# Chemistry in Everyday life.

**Drugs**: Chem. subs. of low molecular masses (~100–500u) which interact with macromolecular targets and produce a biological response. If is habit forming / addiction.

**Medicines**: Drugs which is useful for biological response

**Chemotherapy**: use of chemicals for treatment of diseases.

**Enzymes**: Protein which perform the role of biological catalyst in the body

Function: 1) to hold substrate
2) Provide functional group.

## Neurologically Active drugs

(a) **Analgesic** - Drug which reduce or abolish pain without impairment of consciousness, mental confusion, incoordination, are called Analgesic

(i) **Non-Narcotic analgesics** - Non-Addictive, effective in relieving skeleton pain, reducing fever & preventing platelet coagulation Eg: Aspirin & paracetamol.

(ii) **Narcotic Analgesics**

* Relieve pain & produce sleep
* Used for relief of postoperative pain, cardiac pain, terminal cancer & child birth.

Eg: Morphine, heroin, codein.

(b) **Tranquilizers**: Chemical comp. used for the treatment of stress, mild or ment diseases. Examples:

**Iproniazid & phenelzine** - Antidepressant

**Barbiturates** - sleep producing agents.

**Equanil** - Controlling depression & hypertension

**Antihistamines**: drugs which interfere with the natural action of histamine by competing where histamine exerts its effect

Eg: Bromopheniramine, chlorpheniramine, pheniramine maleate

**Antimicrobial**: (a) Antiseptic prevent growth of microorg. or kill them but are not harmful to the living human beings Eg: 0.2% Phenol, Dettol (mixt. of chloroxylenol & terpineol), tincture of Iodine 2-3% of Iodine in Alcohol-H2O)

(b) **Disinfectants**: Same as Antiseptic but harms to living tissues. Eg 1% of phenol, $SO_2$ in low conc.

(c) **Antibiotic** → Bactericidal - Eg: Penicillin
→ Bacteriostatic - Eg chloramphenicol.

Spectrum: full range of microorganism attacked by an antibiotic.

(i) Broad spectr. anti. - Kill or inhibit a wide range of gram +ve & gram -ve bacteria

(ii) Narrow: Kill or inhibit of gram +ve or gram -ve bacteria, if effective against a single organism or disease, they are referred to as limited spectrum antibiotics.

Eg. Penicillin-G.

**Antifertility Drugs**: Prevent unwanted Pregancies Eg: Norethindrone & Ethynylestradiol

**Artificial Sweetening agent**: non-nutritive in nature & used as substitutes for sugar.

* **Saccharin**: for diabetes & calorie intake
* **Aspartame**: Used - in cold food & soft drinks, unstable at cooking temperature.
* **Alitame** - high potency sweetener
* **Sucralose**: Trichloroderivative of sucrose. stable at cooking temp.

**Anti-Oxidants** - Retarding action of $O_2$
Eg BHA & BHT

**Antacid**: remove & control acidity.
Eg. $NaHCO_3$, Ranitidine, mixt of Al & $Mg(OH)_2$

**Soap & Detergent** - Cleansing agent.

Soap = $2C_{17}H_{35}COO^-Na^+ + CaCl_2 \rightarrow 2NaCl + (C_{17}H_{35}COO)_2Ca$
Insoluble Calcium Stearate

| Cationic detergent | Anionic det. |
|---|---|
| large part - cation which are quaternary amm. salts of amines with acetates, chloride as anion. These are expensive | large part - anion, involved in cleansing action. Sodium salts of sulphonated long chain alcohols or hydrocarbons. |