata but increases Pitta and Kapha. It promotes strength and stability of tissue-elements. It regulates peristalsis; it regulates downward movement of vata and helps in the digestion of food.
- b. **Psychological effects:** Sour taste is very sharp. It brings alertness to the mind and increases attention. It is responsible for bringing appreciation but if consumed in excess it brings out hate, jealousy
- c. **Adverse effects:** If a person consumes excess food with sour taste, then he will experience symptoms like excess thirst, hyperacidity and heartburn. A number of other diseases like loss of skin tone, hyperacidity, skin rashes, gastritis and ulcerative colitis.
- d. **Source:** Citrus fruits like limes, lemons and oranges are good examples of amla food. Other food products include sour cream, yogurt, vinegar & fermented food

3. Lavana (Salt)

Lavana means salty taste and it primarily gives relish to the food. Salty taste is due to the predominance of Water and Fire element. Salty taste exhibits qualities like oily, heavy and hydrophilic in nature. Salty taste pacifies Vata but increases Pitta and Kapha.

- a. **Physical effects:** Salty taste has a laxative effect and it removes obstruction from the channels (srotas). It liquefies mucus and clears the channels. Apart from this, it improves digestion and increases salivation. It balances the blood pressure by maintaining electrolytes in the body. It gives muscles strength.
- b. **Psychological effects:** Salty taste enhances the taste of food so one can enjoy it. This taste brings interest and enthusiasm. Hence, generally people show a kind of addiction to the salty things.
- c. **Adverse effects:** Excess consumption of Salty foods causes ill effects like premature graying of hair, wrinkles, baldness and inflammatory diseases. It causes water retention leading to edema and increase in blood pressure. It also increases Pitta dosha leading to hyperacidity
- d. **Source:** Sea salt, rock salt and table salt and predominant sources for salty taste. Apart from this, consumption of salty food like salted chips, salted nuts also act as sources of this taste

4. Katu (Pungent): Katu means pungent or very hot taste. It shows predominance of Fire and Air elements. Pungent food shows qualities like hot, dry and light nature. Pungent taste pacifies Kapha but it aggravates Pitta and Vata.

- a. **Physical effects:** Pungent taste improves digestion. It stimulates the digestive fire (Agni) in the body. It improves circulations and clears the channels. It has an anti-spasmodic action. It causes instant watering of eyes and nose if consumed directly. It produces heat in the body and breaks clots in the circulation.
- b. **Psychological effects:** Pungent taste also has sharp and penetrating effects on the mind. It aids the clarity of mind, increases attention and brings clarity of perception.
- c. **Adverse effects:** Pungent food, if consumed in excess causes irritation and inflammation and leads to aggravation of Pitta. It destroys virility. It can cause diarrhea, peptic ulcers, giddiness, insomnia and some skin conditions.
- d. **Source:** Chili pepper, cayenne pepper, habanera pepper and black pepper are sources of this taste. Apart from this, spices such as mustard, ginger, garlic and onion are also pungent in taste

5. Tikta (Bitter)

Tikta meaning bitter taste produces a very unpleasant taste in mouth. In spite of its unpleasant taste, it is important to incorporate this taste in our meal. Bitter taste shows predominance of Air and Ether elements. It is cool, dry and light in character.

- a. **Physical effects:** It demonstrates a strong wormicidal action. It has appetizing effects and reduces burning sensation. It gives firmness to the skin and muscles and reduces skin diseases by its anti-inflammatory effects. It also demonstrates a cleansing effect.
- b. **Psychological effects:** Bitter taste helps to withhold the mind and senses from objects of desire.
- c. **Adverse effects:** Bitter food consumed in excess will produce adverse effects on the body. Further, this taste exhibits spermicidal effects. Excess consumption of bitter taste leads to loss of strength and energy and increased Vata dosha.
- d. **Source:** Sources of this taste are bitter gourd and bitter melon. Herbs like neem (Azadiracta Indica) are also bitter in taste

6. Kashaya (Astringent)

Kashaya means astringent taste that occurs due to the predominance of Air and Ether elements. It is heavy, dry and cooling in nature. It gives an immediate drying sensation in mouth on consumption.

- a. **Physical effects:** By its drying property, kashaya absorbs water and helps in binding stools. It constricts the different channels of the body. It purifies blood by its anti-inflammatory effects. It reduces Pitta and Kapha but it increases Vata dosha in the body.
- b. **Psychological effects:** Astringent substances help the mind to become collected or organized. But excess consumption of this taste causes insomnia, anxiety and depression.
- c. **Adverse effects:** Excess use of astringent food causes choking sensation and difficulty in speaking. It causes constipation along with distension of abdomen. It affects the sperm count and can even reduce the sex drive. Prolonged consumption may lead to emaciation of the body.
- d. **Source:** Unripe banana, chickpeas, alum and okra are good sources of astringent taste

Sources of Ayurvedic drugs with examples of plants, minerals and animal origin/Classification of Dravyas

Any substance or mixture of substance intended to be used internally or externally for the preservation or fortification of health and for the prevention mitigation or cure of disease either man or other animal is called as Dravya. According to Charaka there is no any substance in the world which may not be used as a medicine.

A. *On the Basis of Sources/Oriign dravya are divided into 3 groups*

1. **Animal source/Jangama:** subdivided onto 4 classes.

- a. *Jarayuja*- animal which have placental birth eg: man,lion,tiger,etc.
- b. *Andaja* – aves (birds) and reptiles etc, which have their birth through egg crows etc.
- c. *Oudbija*-The creature, which have their born in mud eg : frog etc.
- d. *Swedaja*-The creature, which is born in sweda eg: flies, mosquito etc

2. **Herbal source/ Oudbhidam:** divided into 4 categories.

- a. *Vanaspati*-There plants don't possess visible flowers. Hence called apushpa.
- b. *Virudha* –There plants, which twin, cowl are called as virudha. They are subdivided into 2 orders.
 - ❖ *Lata* –Climbers eg:vidari etc
 - ❖ *Gulma*- Shrubs eg: atibala etc.
- c. *Vanaspatya* –The plant possess both flower & fruit visible are known as vanaspatya
- d. *Oushadi* –Those plants, which die after yielding the fruit after lowest is known as eg: paddy, pulses, wheat etc.

3. **Mineral source/Parthiva:** Those, substance present beneath the earth are called as parthiva. Usually all the minerals, metals salts etc are comes under parthiva dravya.

B. On the basis of taste

- a. *Madhura*-Drug having sweet taste eg: grapes etc
- b. *Amla*-Having sour taste eg: lemon etc.
- c. *Lavana*-Having salt taste by eg: salt,rocksalt.
- d. *Katu*-Having pungent taste eg: pepper etc.
- e. *Tikta*-Having bitter taste eg: neem etc
- f. *Kashaya*-Having astringent taste eg: fecisspsps

C. On the basis of evolution

All the Dravya are used in the treatment are made up of panchabhuta. However classified that the main characteristic of is divided on the basis of major bhuta in it.

a. Akashiya Dravya: Substance which have the properties like soft, lighter, minute, glesening, clear, separate, unknown taste etc. and the substance which produce smoothness to body is known as sound is its characteristic features.

b. Vayviya Dravya: Substance which are light, cold, nonunctous, rough, dear, minute, etc. Properties and having astringent taste are known as vayaviya. Sparsha is etc characteristic feature.

c. Agneya Dravya: Substance having hot, stimulated, minute, rough, clear, etc. properties and which act appetizer,which improves color & completion etc is known as agneya dravya. Rupa is its main characteristic features. There will be mainly pungent with little salt cum sour taste. They exhibit property of leveling in upward direction.

d. Aapya Dravya: Substance which are having liquid, unctuous, cold, dull or slow acting, smooth, sticky, turbid, heavy etc properties and which provide only appearance, nourishment, attachment inside the body, that is called apya dravya. Rasa is characteristic feature of & having the astringent, sour & salty taste.

e. Parthiva Dravya: Substance, which have heavy rough, hard, dull & slow activity, stable, clear turbid. bigger particle size etc properties, which provide strength, tonicity, attachment growth etc to body are known as parthiva dravya. Gandha is characteristic feature. They are having sweet with little astringent taste.

IMPORTANT AYURVEDIC DRUGS

1. Dashamool kwatha: Dashmool Kwatha is prepared by the mixture of roots of 10 herbs (five roots are of tree and other five are roots of shrubs) that soothes the brain cells and nerves and provides necessary

nutrition to them for proper functioning. It is very useful in controlling the Vata dosh and is optimal for proper cell functioning, relaxation of mind and body and controls the aging process.

Ingredients

- ❖ Bilva root (Aegle marmelos)
- ❖ Agnimantha root (Premna integrifolia)
- ❖ Shyonaka root (Oroxylum indicum)
- ❖ Patala root (Stereospermum suaveolens)
- ❖ Kashmari root (Gmelina arborea)
- ❖ Bruhati root (Solanum indicum)
- ❖ Kantakari root (Solanum xanthocarpum)
- ❖ Shalaparni root (Desmodium gangeticum)
- ❖ Prushniparni root (Uraria picta)
- ❖ Gokshura root (Tribulus terrestris)

Ayurvedic pharmacology

- ❖ Rasa (taste): astringent, sweet
- ❖ Virya (action): warming
- ❖ Vipaka (post-digestive effect): pungent
- ❖ Doshas (constitutions): Balancing for vata and kapha
- ❖ Srotas (channel) : Respiratory, nerve, digestive

Dose/Directions of Use: Take 1 teaspoon (5 grams) of Divya Dashmool Kwath and boil in 400 ml water till the water remains 100 ml. Separate the residue and drink. Take on empty stomach in the morning and 1 hour before dinner. Do not keep the prepared Kwath for future use. Prepare fresh Kwath every time before consuming.

Uses: It is used for the treatment of nervous disorder, nervous exhaustion, and immune deficiency, lack of stamina, anxiety, and fatigue and memory loss. It is helpful in Panchakarma Therapy called Basti (Enema). It also rejuvenates the body functioning on the cellular level by energizing the cells. It is also beneficial in premature ageing of the body, reducing body pain and acts as a catalyst for the body to respond to other medicines as well. Study show, it exhibits aspirin-like antipyretic and anti-inflammatory effects.

2. Triphala churna: It is the formulation containing the three fruits (also known as three myrobalans) in equal proportion without seeds. Triphala is also termed as ‘nectar of life’.

Ingredients

- ❖ Amla (Indian Gooseberry) –Emblica Officinalis dried fruit pulp powder
- ❖ Bibhitaki – Terminalia Bellirica dried fruit pulp powder
- ❖ Haritaki – Terminalia Chebula dried fruit pulp powder

Ayurvedic pharmacology

- ❖ Rasa: Pancharasa (Lavanrahit kasaya predominance)
- ❖ Guna: laghu, Ruksha
- ❖ Virya: Ushna
- ❖ Vipaka: Madhura
- ❖ Prabhava: Tridoshahara
- ❖ Doshas: Balances Kapha and Pitta

Dose: 1 – 3 grams with honey, ghee or warm water, before food.

Uses: It is beneficial for constipation, losing weight (obesity), reducing belly fat, body cleanse, indigestion and other abdominal problems. Triphala stimulates immune system and thus it helps preventing recurrent upper respiratory infections. It stimulates gastric secretion and improves digestion.

3. Shadbindu Taila: It is an Ayurvedic herbal oil used in Nasya treatment. Few drops of oil are instilled into nostrils, useful to relieve headache, baldness and hair fall.

Ingredients

- Sesame oil – Sesamum indicum – 768 ml
- Goat milk – 3.072 liters
- Bhringaja – Eclipta alba – juice extract – 3.072 liters

Paste prepared from fine powders of 19 g of each of –

Castor – *Ricinus communis*

Indian valerian (root) – *Valeriana wallichii*

Indian Dill – *Anethum sowa*

Jivanti – *Leptadenia reticulata*

Rasna – *Pluchea lanceolata* / *Vanda roxburghii*

Rock salt

Cinnamon – *Cinnamomum zeylanicum*

Vidanga – False black pepper – *Embelia ribes*

Licorice – *Glycyrrhiza glabra*

Ginger – *Zingiber officinalis*

Dose: 2 – 6 drops of the oil are instilled into each nostril

Uses: In treatment of headache, sinusitis, dizziness, migraine, teeth weakness. It improves vision and immunity.

Prevents falling of hair. Shadbindu oil is a main medicine used in NASYA Panchakarma Therapy.

4. Lauha bhashma: It is an Ayurvedic medicine prepared from Iron. It is used in Ayurvedic treatment of anemia, eye disorders, skin diseases etc.

Method of preparation: Triphala – 100 grams is added with 800 ml of cow urine, boiled and reduced to 200 ml, filtered. This decoction is used to grind purified Iron, for 21 days, disc shaped cakes are prepared, taken in a closed container and heated in the absence of air in 800 – 900 degree celsius for 4 – 5 hours. Taken out, and again ground with Triphala – cow urine decoction for one day and again heated in the absence of air. This process is repeated for 21 times to obtain Iron Bhasma.

Dose: 125 – 250 mg once or twice a day before or after food or as directed by Ayurvedic doctor. It is traditionally administered along with Honey, Ghee, Trikatu Churna, Triphala Churna, Turmeric.

Uses: Anemia, anti-spasmodic, Dyspepsia, Hyperlipidemia, Worm infestations, Skin disorders, Eye disorders

5. Chandra prabha vati

Ingredients

3 g fine powder of each of

Camphor – *Cinnamomum camphora*

Vacha – *Acorus calamus*

Nut grass (root) – *Cyperus rotundus*

Andrographis paniculata

Tinospora cordifolia

Himalayan cedar (bark) – *Cedrus deodara*

Turmeric rhizome – *Curcuma longa*

Aconitum heterophyllum

Tree Turmeric (stem) – *Berberis aristata*

Long pepper root – *Piper longum*

Chitraka – *Plumbago zeylanica*

Coriander – *Coriandrum sativum*

Haritaki – *Terminalia chebula*

Vibhitaki – *Terminalia bellirica*

Amalaki – Indian gooseberry fruit – *Emblica officinalis* Gaertn.

Java Long Pepper – *Piper chaba*

Vidanga – False black pepper – *Embelia ribes*
Ginger Rhizome – *Zingiber officinalis*
Black pepper – *Piper nigrum*
Long pepper fruit – *Piper longum*
Makshika Dhatu Bhasma – Purified Copper Iron Sulphate
Kshara of Barley – *Hordeum vulgare*
Swarjika Kshara
Saindhava Lavana – Rock salt
Sauvarchala Lavana – Sochal salt
Vida Lavana – Vida salt

12 g fine powder of each of

Operculina turpethum
Danti – *Baliospermum montanum*
Cinnamomum tamala
Twak – Cinnamon – *Cinnamomum zeylanicum*
Cardamom – *Elettaria cardamomum*
Vamshalochana – *bambusa bambos*
Loha Bhasma – Iron Bhasma – 24 g

48 g fine powder of each of

Sita – Sugar
Shilajatu – Asphaltum
Guggulu – Indian bedelium – *Commiphora mukul*

Dose: 2 - 3 Tablets twice daily, after meals, with plain water

Uses: Excessive urination, Burning sensation during urination, retention of urine, Renal calculi, Anemia, Jaundice, Ovarian cysts, low sex drive in both men and women, Unable to conceive due to inflammation in Ovaries and pelvic organs. Provides relief from asthma, bronchitis, pneumonia, and the common cold.

6. Ashokaarista: It is extensively used in Ayurvedic treatment of heavy menstrual bleeding and other gynecological complaints. It contains 5 - 10 % of self-generated alcohol, which acts as medium for herbal active principles. It is one of the most popular remedy for 'female disorders' or for menstrual disorder and female hormonal imbalances.

Ingredients:

Ashoka – *Saraca asoka* – Bark – 4.8 kg
Water for decoction – 49.152 liters
Kashayam – decoction – 12.288 liters
Guda – jaggery – *Saccharum officinarum* – 9.6 kg
Dhataki – *Woodfordia fruticosa* – flower – 768 g
Cyperus rotundus – Rhizome – 48 g
Ginger – Rhizome – 48 g
Nigella sativa – Fruit – 48 g
Berberis aristata – Stem – 48 g
Nymphaea stellata – flower – 48 g
Haritaki – *Terminalia chebula* – fruit – 48 g
Vibhitaki – *Terminalia bellerica* – fruit – 48 g
Amalaki – Amla – Indian gooseberry – fruit – 48 g
Amrasthi – mango seed – 48 g
Jeeraka – cumin seed – 48 g
Vasa – *Adhatoda vasica* – whole plant – 48 g
Chandana – *Santalum album* (sandalwood) – 48 g

Ayurvedic pharmacology

- ❖ Rasa: Madhura, Tikta, kashaya, Katu
- ❖ Guna: Laghu
- ❖ Virya: Sheeta
- ❖ Vipaka : Madhura
- ❖ Doshas: It is Tridosh-nashak and balances Vata, pitta and kapha.

Dose: 15 – 30 ml of Ashokarishta orally with equal amount of water after meals twice a day.

Uses: Pain menstruation, heavy periods, fever, bleeding disorders such as nasal bleeding, bleeding hemorrhoids, inflammation, indigestion and lack of taste.

7.Vasavaleha: Vasavaleha is an important formulation in Ayurveda used for various disorders of respiratory tract including asthma, bronchitis, chronic cough. A poetic wise proves its high esteem amongst physicians which reads like this “why should patients of kaasa (cough), shwaasa (asthma), raktapitta (bleeding disorders) should ever get depressed when vasa is around?”. It is available in herbal jam or paste form.

Ingredients:

- ❖ Vasaka svarasa- Adhatoda vasica (Fresh leaves): 768 ml
- ❖ Sita- Sugar candy: 384 gm
- ❖ Sarpi(Goghrtta)- Clarified butter from cow’s milk: 96 gm
- ❖ Pippali- Piper longum (Fresh): 96 gm
- ❖ Madhu- Honey :384 gm

Dose: 6 – 12 grams once or two times a day before or after food

Uses: It subsides cough, cold, rhinitis, bleeding disorders, asthma, chest pain, pain in flanks and fever. In case bleeding from nostrils vasavaleha is administered along with cow’s milk. In the condition of phlegm, nasal blockage and sinusitis,

8. Triphala ghrita: It is an Ayurvedic medicine, in herbal ghee form. This medicine has ghee as its base. Triphala is the main ingredient in this medicine.

Ingredients (12g each of)

Triphala – Haritaki (Terminalia chebula), Vibhitaki (Terminalia bellirica) Amla (Emblica officinalis)

Trikatu – Pepper, long pepper and ginger.

Draksha – dry grapes

Madhuka – Licorice – Glycyrrhiza glabra

Katukarohini – Picrorrhiza kurroa

Prapaundarika – Lotus variety

Cardamom

Vidanga – Embelia ribes

Nagakeshar – Mesua ferrea

Nilotpala – Nymphaea stellata

Shweta and Krishna Sariva – Hemidesmus indicus

Chandana – sandalwood – Santalum album

Turmeric – Curcuma longa

Berberis aristata

Ghee – 576 g

Milk – 768 ml

Triphala Kashayam – 2.304 liters

Dose: 10-20gm with water/milk, usually before food, once or twice a day

Uses: Night blindness, Diminished vision, Eye pain, Itching in eyes, Myopia or Short Sighted, Hypermetropia (Hyperopia) or Long Sighted, Dry eye; Glaucoma; Computer vision disorder; Conjunctivitis. It also helps in night blindness.

The Concept of Veerya in Ayurveda

The word Veerya is derived from 'veer' that means a dynamic property of a substance, which brings about the action. Veerya in Ayurveda is a unique concept, which is very important to understand the pharmacodynamics and action of a drug.

Characteristics of Veerya in Ayurveda

- ❖ It is observed that drugs, which effectively act on Dosha, Dhatu and Mala at a particular time become ineffective after sometimes. This is so because the potency of a substances or the Veerya, which is responsible for the effective action, is lost when old. For this reason, all Samhitas (Ayurvedic classics) advise to use fresh Dravyas instead of old.
- ❖ A drug works through Veerya. If its Veerya gets depleted due to the effect of adverse conditions, it loses its dynamic potency because of which it becomes ineffective. Action only takes place if the drug possesses Veerya, if it doesn't, actions are not seen.
- ❖ Different opinions exist regarding the form of Veerya. Some ancient Acharya mentions Veerya as a substance, some as Guna and Karma. Some describes Veerya as a dynamic potency and therefore consider it as a part of Guna. Modern scholars consider Veerya as 'active principle' and hence a part of special substances.

Types of Veerya

- ❖ **Astavidha Veerya (8 types of Veerya)**- Guru, Laghu, Sheeta, Ushna, Snigdha, Ruksha, Mridu, Tikshna
- ❖ **Dvididha Veerya (2 types of Veerya)**- Sheeta, Ushna

Dvididha Veerya and its Mahabhoota and Karma

- ❖ Sheeta Veerya (Prithvi+ Jala): Pleasurable, stabilizing, cleaning, life giving
- ❖ Ushna Veerya (Agni): Burning, fainting, loss of senses, sweating, emesis, purgation

Astavidha Veerya and its Mahabhoota and Karma

Veerya	Mahabhootha	Karma
Sheeta	Prithvi + Jala	Pleasurable, stabilizing, cleaning, life giving, heavy
Ushna	Agni	Burning, digestion, fainting, loss of senses, sweating and emesis
Snigdha	Jala	Snehana, restorative, anti aging, aphrodisiac
Ruksha	Vayu	Constipative, drying, heating, painful
Guru	Agni+ Vayu	Applicative, promotive, aphrodisiac
Lagu	Agni+ Vayu	Scrapping, absorption, drying, healing
Mridu	Jala+ Akasha	Blood & muscle promoting
Tikshna	Agni	Collective, aspiration, drying, oozing

Relations between rasa and Veerya

Generally dravyas having Madhura, Tikta, Kashaya rasas are Sheeta Veerya and those having Amla, Lavana and Katu rasa, are Ushna Veerya. All these rasas, which are related to Agni mahabhoota are Ushna Veerya, and rest are Sheeta Veerya. But there is an exception, even though Rasa is useful in arriving at an inference about Veerya, Vipaka, Guna. So it is wrong to decide the Veerya.

Importance of Veerya in Ayurveda

- ❖ Drug contains different entities like Rasa, Veerya, Vipaka etc. among all these Veerya is predominant because it brings about action of Dravya.
- ❖ Only Dravyas, which, are predominant in Veerya are used in Chikitsa (treatment/ therapeutic purpose).

- ❖ Action of Dravya is due to Veerya.
- ❖ Veerya supersedes Rasa, Vipaka and Guna, therefore even when Rasa, Vipaka and Guna of a Dravya act in accordance with each other. Veerya brings about total action difference.

Regulatory aspects in Ayurveda in Nepal

Ayurveda is the omnipresent science of our rich tradition, heritage, and century-old knowledge. It is the most authentically recorded, culturally based health system in Nepal. Furthermore, this traditional knowledge provides great wealth and heritage to our nation. Various regulatory aspects of this system in Nepal are discussed below.

National Drug Policy Relating to Herbal & Traditional Medicines (objectives)

- ❖ To define, promote and regulate the standards of Ayurvedic, Homeopathic, Traditional and other system of medicines by adopting scientific approach.
- ❖ The production of drugs for which the formula is well documented under their recognized literatures will be facilitated both at governmental and private sectors.
- ❖ The drugs based on these formulas as well as other ingredients will be modernized into dosage forms and be subjected to scientific evaluation for their safety, efficacy and quality.
- ❖ Activities related to drugs under Ayurvedic, Homeopathic, Traditional and other system of medicines will be developed suitably involving qualified personnel and related technologist.
- ❖ The Ayurvedic department will conduct and co-ordinate all technical activities related to Ayurvedic drugs.

Regulations: Governing Act: (Drug Act 1978)

- ❖ National Authority for Drug Control: Department of Drug Administration (DDA)
- ❖ National Reference Laboratory: National Medicines Laboratory (NML) is the principal body for scientific research, testing and analysis of drug.

Relevant drug regulation

- Drug Registration Regulation (1989) – Production, Export/Import
- Drug Consultative Council and Drug Advisory Committee Regulation (1980)
- Drug Enquiry and Inspection Regulation (1980)
- Drug Standard Regulation (1983)
- Drug Manufacturing Code (1986)

DDA has endorsed the regulation that all the herbal drug producers should compulsorily obtained Good Manufacturing Practices certification for marketing their product. GMP is prescribed to ensure:

- ❖ Raw materials used in the manufacture of drugs are authentic, of prescribed quality and are free from contamination.
- ❖ The manufacturing process is as has been prescribed to maintain the standards.
- ❖ Adequate quality control measures are adopted.
- ❖ The manufactured drug which is released for sale is acceptable quality

Ayurveda Medical Council Act, 2045 (1988)

- ❖ Chapter 4.2 Qualification of doctor
- ❖ Chapter 6 Production and sale and distribution of Ayurvedic medicines
- ❖ Chapter 6.1 Approval to be obtained to produce Ayurvedic medicines:
- ❖ Chapter 6.2 Restriction on sale of Ayurvedic medicines without prescription

Commitments for the promotion of Herbal Medicines:

- ❖ Restriction on use of unnecessary, irrational and harmful medicines
- ❖ Registration on Scientific Basis for Quality Assurance
- ❖ Amendment of Act and Regulation for export promotion in the context of WTO
- ❖ Implementation of National Guidelines on GMP (2007) for manufacturing Herbal Medicines
- ❖ Rationalize use of Multi Ingredients in Herbal Medicines
- ❖ Developing Clinical Trial Protocol for Curing Specific Diseases by Herbal Medicines

- ❖ Establishing Centre for Ayurvedic Drug Research
- ❖ Regional coordination / co -operations/ Networking for the research activities
- ❖ Developing joint monographs
- ❖ Developing quality control techniques
- ❖ Regional/Domestic market surveillance for counterfeit & substandard TM medicines and ADRs.

Challenges

- ❖ Developing the herbal medicaments on scientific basis.
- ❖ Quality Control and Quality Assurance techniques
- ❖ Counterfeit & substandard traditional medicines in the market
- ❖ Many commercial traditional medicine formulations in the market.

Constraints

- ❖ Resource constraints for the research activities
- ❖ More Research centers required
- ❖ More Expertise required
- ❖ Inadequate techniques for QC monitoring

Research aspects of Ayurvedic medicines: Major problems with clinical trials

- ✓ Understanding the mechanisms responsible for the clinical effects of herbal products is complex due to the presence of multiple constituents within one herbal ingredient, and thus pharmacokinetic/pharmacodynamic data for these products are often unavailable.
- ✓ Lack of standardization and quality control of the herbal drugs used in clinical trials;
- ✓ Use of different dosages of herbal medicines
- ✓ Inadequate randomization in most studies, and patients batch not properly selected
- ✓ Numbers of patients in most trials are insufficient for the attainment of statistical significance
- ✓ Difficulty in establishing appropriate placebos because of the taste and aroma etc
- ✓ Wide variations in the duration of treatments using herbal medicines
- ✓ Storage conditions can also alter the bioavailability of herbal medicines, which may lead to loss of activity, fungal or bacterial contamination resulting into batch to batch variation
- ✓ Selection of dosage regimen may also pose problems. Dose must be calculated on the basis that whether crude drug or extract is used, and the dose of the extract has to be calculated on the basis of extractive value
- ✓ Importance of Good Manufacturing Practices are generally not given due consideration while manufacturing herbal products hence, while working with marketed formulation, it is necessary to keep a check on adulteration and substitution
- ✓ the crude raw herb material has number of variations as per geographical locations, climatic conditions, environmental hazards, harvesting methods, collection protocols, etc which makes it a difficult task to standardize the end product for a reproducible quality
- ✓ As most herbal medicines used in traditional systems are used in the humans without any toxicity studies, their embryotoxic, foetotoxic, and carcinogenic effects are likely to remain unrecognized in traditional practice.
- ✓ Another problem with research on alternative medicine is the fact that complementary health practitioners often question the suitability of randomized clinical trials in relation to complementary medicine because of the holistic approach (i.e. treating mind, body and soul at the same time) that is required and the fact that the alternative medicine is normally tailored specifically for each individual. Practitioners suggest it is inappropriate to test only one treatment in isolation and to give it to all participants in the same manner and amount, as occurs in randomized clinical trials

Charaka Samhita

The Charaka Samhita states that the content of the book was first taught by Atreya, and then subsequently codified by Agnivesa, revised by Charaka, and the manuscripts that survive into the modern era are based on one edited by Dridhabala.

It describes ancient theories on human body, etiology, symptomology and therapeutics for a wide range of diseases. It also includes sections on the importance of diet, hygiene, prevention and medical education. Dates of composition of the Charaka Samhita are uncertain. History of Indian Medical Literature dates it to be between fourth century BCE to the second century CE with Charaka's compilation likely between 100 BCE and 200 CE. The Dridhabala revision and completion, the source of current texts, is dated to the 6th century CE.

Organization of Charaka samhita (eight books containing total of 120 chapters)

1. **Sutra Sthana (General principles)** - 30 chapters deal with general principles, philosophy, definitions, prevention through healthy living, and the goals of the text.
2. **Nidana Sthana (Pathology)** - 8 chapters on causes of diseases.
3. **Vimana Sthana (Specific determination)** 8 chapters contain training of a physician, ethics of medical practice, pathology, diet and nourishment, taste of medicines.
4. **Śarira Sthana (Anatomy)** - 8 chapters describe embryology & anatomy of a human body (with a section on other living beings).
5. **Indriya Sthana (Sensory organ based prognosis)** - 12 chapters elaborate on diagnosis & prognosis, mostly based on sensory response of the patient.
6. **Cikitsa Sthana (Therapeutics)** - 30 chapters deal with medicines and treatment of diseases.
7. **Kalpa Sthana (Pharmaceutics and toxicology)** - 12 chapters describe pharmacy, the preparation and dosage of medicine, signs of their abuse, and dealing with poisons.
8. **Siddhi Sthana (Success in treatment)** - 12 chapters describe signs of cure, hygiene and healthier living

Seventeen chapters of Cikitsā sthāna and complete Kalpa sthāna and Siddhi sthāna were added later by Dridhabala

Special features of Charak Samhita

- ❖ Charak samhita stands strongly as a representative of one branch of Ayurveda known as Kaya Chikitsa (internal medicine).
- ❖ It is composed in poetic format, which becomes easy to memorize the quotations.
- ❖ Charak prescribed three important Eshana (pursuits of life) like Praneshana (pursuits of healthy and long life), Dhaneshana (pursuits of wealth) and Parlokeshana (pursuits of another world)
- ❖ Acharya Charak explains how to maintain our Oja dhatu through Rasayana therapy, particularly "Achara Rasayana" (behavioral recommendations)
- ❖ Twenty types of Krimi (disease-causing parasites) are described by Charak. Out of them some residing outside the body and some others inside the human body
- ❖ According to Charak samhita successful medical treatment depends on four factors: Vaidya (physician), Oushadi (proper drug), Rogi (patient) and Paricharak (compounder). These factors equipped with sixteen qualities (four of each) are responsible for success in any kind of treatment
- ❖ He has emphasized the influence of diet on mind and body
- ❖ According to Acharya Charak, Rasayana therapy (rejuvenation therapy) enhances the intelligence, memory power, will power, body strength, sweetness of voice and physical strength. It nourishes the Rakta (blood), Mansa (flesh) and Shukra (semen) and thus prevents chronic degenerative changes and illness. It gives freedom from chronic degenerative disorders like Arthritis and senile diseases
- ❖ Acharya Charak says that if a person drinks Madhya (alcohol) in right time, in right manner, in right quantity with some food then that Madhya is like ambrosia for that body

- ❖ Charak samhita describes Poisonous plants and animals along with 24 types of treatment of their poisoning
- ❖ Acharya Charak was the first person who explain the concept of Swabhoparamvada (the theory of natural homeostasis)
- ❖ Acharya Charak never mentioned the subtypes of Pitta and kapha dosha, but he listed and mentioned the 5 sub-types of Vata dosha.
- ❖ Charak has described that the Jatharaagni is responsible for the process of digestion and metabolism, complexion, strength, glow of vital essence, luster etc. Charak also mentioned Jatharaagni as the supreme king of all the metabolic process
- ❖ Acharya Charak was the first physician to present the concept of Pachan (digestion), (metabolism) and Vyadhishamatwa (immunity).
- ❖ Acharya Charak has laid much emphasis on Aahara and Vihara (proper diet and proper regimen) by healthy individuals as well as patients. He also mentioned that a person who consumed wholesome foods will leaves for hundred years free from any kind of diseases
- ❖ Charak believed that Aahara (foods) and Oushadhi (drugs) as well as the body are composed of the same basic elements, viz., Prithvi, Apa, Tejas, Vayu and Akasha.

Detoxification/Sodhana of crude drugs used in Ayurveda

There are various crude drugs, which generally possess unwanted impurities and toxic substances, which can lead to harmful health problems. *Sodhana* process involves the purification as well as reduction in the levels of toxic principles, which results in an enhanced potency/therapeutic efficacy. *Sodhana* process is specially designed for the drugs from mineral origin; however, it is recommended for all kinds of drugs to remove their impurities or toxic content.

- 1. Sodhana of Datura:** *Datura metel* seeds are highly toxic and may be fatal, due to the presence of alkaloids in them. Most of the side-effects (dryness of the mouth, excessive thirst, cramps, unconsciousness, and giddiness) are due to anticholinergic property of the alkaloids present in this plant. In the purification process of seeds are soaked in freshly collected *Gomutra* and kept aside for 12 h. After washing, the seeds are transferred to the *dola yantra* for *svedana* process for 3 h. The seeds are again washed with lukewarm water, allowed to dry and the seeds testa are removed. Reduction in total alkaloid content and increase in total protein content of seed are observed after *Sodhana*.
- 2. Sodhana of Cannabis/Bhang:** Leaves of *Cannabis sativa* are bitter, astringent, tonic, aphrodisiac, alterative, intoxicating, stomachic, analgesic, and abortifacient. It is used for the treatment of convulsions, otalgia, abdominal disorders, malarial fever, dysentery, diarrhea, skin diseases, hysteria, insomnia, gonorrhoea, colic, tetanus, and hydrophobia. Its excessive use causes dyspepsia, cough, impotence, melancholy, dropsy, restlessness, and insanity. In order to reduce these toxic effects, it is boiled with *Babbula Tvak kwatha* for 3 h and the powder obtained is triturated with *Godugdha*. Triturating with *Babbula Tvak kwatha* and frying the powder obtained in Cow Ghee can also reduce toxic effects of Bhang.

3. Sodhana of Shilajit: conqueror of mountains and destroyer of weakness”

Shilajit (Mineral pitch) is a herbo-mineral compound with many beneficial therapeutic properties; antiaging, disease modifying capability, help reduce risk of degenerative, improve energy level, powerful aphrodisiac, anti-stress/anti ulcerogenic, analgesic and antiinflammatory, anti-allergic and cognition enhancer, blood sugar lowering effects, modulates neurochemicals.

Shilajit is believed to have been derived from vegetation fossils that have been compressed under layers of rocks for hundreds of years and have undergone a high amount of metamorphosis due to the high temperature and pressure condition. During warm summer months (May-June), shilajit becomes less viscous and flows out between the layers of rocks. It is mainly composed of Humus - the characteristic

constituents of soil together with other organic constituents. The major organic constituents of shilajit include benzoic acid, hippuric acid, fatty acids, resin and waxy materials, gums, albuminoids and vegetable matter.

In the texts of Rasashastra, it is one among the Maharasas and exists in two types as

1. Gomutra Gandhi Shilajatu
2. Karpoora Gandhi Shilajatu.

Among the two types Gomutra Gandhi Shilajatu is considered as superior and used for preparation of medicine.

The Samhitas have classified Shilajatu into 4 to 6 types, depending on the metal ore found in the mountains, from which the Shilajatu is collected. Swarnagarbha Girijata Shilajatu, Rajatagarbha Girijata Shilajatu, Tamragarbha Girijata Shilajatu, Lauhagarbha Girijata Shilajatu, Nagagarbha Girijata Shilajatu and Vangagarbha Girijata Shilajatu. Lauha shilajit is commonly found in Himalayan ranges and is supposed to be the most effective according to the therapeutic point of view.

Properties of Shilajit

Type of Shilajit	Rasa	Virya	Vipaka
Swarna	Madhur, Tikta	Sheeta	Katu
Rajat	Katu	Sheeta	Madhura
Tamra	Tikta	Ushna	Katu
Loha	Tikta, lavana	Sheeta	Katu

There are basically **two different types of Sodhana** process for Shilajit:

1. **Suryatapi process:** Shilajit is added to the Triphala Kwatha or Bhringaraja Swaras or Cow Milk and filtered through a cloth to remove physical impurities. The filtrate is then kept under sunlight for drying for many days. In the due course of drying a cream like reddish black layer is formed on it which must be removed and kept separately for drying repeatedly until the whole of Shilajit is collected and dried in the form of cream like layer. This method is said to be the best method of shodhana.
2. **Agnitapi process:** Shilajit is added to the Triphala kwatha and boiled continuously till Shilajit is obtained in a condensed form. It is then taken out and dried properly in sunlight.