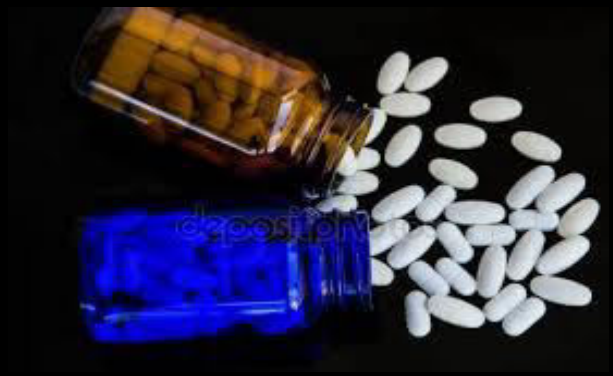

PHARMACEUTICAL CHEMISTRY

D.PHARMACY 1ST YAER

ANTACIDS

These are the agents which are usually alkaline substances and are used for neutralising excess acid in the stomach of the patient suffering from hyper acidity.

Classfication of antacids

Antacids are mainly classified into two categories :-

(i)Systemic(absorbable) antacids.

(ii)Non-systemic(non-absorbable) antacids.

(i)Systemic antacids: These type of antacids are soluble and reabsorbable and produce systemic alkalosis e.g. Sodium bicarbonate.

(ii)Non-systemic antacids:-These type of antacids are not absorbed into systemic circulation and does not produce systemic alkalosis. These are further divided into following sub-categories:

(a)Aluminium containing antacids, e.g. Aluminium hydroxide, aluminium phosphate, basic aluminium carbonate(gel).

(b)Calcium containing antacids e.g. Calcium carbonate, tribasic calcium phosphate.

(c)Magnesium containing antacids, e.g., magnesium Trisilicate, magnesium carbonate, magnesium oxide, magnesium hydroxide, magnesium phosphate.

(d) Combination antacid preparation, e.g. Aluminium hydroxide gel and magnesium hydroxide, aluminium hydroxide gel and magnesium trislicate,megaldrate, and methicone antacids.

Sources of impurities

The impurities may be present in pharmaceuticals due to following reasons:

1. Raw materials.

raw material used for pharmaceuticals preprations must be free from impurities. If impurities are present in raw material it will be transfer to the final product.

$$Zn + H_2SO_4 = ZnSO_4 + H_2$$

2. Reagenet used in manufacturing products:-

If reagent used in manufacturing process are not completely washed – off it may present in final product , e.g. Precipitated calcium carbonate.

$$CaCl + NaCO_3 = CaCO_3(ppt.) + 2NaCl$$

3. Intermediate product forms during manufacturing process:-

Sometimes intermediate product may be added to the final product but intermediate product is not completely converted into final product and remain present as an impurities, e.g. Potassium iodide is formed by the interaction of $KOH+I_2$

$$6KOH + 3I_2 = 5KI + KIO_3 + 3H_2O$$

$$KIO_3 + 3C = KI + 3CO$$

4. Defect in manufacturing process:-

There may be defect in manufacturing process such as incomplete mixing, sterilization and reaction which may cause production of contaminated final product, e.g.

$$2\,Zn + O_2 = 2\,ZnO$$

5. Solvent:- various compounds like water(Tap Water, Soft water, De Mineralised water, Distilled Water), inorganic and organic compound e.g. Alcohol, methyl parabane, propyl parabane are used as a solvent.

6. Action of solvent and reagent on reaction vessel.

solvent and reagent used in manufacturing may react with the reaction vessel during manufacturing which may appears as an impurity in the final product.

7. Atmospheric contamination during manufacturing process.

atmosphere of industrial area contains number of particles which contaminate the product during manufacturing and the final product contains these impurities.

Sodium Hydroxide may react with Carbon Dioxide if reaction carried out in an open environment.

8. Storage conditions:- The pharmaceutical products may get decomposed or changes its property due to improper storage e.g.

ferrous sulphate easily oxidised in the presence of air and converted into ferric sulphate.

9. Adultration:-Adultration is substitution of a ingredient with other ingredient which is economic than the original ingredient.

e.g. NaBr may be adultrated by KBr.