

PHARMACY
INDIA



5

Marks

Important Topic

D.Pharm 2nd year





SOURCES OF IMPURITIES



1 RAW MATERIALS

- Impurities already present in starting materials.

Example:

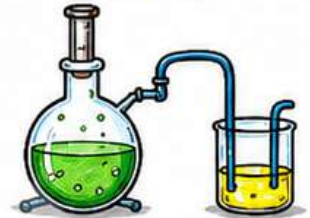
CaCl_2 , MgCl_2 , Na_2SO_4 in common salt.

Raw Materials



Impurities present in starting materials.

Manufacturing Process



Side reactions, incomplete reactions, improper conditions.

2 MANUFACTURING PROCESS

- Side reactions, incomplete reactions, wrong conditions, improper purification.

Example:

Fe^{2+} oxidizes to Fe^{3+} in ferrous sulphate.

3 REAGENTS & SOLVENTS

- Residual reagents, catalysts, filter aids, decolourising agents & organic solvents.

Example:

Acid residues, heavy metals, benzene, methanol.

Storage & Packaging



Degradation due to heat, light, moisture, oxygen, wrong packaging.

Reagents & Solvents



Residual reagents, catalysts, organic solvents, etc.

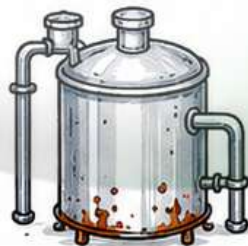
4 EQUIPMENT & ENVIRONMENT

- Corrosion, lubricants, dust, dirt, microbial contamination, moisture, air.

Example:

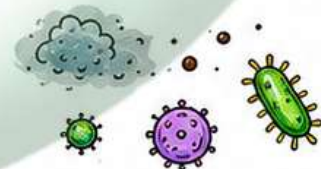
Corrosion of equipment adds metal impurities.

Equipment Contamination



Corrosion, lubricants, cleaning agents, previous product residue.

Environmental Contamination



Dust, dirt, microbes, airborne particles, water impurities.

5 STORAGE & PACKAGING

- Degradation due to heat, light, moisture, oxygen. Interaction with container or closure.

Example:

Hydrolysis in humid conditions.

★ Quick Revision 😊

PEPTIC ULCER & GERD DRUGS

1. PROTON PUMP INHIBITORS (PPIs)

- **Drugs:** Omeprazole, Pantoprazole, Rabeprazole, Esomeprazole
- **MOA:** Inhibit $H^+/K^+-ATPase$
→ Strong acid suppression
- **Uses:** Peptic ulcer, GERD, H. pylori eradication, NSAID ulcer prevention

2. H₂-RECEPTOR BLOCKERS

- **Drugs:** Famotidine, Cimetidine, Nizatidine
- **MOA:** Block H₂ receptors
→ ↓ Acid secretion
- **Uses:** Mild GERD, peptic ulcer, nocturnal acidity

3. ANTACIDS

- **Drugs:** Aluminium hydroxide, Magnesium hydroxide, Calcium carbonate
- **MOA:** Neutralize gastric HCl
- **Use:** Rapid relief in acidity
- **AE:** Constipation / Diarrhoea (depends on type)

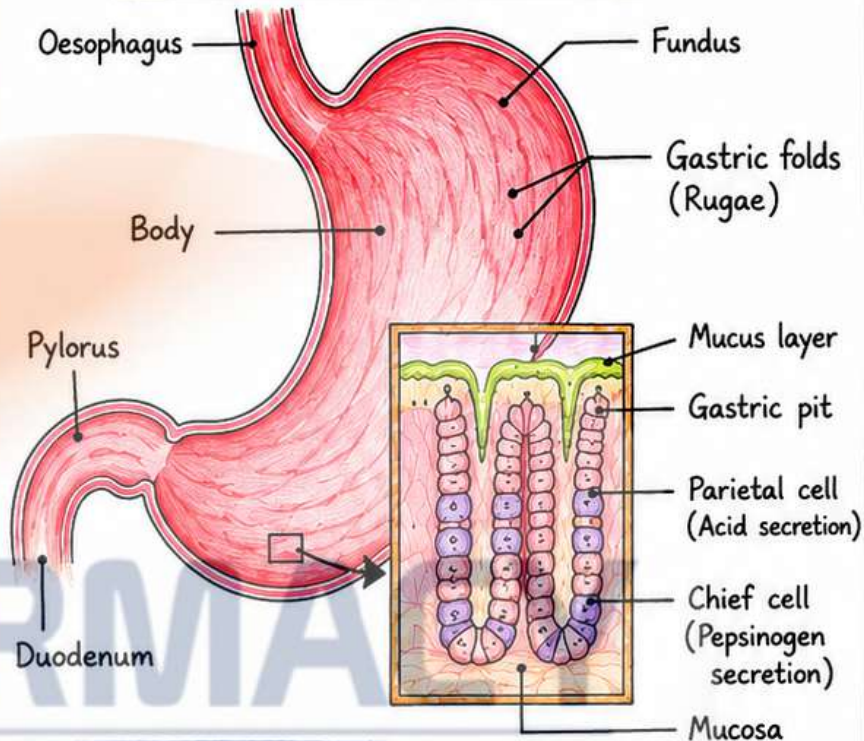
4. MUCOSAL PROTECTIVE AGENTS

- **Sucralfate:** Forms protective coat
- **Bismuth compounds:** Coat ulcer, active vs H. pylori
- **Misoprostol:** ↓ Acid, ↑ mucus & HCO_3^- secretion
- **Use:** NSAID-induced ulcer prevention

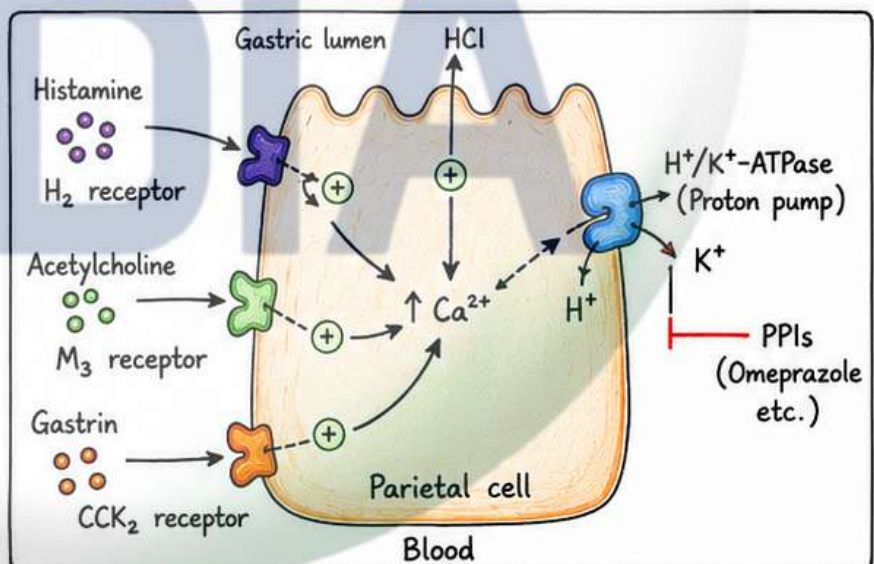
5. GERD SPECIFIC DRUGS

- **Prokinetics:** Metoclopramide, Domperidone, Itopride
→ ↑ LES tone, ↑ gastric emptying
- **Alginates:** Form floating layer
→ Prevent reflux

STOMACH (SITE OF ACTION)



MECHANISM - PPIs



H. PYLORI ERADICATION THERAPY

Triple Therapy

- PPI
- Amoxicillin
- Clarithromycin



Bismuth Quadruple Therapy

- PPI
- Bismuth compound
- Tetracycline
- Metronidazole

★ Exam Ready!



DIURETICS



DEFINITION

- Drugs that increase excretion of Na^+ and water in urine, thereby **decreasing blood volume** and edema.

MECHANISM

- Act on different parts of nephron to inhibit Na^+ reabsorption $\rightarrow$ more water excreted.

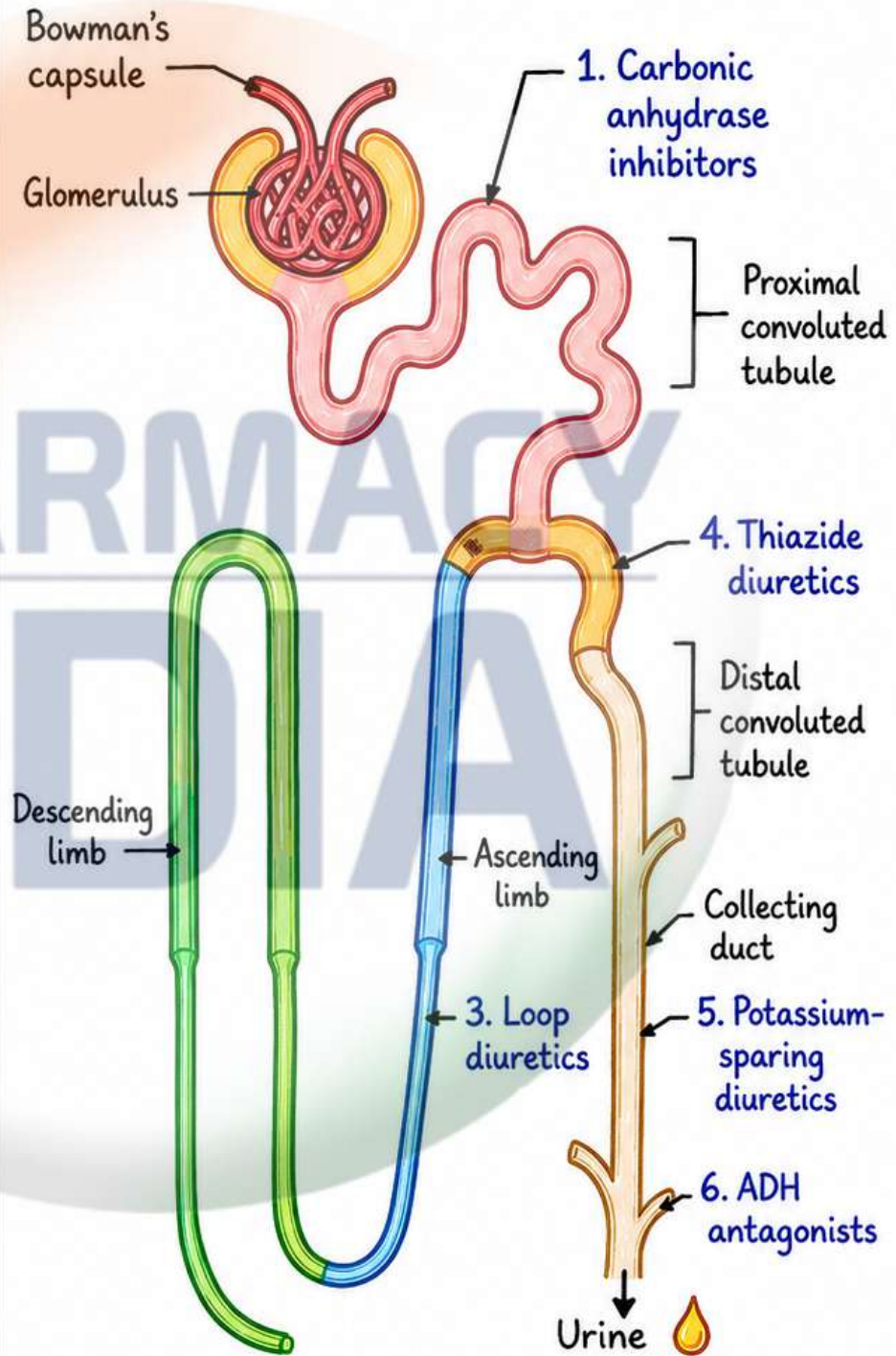
CLASSIFICATION

1. Carbonic anhydrase inhibitors
2. Osmotic diuretics
3. Loop diuretics
4. Thiazide diuretics
5. Potassium-sparing diuretics
6. ADH antagonists

KEY USES

- Hypertension
- Edema (CHF, renal, hepatic)
- Glaucoma
- Hypercalcemia

SITE OF ACTION IN NEPHRON



Exam Ready! 😊



ANTINEOPLASTIC AGENTS



1. DEFINITION

- Antineoplastic (anticancer) agents are drugs that **prevent, inhibit or destroy** the growth of **cancer cells**.

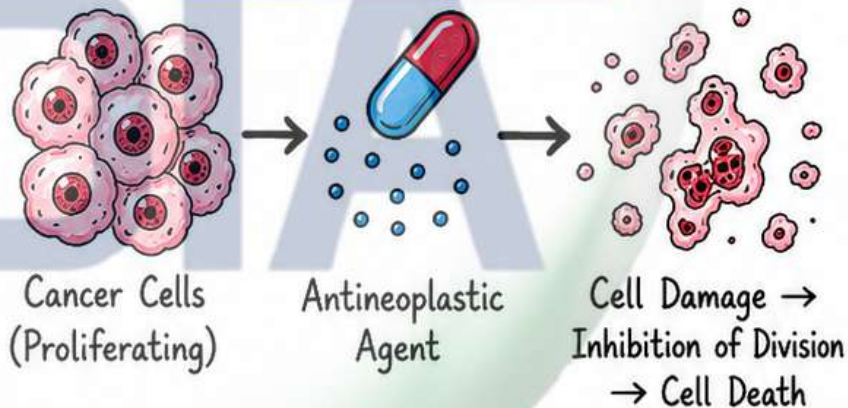
2. CLASSIFICATION

- 1 Alkylating Agents
- 2 Antimetabolites
- 3 Antitumor Antibiotics
- 4 Plant-Derived Drugs
- 5 Platinum Compounds
- 6 Hormones & Hormone Antagonists
- 7 Targeted Anticancer Drugs
- 8 Miscellaneous Agents

3. MECHANISM OF ACTION

- Damage **DNA** or prevent synthesis.
- Inhibit **RNA synthesis**.
- Block **cell division** (mitosis).
- Interfere with metabolic pathways.
- Block **hormones** or molecular targets.

ANTICANCER DRUG ACTION



4. USES

- Treatment of various cancers (e.g., leukemia, lymphoma, carcinoma).
- Neoadjuvant and adjuvant therapy.
- Palliative therapy to **reduce symptoms** and improve survival.

5. IMPORTANT ADVERSE EFFECTS

- Bone marrow suppression
- Nausea, vomiting, anorexia
- Hair loss (alopecia)
- Mucositis
- Immunosuppression
- Infertility
- Organ-specific toxicity

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ORAL HYPOGLYCAEMIC DRUGS

DEFINITION

- Oral hypoglycaemic drugs are medicines taken by mouth to reduce elevated blood glucose levels in **Type 2 Diabetes Mellitus**.



MAIN ACTION

- Lower** blood glucose.
- Improve** insulin secretion or action.
- Decrease** glucose production or absorption.

MAIN CLASSES

- Sulfonylureas
- Biguanides
- Meglitinides
- Thiazolidinediones
- α -Glucosidase inhibitors
- DPP-4 inhibitors
- SGLT-2 inhibitors

KEY POINT

- Metformin** is the first-line oral drug for Type 2 Diabetes when no contraindication exists.

	SULFONYLUREAS	Increase insulin secretion.
	BIGUANIDES (METFORMIN)	Decrease hepatic glucose production; improve insulin sensitivity.
	MEGLITINIDES	Rapid, short-duration insulin secretion.
	THIAZOLIDINEDIONES	Increase peripheral insulin sensitivity.
	α-GLUCOSIDASE INHIBITORS	Delay carbohydrate absorption in intestine.
	DPP-4 INHIBITORS	Increase incretin activity; $\uparrow$ insulin secretion.
	SGLT-2 INHIBITORS	Increase urinary glucose excretion.

★ Quick Revision



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of 1st & 2nd semesters

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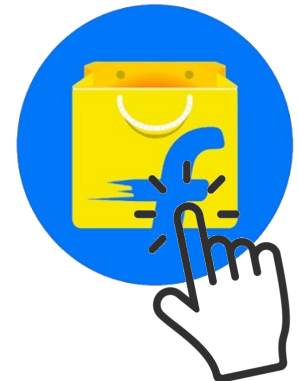


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