

Pharmaceutical Preparations/Drug Dosage forms

Pharmacological preparations or dosage forms are drug preparations compounded in such a manner as to provide a convenient means of administering a drug dose to the patient. Such pharmaceutical preparations are designed for or external application to the body.

Oral dosage forms

Solid dosage forms

Most commonly used medicinal preparations for oral administration. Advantages - easy administration, stability, provides a long shelf life, uniformity with respect to drug content.

1) Powders Pulvis: Simple mixture of dry substances usually reduced to fine powder, packaged in appropriately sized pack. Simplest solid oral dosage form, administered by adding to the drinking water or food.

2) Tablets: These are disc shaped compressed form of an active drug combined with a binder and excipient by machine. Tablets may be scored on both surfaces to facilitate fractionisation for providing smaller doses. Tablets must meet standards of uniformity of weight and content of active ingredients, and for rate of disintegration.

Tablets of drugs that are irritating to the stomach or destroyed by gastric juice may be coated with phenylsalicylate (salol) or other substances that is insoluble in acid, but will dissolve in alkaline small intestine, called enteric-coated tablets.

3) Pills: consists of drug and a sticky binder that has been rolled into a uniform cylinder and cut to form ovoid or spherical masses which are then provide with a glazed sugar coating. However, not commonly used, because they frequently were observed to pass intact through the oil tract.

4) Capsules: containers made of a mixture of gelatin and glycerin and are suitable for drugs in powdered form and certain liquid drugs. Advantages are; which may have very unpalatable taste. Dose not contacts the oral mucosa prior to swallowing. Disadvantages are: contained dose cannot be fractionated for smaller animals.

5) Boluses: large compressed tablets rectangular in shape. These are used for horses and cattle to provide the larger amount of drug required in the dose without increasing the cross-sectional size of the dose form to a dimension that cannot be easily swallowed.

6) Electuarium (Linctus or Confections): Semi solid (or) paste like preparations intended to be smeared on the tongue and lips. Treacle (or) honey is the excipients. For Veterinary Patients, this forms an excellent means of administering medicines in a palatable form.

7) Suppositories: soft medicated pastes intended for insertion into the body cavities. The bases used will have a melting point slightly below body temperature so that after incretion, the base melts and medicaments are liberated.

1. Rectal suppositaries : used in small animals
2. Veginal sappositaries: called pessaries
3. urethral Suppositaries
4. Nasal bougies.

Commonly used Bases: Oil of theobroma - M.point - 35degrees C.
 White beeswax _ 37 degrees C.
 Gelatin and glycerin basis.

Liquid preparations

1) Mixtures (mistura): are aqueous solutions (or) suspensions intended for oral administration. Aromatic water (aqueous solution of a volatile oil such as peppermint or cinnamon) is frequently employed as vehicles. Aromatic water is little use for animals. Eg. Mist. Carminative. Mixtures generally have a preservative added (benzoic acid (or) chlorobutanol) to inhibit growth of bacteria (or) molds.

2) Magmas: Aqueous suspensions of solids generally contain a dispersing agent like (tragacanth or methylcellulose) to delay settling. Bottle label should contain the phrase "shake well before using" to ensure uniformity of dosage.

3) Liquors: are preparations of non-volatile substances in distilled water, alcohol, oil. Uses: solutions of potent substances intended to obviate the necessity of frequent weighing of very small quantities strychnine. Solutions of substances, which are unstable or inconvenient to use if not, kept in solutions. Liq. Adrenaline. Hcl.

4) Aqua or Aromatic waters or medicated waters: are weak and simple solutions of volatile substances in water prepared either by shaking the drug with required amount of water (or) by diluting the concentrated waters which are weak alcoholic solutions of the substances.

Aqua compare 11 in 1000, Aqua chloroform 2.5 in 1000.

5) Syrups: are solutions of medicinal agents flavoring and coloring agents in an 85% sucrose solution generally used as a cough remedies.

6) Elixirs: are hydro-alcoholic solutions of medicinal substances that have been sweetened and flavored. Because of their high alcohol content, they have better keeping qualities than mixtures. Eg. Tr. - opi - comphare.

7) Emulsions: consist of oily substances dispersed in an aqueous medium with acacia, lecithin, (or) methylcellulose added to stabilize the dispersion.

8) Haustus: (Draught): is a single dose of a mixture for immediate use. Eg. Hanstus choral hydratis.

Preparations with Alcohol as vehicle

1) Tinctures: are alcoholic solutions of non-volatile drugs. Tr.balladona, Tr.zingiberis. Tr.Iodine.

2) Vinum: Tinctures in which wine is substituted for alcohol.Eg. Vinum Ipeeac, Vinum antimonale.

3) Spirits: solutions of volatile principles in alcohol. Eg. spts.Camphorae, spt.chloroformis.

Parenterally administered preparation:

1) Injections: sterile solutions (or) suspensions in an aqueous (some times oil) vehicle.

Most injections are heat sterilized (or) if unstable to heat is filtered through Millipore filters some drugs are unstable in solution and are packaged aseptically in vials. These products are reconstituted with sterile water immediately before use for injection. Injections must be free of particulate foreign substances and pyrogens and should be nearly isotonic.

Supplied in ampul, multi dose vials (or) large volume capped bottles to which an intravenous set may be attached. Syringes and needles for parenteral administration of drugs must be clean and sterile and needles must be sharp. Injections should not be stored in syringes prior to use. Some will adsorb to either glass (insulin) or to plastic (diazepam). Disposable syringes and needles should be promptly destroyed after use (or) should be kept out of sight to prevent drug abuse.

2) Repository forms of drugs: are designed to prolong affective drug concentration in the body by providing for sustained release from the dosage form.

- a) **Sustained release forms of injections:** are prepared by modifying the chemical nature of the drug to decrease its solubility, altering its physical form (or) modifying its vehicle.
- b) **Implants:** are very hard, sterile pellets inserted under the skin where they dissolve very slowly.
- c) **Oral sustained release preparations:** have not been reliable because of individual differences in oil absorption and transit times.

Eg: spansules (capsules) in which drug particles are coated with materials having different dissolution rates. Other methods are: layered tablets, Incorporation of ion exchange resin with the drug in tablet.

External dosage forms

Applied to skin surface for various purposes.

1) Liniments: liquid or semi-solid preparations to be applied to the skin with inunction (rubbing). These generally contain counter irritants to relieve muscle or tendon pain.

2) Lotions: solutions (or) suspension of soothing substances in water to be applied to the skin without friction calamine lotion.

3) Ointments: semi-solid greasy preparations in which the drug is disallowed (or) dispersed in a suitable base. Nature of the base may be an Oleaginous substance - Petroleum jelly or Completely water soluble - polyethylene glycol.

4) Cataplasma (or) poultice: are soft pasty preparations applied hot or cold, for local application of heat and moisture with the object of reducing inflammation and relieving pain. Eg. Cataplasma kaolin Cataplasma sinapis (mustard).

5) Implastrum (or) plasters: consists of medicinal agents mixed with adhesive substances and spread on to cloth or canvas for application to skin at body temp. They melt and become adhesive.

Plasters are employed with the object of maintaining prolonged contact between medicament and skin, to act as protective, as support to draw together edges of wounds where suturing is difficult as in injuries of eyelids nostrils. Bases - burgundy pitch, gum resin (or) oleoresin. Choice of an appropriate base will depend to a large extent on the therapeutic objective and nature of the lesion being treated.

6) Acculentum: eye ointment smooth ointment is prepared in aseptic condition.

7) Lamellae or gelatine discs: containing some active ingredients, usually intended to have a local action in eye. Placed under eyelids. Lamellae hamatropine.

8) Creams: incorporate a drug in water-oil emulsion water will evaporate following applications leaving this drug and a thin files of oil on the skin.

9) Dusting powders: mixtures of drugs in powder form for application to external surfaces. These may be applied for their adsorbent (cornstarch) (or) lubricant (talcum) properties.

10) Aerosols: aerosols are drugs incorporated in a suitable solvent and packaged under pressure with a propellant such as fluorinated hydrocarbon (or) nitrogen. Topical insecticides and isocend dressings are frequently prepared as aerosols.

11) Collodions: incorporate a drug in an ethereal solution of cellulose acetate. After application, the ether quickly evaporates, leaving a flexible plastic coating on the skin.

12) Collyrium or eye lotion: should be prepared under scrupulously clean conditions. Recently boiled and cooled distilled water should be used. Containers stoppers should be sterilized. Collyrium acid boric.

13) Guttac or eye drops: Aqueous (or) oil solutions of alkaloids or alkaloid salts for anesthetic, diagnostic, mydristic (or) myotic purposes. Guttae cocaina, ointment pencilline 2500 u/1 ml.

14) Collynaria: nasal lotions eq. any mild antiseptic lotions.

15) Collntoria: throat (or) mouth paints (or) washes. Glycerium acidic boric

16) Auristille: eardrops boric acid 2%, solution of H2O2.

17) Muciliages: solutions of gummy substances in water used for emulsification of oils may form excipient for pills & bolus. Accasia, Tragacanth.

18) Acetum: active principles of drugs obtained either by maceration or by dissolving the drug in dilute acetic acid. Acetum cantharidin.

19) Ceratum: preparations in wax ceratum calamine.

20) Glycerinum: solutions of drugs in glycerine.

21) Mellita: preparations of honey.

22) Decoctum: Preparations whose vehicle is water

23) Decoction: placing the crude material in the boiling water allowing the mixture to stand until the active substances are extracted.

24) Infusam or Infusion: placing the crude material in warm (or) cold water allowing until the active substances are extracted should use in 12 hrs. inf: columbae recens.

25) Extractum or percolation or extraction: passing a solvent over a column of dried plant material.

The resulting solution of extracted substances in the solvent is termed as menstrual.

1. Juice of some plants are simply pressed & purified.
2. Some dissolved in water extracts made by evaporation.
3. Some dissolved in alcohol.