

## **ARTHROPODS**

An arthropod is an invertebrate animal having an exoskeleton (external skeleton), a segmented body, and jointed appendages.

### **CLASSIFICATION OF ARTHROPODS**

***INSECTAL:*** mosquitoes, flies, human lice, fleas

***ARACHNIDA:*** ticks, mites

***CRUSTACEA:*** cyclops

### **DISEASES TRANSMITTED BY ARTHROPODS**

- MOSQUITOES:** malaria, dengue, West Nile virus, chikungunya, yellow fever, Japanese encephalitis, etc.
- HOUSEFLY:** Typhoid, para typhoid, diarrhea, dysentery, etc.
- SAND FLY:** Kala Azar, sand fly fever.
- CYCLOPS:** guinea worm disease, fish tape worm .

### **Transmission of arthropod borne diseases**

- Direct contact:** close contact. Ex: scabies, pediculosis.
- Mechanical transmission:** food water, fruits. Ex: diarrhea, dysentery,
- Biological transmission:** when the disease agent multiplies or undergoes some developmental change within the host.

### **PRINCIPALS OF ARTHROPOD CONTROL:**

- ❖ Environmental control
- ❖ Biological control
- ❖ Chemical control:
- ❖ Genetic control
- ❖ Integrated approach

## **MOSQUITO CONTROL MEASURES**

- **ANTI LARVAL MEASURES:** Environmental control, Chemical control, Biological control
- **ANTI ADULT MEASURES:** Residual sprays, Space sprays, genetic control.
- **PROTECTION AGAINST MOSQUITO BITES:** Mosquito nets, Screening, Repellents

## **HOUSEFLIES**

### **Mode of transmission of disease by houseflies**

- ✓ Mechanical transmission
- ✓ Vomit
- ✓ Defecation

## **FLY CONTROL MEASURES**

- Environmental control
- Insecticidal control
- Protection against flies
- Sticky Fly papers: 2lbs resin+ 1 pint castor oil.
- Health education

## **RODENTS**

Rodents are mammals of the order Rodentia, characterized by a single pair of continuously growing incisors in each of the upper and lower jaws.

### **DISEASES TRANSMITTED BY RODENTS**

- Lassa Fever
- Leptospirosis
- Plague
- Rat-Bite Fever
- Salmonellosis

## **RODENTS MANAGEMENT**

- Killing of rodents
- Rat proofing
- Cleanliness
- Rat trapping
- Single dose poison: zinc phosphide
- Multiple dose poison: warfarin, ratanfin, rodafin etc

## **SANITATION**

### **DEFINITION**

"Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and feces. Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health both in households and across communities. The word 'sanitation' also refers to the maintenance of hygienic conditions, through services such as garbage collection and waste water disposal.

-WHO

**The term *sanitation* is applied to a wide range of subjects such as:**

**Improved sanitation-** refers to the management of human faeces at the household level..

**On-site sanitation** - the collection and treatment of waste is done where it is deposited. Examples are the use of pit latrines, septic tanks.

**Food sanitation** - refers to the hygienic measures for ensuring food safety.

**Environmental sanitation** - Solid waste management, water and waste water treatment, industrial waste treatment and noise and pollution control.

**Ecological sanitation** - an approach that tries to emulate nature through the recycling of nutrients and water from human and animal wastes in a hygienically safe manner

**THE DRUGS AND COSMETICS ACT, 1940**  
**(Amended in 1995, 2010,2012).**

**Aims:** Regulate the import, manufacture, distribution and sale of Drugs and Cosmetics, presumably for maintaining high standards of medical treatment.

Under this the Central Drug Standardization Control Organization (CDSCO) is formed.

To amend the Federal Food, Drug, and Cosmetic Act, to establish new procedures and requirements for the registration of cosmetic product manufacturing establishments, the submission of cosmetic product and ingredient statements, and the reporting of serious and unexpected cosmetic product adverse events, and for other purposes in the house of representatives on

**April 18, 2012**

■ **Functions:**

1. Implementation of medicine laws and policies.
2. Keeping control over the quality of imported medicines.
3. Establishing better co-ordination in the work of drug control officer.
4. Recognition of new drug made in the work of drug control officer.
5. Establishing standards of medicine and instruments.
6. Regulation of human blood transfusion, parenteral drugs.
7. Providing license for the preparation and sale of serum and vaccine.

## **PREVENTION OF FOOD ADULTERATION ACT**

### **Adulteration of food:**

- Is addition or subtraction of anything from the food which affect its nutritional value for unfair economic gains.

### ***Food adulteration includes:***

- Intentional addition, substitution or abstraction of substances which adversely affect the quality of foods.
- Incidental contamination of foods with deleterious constituents such as toxious, insecticides, pathogenic bacteria and fungi etc. due to ignorance, negligence or lack of proper storage facilities.
- Contamination of the food with harmful micro organisms during production, storage, and handling.

The Central government has made food adulteration prevention act -1954 in order to ensure pure and healthy food substances to consumers

### **Objectives;**

- A. To protect the public from poisonous and harmful foods.
- B. To prevent the substandard food.
- C. To protect the interests of the consumers by eliminating harmful practices.

### **Component of the programme:**

- Training programme for different functionaries responsible for implementation of the PFA act.
- Food inspectors, analysts and the senior officers concerned with the implementation of the act.

# METEOROLOGICAL ENVIRONMENT

## CLIMATE

Climate is a geographical concept representing a summation of the whole range of meteorological phenomena

### Elements:

- 1) Atmosphere pressure
- 2) Air temperature
- 3) Humidity and Rainfall
- 4) Direction and speed of wind
- 5) Movement of clouds & Character of weather

### Atmospheric pressure

- Man is physiologically adapted to live at 760mm of Hg pressure or close to it
- The atmospheric pressure falls as altitude increases and rises as altitude decreases.
- Measurement: instrument is used is Barometer. well known are Fortin's barometer, the new station barometer and the barograph

### Effects of atmospheric pressure

**a) High altitude:** Physiological changes :increased respiration, increased concentration of Hb, increased cardiac output.

It causes Acute mountain sickness: headache, insomnia, nausea, vomiting, impaired vision. Pulmonary oedema, cough, mental confusion, hallucination, coma.

### **b) Low altitude:**

- ✓ Excess N<sub>2</sub> causes narcotic action leading loss of function and consciousness
- ✓ Excess CO<sub>2</sub> causes convulsion and death
- ✓ When the person comes up to the surface the gases dissolved in the blood are released and cause air embolism

## Air temperature

**Measurement:** thermometer is used

- ✓ Mercury thermometer
- ✓ Alcohol thermometer

**Dry bulb thermometer:** For accurate reading it is mounted on the “Stevenson screen” at a height of 1.20 to 1.80m above the ground level

**Wet bulb thermometer:** Same as dry bulb thermometer but the bulb is kept wet by a muslin cloth fed by water from a bottle through a wick.

## HUMIDITY

Is the amount of water vapor in the air. Water vapor is the gaseous state of water and is invisible. A device used to measure humidity is called a psychrometer or hygrometer

**Effects of high humidity:**

- ✓ Difficulty breathing.
- ✓ Asthma,
- ✓ Anxiety.
- ✓ Hyperventilate,
- ✓ Faintness & Loss of concentration,