9/9/25 Unit-IV

Chemical toxicology

Toxic chemicals in the environment.

1. Toxicity of lead, mercury, Arsanic, and cadmium.
2. Cynide and its toxic effects. } 10m @ 5m
3. Pestisides and its biochemical effects. — 10M
4. Solid waste management. — 5m.

Introduction

Toxic chemical substances discharged into air, water and soil produce harmfull effects on the life of plants, animals and human beings. The study of demaging effect of toxic chemicals on the environment is called environmental toxicology.

Urbanisation, Industrilisation and modern agricultural practices are mainly responsible for the pollution of air, water our land, water, air and food. when these elements of nature get polluted or degrade the human life will soon get into trouble. These pollutants may be classified into three types.

① toxic metal pollutants.

② toxic gaseus pollutants.

③ toxic organic pollutants.

① toxicity of Lead.

Lead is used as a Pig ~~Red~~ment in pants. It also enhances ~~their~~ their consistance and duarability. there are two important saurce of Lead.

① primary saurces-Ores (Lead oxide)

② secondary saurces — Recycled Lead, scrab, basically from Lead acid batteries.

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Toxic effect of

Arsanic is not found in a nature as a free element but exists in the combination of other elements.

Three ~~different~~ important ores of arsanic

Arsanic sulphaid
orpiment
Arseno pyrite (or) Ferrous Arsanic sulphaid

Inorganic Arsanic is more toxic than organic Arsanic. Toyvalent (As +3) state is about 60 times toxic than the As +5. and It is more soluble in water.

21 countries which effected by high amount of As in water, bangladesh, west bengal are worst effect by the As.

Toxic effects

Acqute As poisition. It is characterize by, Gastro indastanial, diarrhoea, circulatory collapses, and renal failure in serious our positing death may occur with in a short period.

~~Chronic~~

Chronic As

It is also called Arsiniasis in emmerging epidemic in Asia.

Conditions

weight loss anorexia

fatigeus.

necrosis

degenaration of renal tubules.

liver and spain skin enlargement (Cesirosis)

miyocardial degradation.

goitre

skin cancer

* Hyper keratosis of palms and souls may under go maligment change in the form of basal cell of carcenoma.

Removal of As from water.

Adsorption

in this method activated Alumina, iron coated sand ~~iron~~ ion exchange regins are used to absorb As from water. It is high effecent method.

Co-precipitation

It is low cost, easily used in house hold level haswell as community level. in this method As is perecipi-tated with addition of ferric salts after settiling of precipite it can be removed.

Memberent Technology, revers osmosis, are the Examaples of memberent a filter is sulpha filter. is being provided by the eddy.

Toxicity of Cadmium

Cd is the waste product from industrial process. many people are Exposed to cd. via. scegrate smoke, contaminated food and water, workers Exposed while manufacuting, recycling nickel cd batteries.

Cd is toxic to living organisms Even in low concentration it is ~~~~ ~~humital~~ cumulative poistion and

remain in the body from more than a ~~decad~~ decade. (~~ITAI~~-IAIAI) (ITAI-ITAI dieses) - Japan

Toxic Effects of cadminum.

It disturbs the human DNS repare system. that is important to prevent cancer. It effects MMR, (mis mach repair) which can lead to cancer and reproductive problems. Cd is a neuro toxin. it cause serious liver and kidney problem.

Acqute cd poistion

caugh, sow throught, cyanosis, branconi-monia, circulatory collaps,

chronic cd poishing.

yellow pigmentation of teeth, anosymi-a, enphysema, and protein urea.

Treatment for cd poisining

Cd poisining is usally treated with chelete-ing agents, EDTA, dimethteptol,