CONSERVE WATER, SAVE LIFE

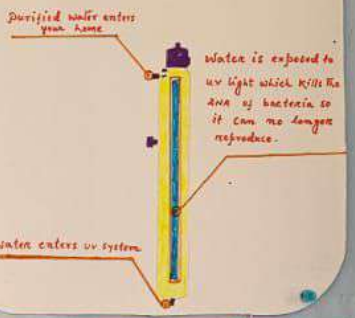
Rainwater harvesting

Rainwater harvesting is the collection and storage of rainwater, rather than allowing it to run off, for later use, like for irrigation.

PLASTIC PARTICLES IN BOTTLED WATER

Plastics are a part of our everyday lives and plastic pollution is a growing concern. When plastics break down over time, they can form smaller particles called microplastics, which are 5mm or less in length. Microplastics, in turn, can break down into smaller pieces called nanoplastics which are less than 1 μm in size. Unable to be seen with the naked eye, these are small enough to enter the body's cells and tissues.

UV water treatment uses ultraviolet light to disinfect water by damaging the DNA of harmful microorganisms like **BACTERIA, VIRUSES AND PROTOZOA**, rendering them unable to reproduce and cause illness.



FOOD PRESERVATION METHODS

Food preservation Methods aim to extend shelf life and ensure food safety by inhibiting microbial growth and enzymatic activity, and these include techniques like
- Drying
- Freezing
- Canning
- Salting
- Pickling
- Fermentation
- Pasteurization
- Smoking

CANNING is a preservation technique where food is heated to a specific temperature to kill microorganisms and then sealed in airtight containers

SALTING
Salt reduces the water activity in food so that bacteria cannot grow up and develop. Salt preserves food like meat, fish and vegetables by creating a hyperbaric environment that dehydrates and kills microbes

SMOKING
Smoking prevents dehydration in fish and meat and thus prevents spoilage. The wood smoke contains a large no. of chemicals that have bactericidal properties that kill bacteria in the food

Agro Chemistry

Agro-Chemistry Involves Formal Or Informal Laws Your Soil Fertility, Pest Control, It Involves Fertilizers Pesticides, Herbicides And Soil Conditioners, To Boost Agriculture Productivity.

Fertilizers Supply Essential Nutrients Ammonium Nitrate (NH_4NO_3) And Urea (CH_4N_2O) Provide Nitrogen, Superphosphate ($Ca(H_2PO_4)_2$) Supports Phosphorus, And Potassium Chloride (KCl) Aids In Disease Resistance.

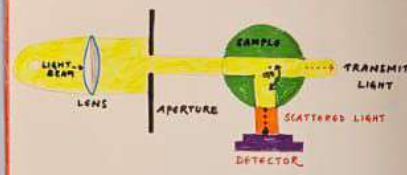
Pesticides Protect Crops From Pests, Contaminants Eg. Malathion ($C_{10}H_{19}O_6PS_2$) Affects Insect Nervous Systems, While Fungicides ($C_6H_6Cl_2O_2$) Are Synthetic Insecticides.

Herbicides Control Weeds Glyphosate ($C_3H_8NO_5P$) Inhibits Plant Enzymes, And 2,4-D ($C_8H_6Cl_2O_3$) Disrupts Broadleaf Metabolism.

Soil Chemistry Maintains Fertility Lime ($CaCO_3$) Neutralizes Acidity, While Gypsum ($CaSO_4 \cdot 2H_2O$) Improves Structure.

By Bridging Organic And Inorganic Chemistry Agro-Chemistry Ensures Sustainable Farming, Improving Food Security And Environmental Health.

Determination of Turbidity of water sample



Turbidity is specifically looking at the clarity of the water. This is often quantified by determining the amount of light scattered by particles suspended in water. Size, shape, composition and surface characteristics determine how a particle will scatter light.

His best wishes

(Dr. C. R. Sahoo)
INDORSED BY

"COSMETICS"

Cosmetics are products intended to enhance or alter the skin's appearance. They are typically applied to the skin, hair, nails, and teeth. These products serve various purposes such as cleaning, moisturizing, coloring, or preserving, and are often used for personal grooming and beautification. Common types of cosmetics include makeup, skincare products, haircare products, fragrances, and nail care items.

The chemical ingredients used in cosmetics are Hyaluronic Acid ($C_{14}H_{21}NO_{11}$), Dimethicone ($(CH_3)_2SiO$), Zinc Oxide (ZnO), Vitamin E ($C_{29}H_{50}O_2$), Iron Oxides (Fe_2O_3), Retinol ($C_{20}H_{30}O$), Retinyl Palmitate ($C_{36}H_{60}O_2$), Ferulic Acid ($C_{10}H_{10}O_4$) etc.

Cosmetic formulation is a complex science that combines skin biology, chemistry and physics. By understanding the ingredients and principles behind beauty products

Purification of water by chlorine

When chlorine reacts with water, it forms a mixture of hydrochloric acid (HCl) and chloric acid, HClO. Chloric acid is also known as hypochlorous acid and is based on the chlorate ion, ClO^-. It is a powerful oxidizing agent that kills all sorts of bacteria and viruses from common cold to cholera.

The reaction is:-

$$Cl_2(g) + H_2O \rightleftharpoons HCl + HOCl$$

HOCl and OCl^- are strong oxidizing agents that disrupts the cellular structure and functions of microorganisms (bacteria, viruses etc), rendering them non-in