

Teaching Learning Process

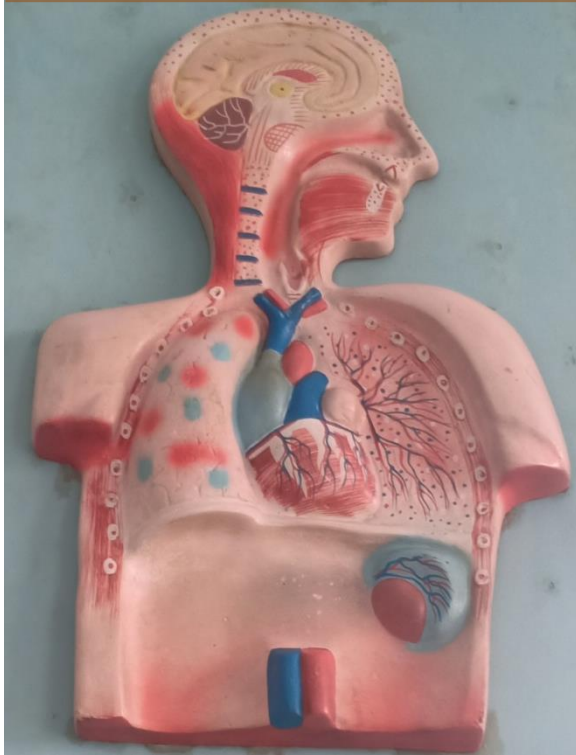
The students are constantly encouraged for their creativity of making charts, models, devices and posters for displaying in the laboratories. Students were asked to come prepared with the topic in advance and they are allowed to discuss in the form of seminar. Teacher then take over and discuss further complexities and depth of the topic. Students were also asked to prepare posters on herbal medicines and to write pharmacognostical details of those herbal medicines. Institute organizes in- house training of advanced equipments and instruments to inspire and motivate the students.

Practical skill in pharmacology subject included in University syllabus improve with the help of Animal experimentation demo (X- Pharmacology) CD. In Pharmaceutical Chemistry course “Structure Activity Relationship” of drugs is explained with the aid of pictographs and Department-wise channels (youtube) are created for loading the video lectures by faculty. This is most advantageous tool, as students can revisit and clarify the content. It is tooled for outclass activity. During regular class room teaching, combinations of different teaching aids viz., blackboard, LCD, OHP, audio visual aids are used by the teachers to add interaction, engagement and visual appeal to the teaching. 3D Atlas of anatomy is used by faculty members to explain organs and body parts. Similarly, patient counseling is performed live by the students themselves. Thus, students are made responsible for their self learning. Various pedagogical techniques like role play, puzzles, cross words, models, etc. used in classroom teaching to make teaching learning interesting.

The Teaching–Learning process is carried out to inculcate the research environment and overall development of the students including personality, attitude, communication skill, writing skill and leadership quality as per the competencies requirement. Use of these innovative and creative techniques in teaching practices leads to improve the results, placements, research culture among the students. The impact of innovative teaching has resulted in enhancing the theoretical and practical knowledge of the subject which reflect in the improved academic performance.

Learning through 3D Atlas of anatomy

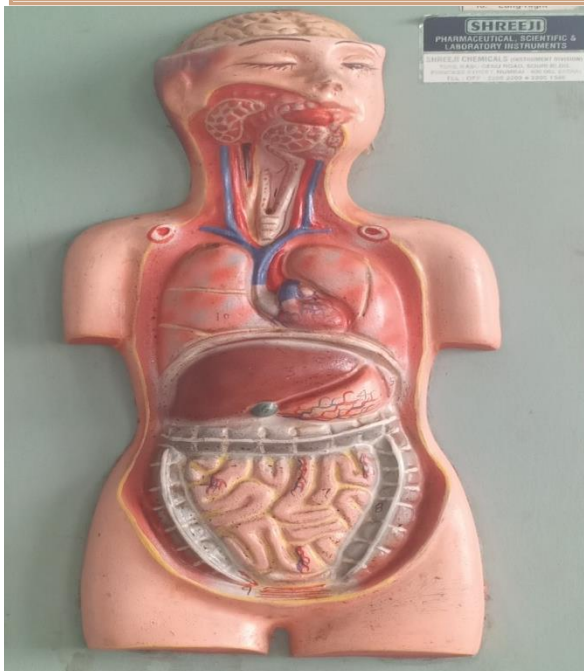
Human Respiratory System



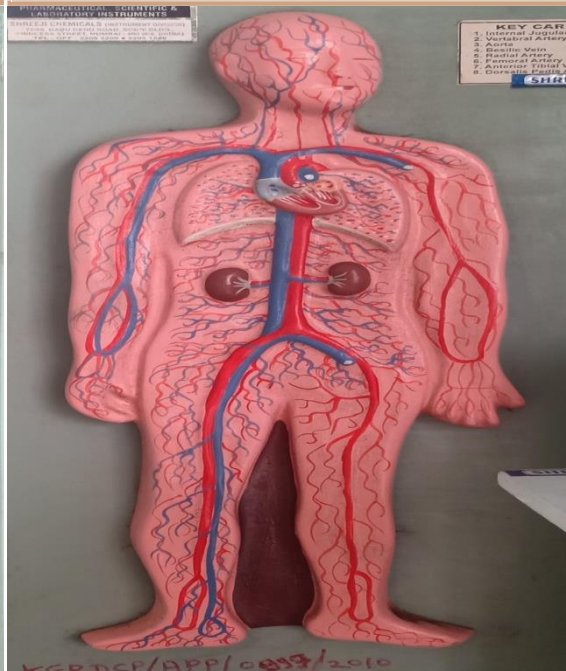
Human Nervous System



Human Body



Human Circulatory System



Learning through making posters on Pharmacognostic details of herbal

MUSTARD

Synonym: Black mustard

Biological Source: These are dried ripe seeds of *Brassica nigra* or *Brassica juncea* (Indian mustard) and their varieties. It belongs to family Cruciferae.

Geographical Source: Black mustard seeds are cultivated in Europe, U.S.A. and India. In India, the variety *Brassica juncea* is grown in Uttar Pradesh, Bihar and Bengal as rabi crop.

Macroscopic Characters:
 Colour: Black or dark brown or reddish brown.
 Odour: None, crushed seeds have pungent odour.
 Taste: Bitter.
 Size: About 1 mm in diameter.
 Shape: Seeds are nearly spherical in shape.

Chemical Constituents:

- Black mustard seed contains about fixed oil, proteins and volatile oil.
- The seed contains about 4% of isothiocyanate glycoside called sinigrin (potassium myronate) because of enzyme myrosin, in presence of water, sinigrin is hydrolysed into allyl isothiocyanate.
- Allyl isothiocyanate is also called as essence of mustard or volatile oil.

$$CH_2=CH-CH_2-C(=S)-C_6H_4-O_2$$

$$N-O-S-C_6H_4 \quad \text{Sinigrin}$$

$$S=C=N-CH_2CH=CH_2$$

$$ALLYL \text{ ISOTHIOCYANATE}$$

Uses:
 - It is a condiment.
 - Externally, it is used as counter irritant and rubefacient in the form of poultice and plasters.

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CARAWAY

Synonym: Caraway, Carum

Biological source: Caraway is the dried ripe fruits of *Carum carvi*, belonging to family Umbelliferae

Geographical source: It is cultivated in central and Northern Europe, Morocco and Egypt. It was well known to the Arabian physicians.

Macroscopic characters:
 Commercial drug consists chiefly of separated mericarps. The mericarp is narrow, curved or crescent-shaped tapering towards both ends, 4 to 7 mm. long and 1 mm broad, almost equally 5-sided. The outer surface is grayish-brown to dark brown, glabrous and marked with 5 yellowish longitudinal primary ridges and sometimes secondary ridges may be seen. Caraway has characteristic agreeable aromatic odour and taste.

Chemical constituents: Caraway fruits consist of about 3-8% essential oil, which contains carvone as a major component in the range of 50-60%. The fruit also contain 8-20% proteins, resin, colouring matter and calcium oxalate. The monoterpene ketone carvone and hydrocarbon limonene are the major components of the volatile oil. The other minor components involve dihydrocarvone, carveol, dihydrocarveol, p-cymene and cuminaldehyde.

Uses:
 It is used as carminative and antispasmodic. Caraway relieves flatulence, stimulates its function of digestive organs and relaxes spasms of the smooth muscles. It is also used in food industry as a flavouring agent in bread and rolls, in cheese, soups and sauces.

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TAMARIND

Synonyms: - Tamarindus occidentalis.

Biological source: - It consists of dried fruits of *Tamarindus* or *occidentalis* belonging to family Fabaceae.

Geographical Source:
 It grows wild in Africa in locales as diverse as Sudan, Cameroon, Nigeria and Tanzania. Today, India is the largest producer of tamarind.

Macroscopic characteristics:
 Colour: Brownish red.
 Odour: Bittersweet.
 Taste: Sweet and sour.
 Size: 12 to 15 cm (4.7 to 5.9 in) in length.
 Shape: Vase.

Chemical constituents:
 - It contains high level of tartaric acid
 - Sugar
 - Vitamins B
 - Oddly for a fruit, calcium.

$$HOOC-CH(OH)-CH(OH)-COOH$$

Tartaric Acid

Uses:
 - This is used in easing stomach discomfort, aiding digestion, and use as a laxative.
 - Tamarind preparations are used for fevers, sore throat, rheumatism, inflammation, and constipation.

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AGAR STRIP

Synonym: Japanese isinglass, agar-agar.

Biological source: It contains dried gelatin substance obtained from *Gelidium amansii*, belonging to family Gelidaceae.

Geographical Source: Japan, Australia, New Zealand, USA, India.

Macroscopic Characteristics:
 Colour: yellowish-gray.
 Odour: odourless.
 Taste: mucilaginous.
 Shape: strips, sheets, flakes.
 Size: 45-60cm long, 10-15cm wide

Chemical Constituents:
 - Two different polysaccharide named as agarose and agarpectin.
 - It contain about 3.5% cellulose and 6% of nitrogen containing substance.

Uses:
 - It is used in preparing capsules.
 - It is used in preparing microbiology.

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Learning through Active Participation of Students

Debate Competition



Quiz Competition



Model Making Competition



Model Making Competition



Learning through Seminars and Poster Presentations

