

Herbal Drug Technology

B. Pharm Sem (VI)

Unit - 1st

- Ch. (i) Herbs as Raw Materials.
- Ch. (ii) Biodynamic Agriculture.
- Ch. (iii) Indian System of Medicine.

(i) Herbs as Raw Material :

Herbs : The term herb is derived from the latin word herba which means the green part of the plant.

- It means any part which is obtained from the green part of the plant they are called herbs.
- Herbs are the plant having aromatic properties and are used for flavouring and garnishing food and for medicinal purpose.
- Herb include any part of the plant like leaves root flower seed woods bark.

Herbal medicine : Any drug material which is directly or indirectly obtained from the plant they are called herbal medicine.

Herbal Medicinal Product : Any Extract or Active Constituent which is extracted from the herbal medicine they are called herbal medicinal product.

Herbal drug Preparation : Any dosage form like Syrup, Capsule, Cream, Tablet ointment. any thing which is prepared by using herbal medicinal product or herbal medicine they are called herbal drug preparation.

Approach for herbal drug Preparation :

(i) Chemosynthetic Approach : Chemosynthetic Approach was

first of all discovered by Otto Richard Gottle in 1982.

→ In each and every plant different types of chemicals are present and in the same group of the plant contains same type of chemical.

- And by the cultivation of that plant we can produce that chemical.

→ For Example - Coriander - Volatile oil

- Turmeric - Spices

- Ginger - Spices

(ii) Ethnobotanical Approach (Local Population)

→ In this type of approach no cultivation is required

- The local plant which are available in our society we can extract the chemical from that plant.

→ Ex Tulsi, Neem, etc.

Eucalyptus.

≡ Identification and Authentication of Herbal drug:

⇒ In any simple plant they are the complex chemical are present or more than one type of chemical are present and only one suitable chemical is identified and extracted from these plant by the method of authentication we can obtained the pure material from any plant.

≡ Identification test of herbal drug:

→ In any plant material more than one type of chemicals are present.

→ And it is very necessary to identify them by diff-2 method.

- 1) Macroscopy
- 2) Microscopy
- 3) Chromatographic Procedure
- 4) Chemical Reaction.

There are various method for identification of the plant material

- 1) Taxonomic Method.
- 2) Herbarium Coupon Sample
- 3) Macroscopic Method.
- 4) Microscopic Method
- 5) Physico-chemical Method.
- 6) Spectroscopic Method.

(1) Taxonomic Method :

- This is the primary and best method for the identification of plant material by the taxonomic Method.
- Because each and every family of plant have different characteristic and property & diff. chemical.
- For example - Umlif family includes maximum spices plant.
→ And from the Glycoside, Digoxin and Digitoxin are obtained which is used in the cardiac problem.

(2) Herbarium Coupon Sample

- In this method the dried part of the plant like - Leaf, seed, Flower, Stem are stored in a file or collected in a file and their details (calculated) entered and with the matching of this file we can identify the plant.

(3) Macroscopy Method :

- Macroscopic identify of herbal material is based on the parameter like, shape, Size, Colour, Surface characteristic odour, Taste, and such organoleptic properties which are compared with a standard reference material.

(4) Microscopy Method :

- Microscopy is generally used to determine the structural cellular and internal tissue features of herbal material it is used to identify and differentiate two herbs that are similar in appearance this is commonly used technical, convenient and quick.

(5) Physico-Chemical Method:

- In this method we can determine the physical and chemical property of any drug.
- Physico chemical properties includes water soluble ash value, Acid insoluble ash value and sulphated ash value.
- These value of the herbal drug are compared with standard value of the pharmacopoeia (I.P).

(6) Spectroscopic Method:

→ Infrared spectroscopic method is used for structural elucidation of isolated compounds from the herbal material and is also useful in phytochemical studies as a fingerprinting tool.

→ A study using FTIR transmission spectroscopy along with the (soft independent modeling of class analogue) (SIMCA) is done for identification and authentication other method include.

- 1) Electron Spectroscopy for chemical Analysis (ESCA)
- 2) Inductively Coupled Plasma mass spectroscopy (ICP-MS)
- 3) Atomic Absorption spectroscopy (AAS)
- 4) X-Ray Diffraction analysis (Crystalline Material)
- 5) X-Ray fluorescence Analysis.

→ In this method by using of spectroscopy method we identify diff-2 compound which are present in very less amount in the plant. for example - UV spectroscopy, IR spectroscopy, mass spectroscopy.

(7) Chromatographic Method :

- HPLC
- capillary electrophoresis.
- TLC

→ Are the most commonly used for herbal product.

→ The analysis of volatile compound by gas chromatography is very important in chemical analysis of herbal medicine.

8. Chemical Fingerprinting : A chemical fingerprint is a unique pattern that signify the multiple chemical marker present in a sample.

→ The quantity of a chemical marker can be indicator of the quality of herbal medicine the study of chemical marker is helpful in authentication of a genuine species such for new resources of raw material, optimization of extraction and purification method structure elucidation & purity determination.

9. Molecular Marker : Molecular marker mean by biochemical constituents including primary and secondary metabolite and other macromolecule like nucleic acid DNA marker are reliable for informative polymorphism as the genetic composition is unique for each species and is not effected by its physiological condition as well as environmental condition.

→ DNA can be extracted from fresh or dried organic tissues of the herbal medicine.

Processing of Herbal Raw Material

→ We obtained the raw material from the plant in green form and after drying and size reduction we can obtain into the herbal drug raw material and this is called processing.

→ It is of two types -

i) Primary Processing

ii) Secondary Processing.

(i) Primary Processing:

→ It is the first process of the processing of the herbal raw material.

→ When the any part of the plant is directly obtained from the plant and they are drying in sunlight or any kind of machine this is called primary processing.

(ii) Secondary Processing:

→ It is the second step and after the primary processing then the raw material is pulverized. size reduces. crushing this is called secondary process.

Drying: → In open air

→ By direct sunlight

→ In drying oven and solar dryer

→ By indirect fire, lyophilisation, microwave or infrared device

→ Vacuum dryers.

→ Spray dryers.

Biodynamic Agriculture

- This is a kind of good agriculture practices in which we increase the productivity of medicinal plants.
- According to WHO the GAP (Good Agriculture practices) it includes the good method of cultivation, Good method of Harvesting, good method of extraction and everything is included in the cultivation of medicinal plant.
- The main objective of GAP Guideline are -
 - i) To improve the quality, safety and effectiveness of final herbal product.
 - ii) Guide the formulation of national monograph for medicinal plant and related standard operating procedure.
 - iii) Support cultivation and collection of medicinal plant of good quality in order to respect and support the protection of medicinal plant and environment.

Identification or Authentication of Cultivated Medicinal Plant

1) Selection of Medicinal Plant

- First of all we choose the medicinal plant which we have to cultivate.
- First of all we choose the proper climate condition proper soil condition and economic condition then we choose the medicinal plant.

2) Botanical Identity :- The botanical identity include scientific name (Genus, species, sub-species or variety & family) and botanical identity of each medicinal plant under cultivation should be verified and recorded if available local & english common name should also be recorded other relevant information such as cultivar name, ecotype, chemotype, phenotype.

3) Specimen :- During the first registration in a produces country of a medicinal plant or if reasonable doubt exist as to the identify of a botanical species a botanical WHO guideline on Good agriculture and collection practice (GACP) for medicinal plant specimen should be submitted to national herbarium for identification and there is a genetic pattern should be compared to that of an authentication specimen.

Seed and Other Propagation Material:

- First of all we cultivated the soil then spread the seed.
- And besides with the seed we can use the diff-type of fertilizer
- During the cultivation we provide different-different fertilizer. proper amount of ^{irrigation} ~~so~~ the crop is developed.
- The propagation of planting material should be of the appropriate quality and should be free from contamination and disease in order to increase healthy plant growth seed and other propagation material used for organic production should be certified as organically derived, standardized and adulterated propagation material must be ~~avoided~~ **avoided**.

∴ Ecological Environment and Social Impact ∴

→ During the cultivation of any medicinal plant there are various factors which can affect the cultivation of plant they are following -

i) Climate ∴ climate condition like length of the day rainfall and field temp. significantly control the physical, chemical and biological qualities of medicinal plant.

ii) Soil ∴ The soil should contain appropriate amount of nutrient organic matter and other elements for medicinal plant growth and quality soil condition like soil type moisture retention fertility and PH will be decided by the selected medicinal plant species and target medicinal plant part.

(iii) Irrigation and drainage ∴ Irrigation and drainage should be controlled and carried out according to need of the medicinal plant species during its various stage of growth water used for irrigation purpose should comply with local regionable and national quality standards and should be taken to ensure that the plant under cultivation should not be over or underwatered.

iv) Plant Maintenance and Protection ∴ Plant maintenance is defined as a lot of activities that are necessary to keep machinery part and types of equipment in good operating conditions to avoid production stoppage and loss.

- Objectives of maintenance management minimizing the loss of production time due to equipment failure.
- Maintenance management is responsible for the smooth and efficient working of the industrial plant and helps in improving the productivity.

∴ Harvesting ∴

- Medicinal plant should be harvested during the most favourable condition / season or time period to ensure the production of medicinal plant material and final herbal product of the best possible quality.
- ⇒ The time of harvest depend on the plant part to be used
detailed information about the appropriate timing of harvest is after available in National pharmacopoeia published.
standarded, official monographs and major reference book
the best time for harvest is determined according to the quality and quantity of biologically active constituent rather than the total vegetative yield of the targeted medicinal plants part.
- ⇒ During harvest care should be taken to ensure that no foreign matter, weeds ~~are~~ toxic plants are mixed with the harvested medicinal plant material.
- ⇒ Medicinal plant should be harvested under the best possible conditions.
 - ⇒ Cutting Device Quality
 - ⇒ Control Damage.
 - ⇒ Stored in suitable area.
 - ⇒ Transportation facility.

∴ Organic farming ∴

- When any crop is produce or cultivated without the use of any chemical fertilizers with the help of biofertilizer this is called the organic farming.
- The principle goal of organic production is to develop the enterprises that are sustained and in agreement with the environment use to maximum extends as possible organic farming system depend upon crop rotation use of crop residue, animal manure, green manure, biofertilizer, mechanical cultivation, biological control to maintain soil productivity and to supply plant nutrients, weeds and other pest.
- ⇒ It help in promoting food security use of excessive chemical fertilizer and toxic pesticide followed the land area and water supply this lead to ensure environmental perality like loss of topsoil, decrease in soil fertility and surface and ground water contamination.

∴ Objective of Organic Farming ∴

- (i) To protect the environment, decreases soil degradation and erosion decrease pollution and increase state of health.
- (ii) To maintain long term soil fertility by optimising conditions for biological activity within the soil.
- (iii) To maintain biological diversity within the system.
- (iv) To recycle material and resources to the greatest extent possible within the project.
- (v) → To maintain product quality

∴ Importance of Organic Farming:

- (i) Provide better nutrition.
- (ii) Helps to stay healthy.
- (iii) Free of poison.
- (iv) Lower price.
- (v) Improved taste.
- (vi) Organic farming methods are ecofriendly longer shelf life.

Part of organic farming - i) Fertilization.

→ Organic farming does not use synthetic fertilizer and in order to build and maintain a rich soil addition of organic matter, compost and animal by product like meal or blood meal. US FDA National organic standard direct that raw manure must be applied 90-120 days before harvest depending on whether the harvested part of the crop is in contact with ground.

→ Compost old organic matter to the soil and provide a wide range of nutrient for plant and add helpful microbes to the soil.

→ The ploughing of nitrogen fixing cover crop adds nitrogen to the soil cover crop are commonly planted before and after the main crop season or with crop rotation.

(ii) Pest Controls ∴ Organic pesticides are generally used in organic farming and derived from naturally occurring sources, these include living organisms like *Bacillus thuringiensis* which is used to control caterpillars or plant derivatives like Pyrethrum (from the dried flower of *Chrysanthemum cinerariifolium* or neem oil from the seed of *Azadirachta indica*). mineral base inorganic pesticides like sulphur and copper are used.

(iii) Soil: Organic farmer maintain the health of their soil by using manure or compost and other organic material in place of synthetic fertilizer.
→ Biological fertilizer like compost release nutrient slowly build up organic soil matter increase the capacity of soil to retain moisture and reduced leaching of nitrates into ground water.

(iv) Beneficial Insect: Some organic farmer introduced beneficial insect such as lady bug, beetles, bigeye bug and nematodes that eat harmful insect.

(v) Crop rotation: It is naturally rebalanced the soil because different plant provide different nutrient to the soil.

→ It also disrupt the habitate of insects and weed and help to control them.

(vi) Buffer: O. F design their land area as buffer zone.
- This mean that the land is managed acc. to organic practice but the crop grow on them are not sold as organic because some plant in the buffer may have be exposed to genetically engineering crop or chemical used in conventional agriculture but burned for organic.

(vii) Cover Crop: Cover crop like clover, rye and wheat are planted b/w growing season which help to fill the soil with nutrient and prevent soil erosion.
→ They also help to maintain population of beneficial insect.

Pest and Pest Management in Medicinal Plant

Insect ÷ These are important and major pest insect caused damage in different way like sucking sap from plant, biting plant parts, boring into the fruit and leaves, attacking roots, bark and blossom.
→ The stage of different insect pest which caused damaged are larvae, adult and nymphs.

Mite ÷ These are like insect but have soft body and four pair of legs these have red or pale yellow color
→ They suck the sap from the plant and attack the crop.

Rodents ÷ Rodents are mammals of the order Rodentia, which are characterized by a single pair of continuously growing incisors in each of the upper and lower jaws.
→ Rodents are the most diverse order of mammals with at least 2552 currently recognized species of living rodents representing about 39.3% of all mammals.

÷ Methods of Pest control ÷

(1) Mechanical Method ÷ (i) Picking of pest by hand and destroy them
(ii) Remove the pest or whole plant that is disease.

(2) Physical Method ÷ → High temp. Kill to pest.
→ Low temp kill the pest
→ X-Ray & Gamma rays.

(3) Culture Method ÷ → Crop rotation
→ Proper use of fertilizer and water
→ Growing pest-resistance variety.

(4) Chemical Method: These chemicals are used pesticide and insecticide chemical method is faster and effective than other but it is harmful for environment.

(5) Biological Method: use of biological agent to control pest is called bio control.

→ There are certain predators, parasite, birds, animals, microorganisms that can be used for control pest this is the best method for controlling pest.

∴ Biopesticide and Bioinsecticide ∴

→ Conventional pesticide are generally synthetic material that directly kill or inactivated the pest.

→ These pesticide have various harmful effect to human being as well as plant animal & soil in order to avoid all those serious problem organic farming is used which utilised biopesticides for pest control and arrangement.

→ Biopesticide are the compound that are used to control agricultural pest by using biocontrol agent like natural organism or substance derived from natural material such as animal plant, bacteria or certain minerals including their genes or metabolite for controlling pest.

→ In simple term biopesticide are natural material these are based on pathogenic micro-organism and are specific to a target pest & offer an ecologically sound and effective solution to pest problem. They have less risk to the environment & to human health most commonly used biopesticides are living organism which are pathogenic for the pest these include biofungicide Ex. Trichoderma, Bioherbicide Phytophthora & Bioinsecticide Bacillus Thuringiensis, Bacillus sphaericus.

प्राचीन पद्धति

भारतीय चिकित्सा

Traditional / Indigenous System of Medicine

Modern System or Allopathy

- This system was developed in the Western countries.
- In this system drugs (tablets, capsule, injection, tonics etc) are manufactured using synthetic chemicals and derived from natural products like plants, animals, minerals etc.
- This system also uses modern equipment for diagnosis, analysis & surgery etc.
- Medicines of this system is often criticised for its treatment of symptoms rather than the cause of the disease, harmful side effects of certain drugs and for being out of reach of poor people due to the high cost of drugs and treatment.

Traditional Medicine

WHO defines traditional medicine as including diverse health practices, approaches, knowledge and beliefs incorporating plant, animal, and mineral based medicines, spiritual therapies, manual techniques and exercises which can be used to maintain well-being, as well as to treat, diagnose or prevent illness.

Types of Traditional System of Medicine

1. Ayurveda

2. Yoga (Naturopathy)

3. Unani

4. Siddha

5. Homeopathy

6. Yoga and naturopathy are drugless therapies.

AYURVEDA SYSTEM

- The term "Ayurveda" is derived from two Sanskrit words, Ayur and veda.
- Ayur means life and veda means knowledge or science.
- Therefore Ayurveda means science of life or way of life.
- Ayurveda basically science depends upon the religion and philosophy.
- Besides dealing with principles for maintenance of health, it is also developed a wide range therapeutic measures to combat illness.

Principle-

- The principle of Ayurveda is based on the concept of five basic elements and tridoshas.
- According to Ayurveda, the whole universe made up of five basic elements or Pancha Mahabhutas.

- The whole universe includes the material world, plant kingdom and all other living beings.
- In other words, these five elements together form the basis of all matter.
- The five elements are - Akasha (ether), Vayu (air), Agni (fire), Jala (water), Prithvi (earth).
- These five elements are responsible for a healthy life. If these elements are imbalanced and cause of different diseases.

• Ether (Akasha) - Ether is non resistance. It is located in the body cavities like mouth, thorax, abdomen, lung cavity, digestive tract.

• Air - It is related to movements, vibrations and oscillations.

They manifest movement of muscle, pulsation of heart, expansion and contraction of lungs, functioning of digestive and nervous system.

- Fire - Concerned to radiation, it manifests digestion, metabolism, temperature, vision, and intelligence.
- Water - is related to force and cohesion, located in cytoplasm, blood, salivary glands, gastric juice.
- Earth - is concerned to resistance and solidarity. They manifests skin, hair and bones.

TRIDOSHAS

- The five elements combine to form "Tri Dosha" i.e. Vata, Pitta, and Kapha. They are the "Basic forces" and also known as the "Pillars of life".
- Vata (Air principle) - the elements ether and air.
- Pitta (Fire principle) - the elements fire and water.
- Kapha (Water principle) - the elements earth and water.
- According to the Ayurveda, sickness due to the imbalance of any one or more of the three dosha.

पित्तशोथ

Ex - Aggravation of Pitta leads to Indigestion, skin diseases and liver problems.

Factors -

Factors responsible for imbalance of dosha are physical, mental, spiritual and environmental may contribute for the imbalance of dosha.

Diagnosis -

In Ayurveda diagnosis is always done of the patient as whole.

Diagnosis is carried out to find out which dosha is aggravated.

For his purpose, nadi (pulse), tongue, skin, physical features, stool, Urin etc are examined.

Treatment -

The importance of treatment is to restore the balance and harmony of dosha with proper diet and drugs-

Selection of drugs - Based upon -

1. Rasa (Taste)
2. Visiya (Potency)
3. Vipaka (Taste after digestion)

1. RASA -

Rasa indicates the composition, properties and probable action of the drugs.

These are six taste -

[A] Sour - (Water and Fire) - Pitta increases
- stimulates enzyme

[B] Saline - (Fire and earth) - Pitta Tes.

[C] Bitter - (Air and Fire) - Pitta Tes.

[D] Pungent - (Air and ether) - Kapha and pitta decrease

[E] Astringent - (Air and earth) - Pitta Tes and Vatta Tes.

2. Visiya (Potency) -

On the basis of Visiya, drugs are classified - hot and cold drugs -

[01] Hot (Ushna) drugs - Aggravates pitta and

pacifies vata and kapha, garlic, diuretic.

- Cold (Sita) drugs - Aggravates kapha and
vata, pacifies pitta.
Jeera, amla.

3. Vipaka -

Food and medicine undergoes various changes during digestion (metabolism).

The taste after digestion is known as Vipaka.

The three taste, described under vipaka, Sweet, Sour and pungent -

[A] Sweet - Aggravates kapha and alleviates pitta and vata.

[B] Sour - Aggravates pitta and alleviates kapha and vata.

[C] Pungent - Aggravates vata and alleviates kapha.

HOMEOPATHY System

Homeopathy is relatively a recent system of medicine.

The word "Homeopathy" is derived from two Greek words.

Homeis meaning similar and pathos meaning suffering.

Homeopathy simply means treating diseases with remedies, prescribed in minute doses, which are capable of producing symptoms similar to the disease when they taken by the healthy people.

It is based on the natural law of healing.

"Similia Similibus curantur" which means "Likes are cured by likes".

Origin and Development

Homeopathy is a system of medicine medical treatment introduced by Dr. Christian Friedrich Samuel Hahnemann, a German Physician.

He had spread a long and useful life of 88 years during which he benefited the suffering humanity immense by introducing this new system of medicine.

Definition / Meaning

Homeopathy is a system of treatment (branch of medical science) works on the principle of "Similia similibus curantur".

About the Founder DR. HAHNEMANN

The Founder of homeopathy was born on 10th April, 1755 at Meissen in Saxony of Germany.

He was basically a M.D medicine allopathic doctor who turned in to Homoeopath.

He Died on 2nd July 1843.

Fundamental Principle of Homoeopathy

1. Law of Similia
2. Law of Simples
3. Law of minimum
4. Doctrine of Drug proving
5. Theory of chronic disease
6. Theory of Vital force
7. Doctrine of Drug-dynamization

Principle -

The cause of the disease itself can be its treatment i.e. law of similars

This is the basic principle of Homoeopathy.

According to Hahnemann, disease are ^{congenital} and caused by gene mutations.

Toxic or poisonous substances are called Miasms are responsible for gene mutation

- Miasms are of three type -

~~Psora~~ Psora

- Syphilis
- Psychosis

- These exist in a sleeping state in a person.
- As long as they are in that state, the person does not suffer from disease due to resistance power.
- If any one of them stimulated, then the person loses his resistance power and suffers from disease related to it.
- Therefore Homeopathy is called a genetic medicine.

UNANI System

- The unani System of medicine has a long and impressive history in India.
- It was introduced in India by the Arabs Persians sometimes around the 11th century.
- Today, India is one of the leading countries in so far as the practice of Unani medicine is concerned.
- It has the largest number of Unani educational, research and health care institutions.

Origin and Development of Unani System

- Unani System originated in Greece.
- Hakim Ajmal Khan is UNANI Physician but also one of the foremost freedom fighters in the country.
- He established an Ayurvedic and Unani Tibbia collage and Hindustani Dawakhana - a pharmaceutical company - for Ayurvedic and Unani medicine in Delhi in 1916.

Principle and Concepts

- According to basic principles of Unani the body is made up of the four basic elements -
 - Earth, air, water, fire which have different temp. i.e. cold, hot, wet, hot dry, cold wet, and cold and dry.
- The body has the simple and compound organs which get their nourishment (The substances necessary for growth, health, and good condition)

through four humours, i.e. blood, phlegm, yellow bile and black bile.

- The humour (Put into a good mood) is also assigned temperament as - blood is hot and wet, Phlegm is cold and wet, Yellow is hot and dry and Black bile is cold and dry.
- Phlegm is cold and wet (Thick, sticky, stringy mucus secreted by the mucous membrane of the respiratory tract, as during a cold)
- Yellow bile is hot and dry (A yellow, or greenish viscid fluid, usually alkaline in reaction, secreted by the the liver. It passes into the intestine, where it aids in the digestive)
- Black bile is cold and dry. (A humour that was once believed to be secreted by the kidney or spleen and cause Sadness.

- Unani medicine believes in promotion of health prevention of diseases and cure.
- Health of human is based on the six essentials -
 - Atmospheric air
 - Physical activity and rest.
 - Drinks and food.
 - Sleep and wakefulness
 - Excretion and ~~sterc~~ retention.
 - Mental activity and rest.

The human body is considered to be made up of the following seven components are-

- Elements (Arkan)
- Temperature^{ment} (Mizaj)
- Humors (Akhlat)
- Organs (Aza)
- Spirits (Arwah)
- Faculties (Quwa)
- Functions (Af'al (af'al)).

• Elements (Arkan) -

The human body contains four elements - (earth, air, water, fire).

Each of the four elements has its own temperament as follows -

Element Temperament - Air hot and moist, earth cold and dry, Fire hot and dry, water cold and moist.

- Temperament - (Mizaj) - Temperament of the individual is very important as it is considered to be unique. The individual's temperament is believed to be the result of interposition of 4 elements.
- Humors (Akhlat) - Humors are the moist and fluid parts of the body which is produced after transformation and metabolism.

They serve the function of nutrition, growth and repair and produce energy for the preservation of individual and his species.

The humors are responsible for maintaining moisture of different organs of the body and also provide nutrition to the body.

- Organ (Aaza) - These are the various organs of human body.

The health or disease of each individual organ affects the state of health of whole body.

- Spirits (Arwah) - Ruḥ (Spirit) is a gaseous substance, obtained from the inspired air, it helps in all the metabolic activities of the body. It is the

Source of vitality for all organs of the body.

It is important in the diagnosis and treatment of disease.

These are the sources of different powers, which make the whole body system and its parts functional.

• Faculties (Quwal)-

These are of three kinds -

(A) Natural power (Quwa Tabiyah)-

Natural power is the power of metabolism and reproduction.

Liver is the seat of this power and the process is carried on in every tissue of the body.

Metabolism is concerned with the process of nutrition and growth of human.

Nutrition comes from the food and is carried to all parts of body, while growth power is responsible for the construction and growth of human organism.

[B] Psychic power - refers to nervous and psychic power. It is located in side the brain and is responsible for perceptive and motive power.

Perceptive power conveys impressions or sensation and motive power brings about movements as a response to sensation.

[C] Vital power (Quwa Haywaniyah) -

Vital power ~~are~~ is responsible for maintaining life enables all the organs to accept the effect of psychic power.

This power is located in the heart. It keeps life running in the tissues.

● Functions (Af'ald Afaal) -

This component refers to the movements and functions of all the organs of the body.

In the case of a healthy body the various organs are not only in proper shape but are also performing their respective functions.

This makes it necessary to have full knowledge of the functions of the human body in full detail.

Diagnosis

- The Diagnostic process in Unani system is dependent on observation and physical examination.
- Diagnosis involves investigating the cause of disease thoroughly and in detail. For this, the physicians depend mainly on pulse reading and examination of urine and stool.
- The ten conditions of pulse observed during the diagnosis are
 - Quantity
 - Force
 - Duration of movement
 - Condition of the vessel wall
 - Volume
 - Duration of rest period
 - Palpitation of the pulse
 - Balance of the pulse
 - Rhythm.

Physical examination -

The following observations of urine are made-

- Colour
 - Consistency
 - Clearness and Turbidity
 - Odour
 - Foam or Froth
 - Precipitates
 - Quantity.
- The examination of stool, its colour, quantity, consistency and presence of foreign body help very much in diagnosis of various disease.
 - Besides the means of pulse reading and physical examination of urine and stool, inspection, palpitation, percussion and occultation are also used for diagnosis purposes.

Strenght of Unani -

Strenght of unani following disorder-

- Skin disorders
- Digestive disorders

- Mental disorders.
- Sexual disorders.
- Neurological disorders.

Siddha System of Medicine

Introduction

- According to traditional knowledge Lord Shiva unfolded the Siddha system of medicine to Parvati and handed to Nandi.
- Developed in preayurvedic age at Mohenjodaro civilization around 7000 years ago.
- Siddha System accounted for total 4498 disease symptoms and its cure.
- Thousands of herb and minerals were included in Siddha system providing good and easy management of chronic to degenerative, viral to cardiac disease.

Basic Principle-

The 5 principles of Panchmahabhuta theory are Prithvi (earth), Appu (water), Theya (Fire), Vayu (air), Akash (ether) imbalance in this system causes of diseases.

The equilibrium of humors is considered health and its imbalance is disease.

Based on principle of Triguana - Vata, pitta, kapha.

Content -

- Character of Vataguna - Stout, black, inactive personality. Excess Vata develops flatulence, acidity, dysentery, obesity.
- Character of Pitta guna - lean, wheatish complexion, hot personality. Excess pitta results in greying of hair, reddish eyes, more sexual desire.
- Character of Kapha guna - Well built good complexion and good behaved personality. more affinity for sweet food and sex. Excess kapha causes jaundice fever anaemia.

Dignosis

- The dignosis of diseases involve identifying its causes.
- The physician generally involve conservation factor checking nadi (Pulse), dhvani (Speech), twaka (skin along with tongue), deham (body),

Malam (Feces), Muturam (Urine) vizhi (Eye color)

- The system has worked out detailed procedure for urine examination include colour, smell, density also oil drop spreading.

Treatment

- Treatment based on all diagnostic character of patient.
- Treatment takes into account about environment, age, sex, race, habit, diet, physical and physiological condition.
- Vaidya has knowledge of herbs its effectiveness.
- Use of metals like gold, silver, sulphur, zinc, copper, mica etc. are only seen in siddha system of medicine.