# ROUTES OF ADMINISTRATION AND ORAL DOSAGE FORM

Formulation of a dosage form typically involves combining an active ingredient and one or more excipients; the resultant dosage form determines the route of administration and the clinical efficacy and safety of the drug.

Optimization of drug doses is also critical to achieving clinical efficacy and safety.

# ROUTES OF ADMINISTRATION

There are various routes through which the dosage form are administered.

Veterinary dosage forms are essentially pharmaceutical drugs product in the form in which they are marketed for use typically involve a mixture of active drug and excipients.

1-ORAL DOSAGE FORM
2-PARENTERAL DOSAGE FORMS
3-IMPLANTS
4-TOPICAL DOSAGE FORMS
5-OFTALMİC DOSAGE FORMS
6-DOSAGE FORMS APPLIED TO BODY CAVITIES

# *ORAL DOSAGE FORM*

The oral route of administration is frequently used in both companion and food animals.

Oral dosage forms account for a large proportion of drug preparations.

Drug absorption from oral dosage forms generally decreases in the order: solutions > suspensions and pastes/gels > capsules > powder >tablets of various types.

Oral dosage forms are usually intended for systemic effects resulting from drug absorption from the GI tract.

# *ORAL DOSAGE FORM*

***Oral dosage forms comprise:***

**Liquids (solutions, suspensions, emulsions, elixirs, and syrups),

**Semisolids (pastes),

**Solids (tablets, capsules, powders, granules, premixes, and medicated blocks).

# SOLUTION

A solution is a mixture of two or more components that form a single phase that is homogeneous down to the molecular level.

- Solutions offer *several advantages* over other dosage forms.
- Oral solutions are probably one of the easier dosage forms to develop.
- Compared with solid dosage forms, solutions are absorbed faster and generally cause less irritation of the GI mucosa. Moreover, phase separation on storage is not a concern with solutions, as it may be for suspensions and emulsions.
- Oral solutions provide a convenient means of drug administration to neonates and young animals.

# SOLUTION

- *The disadvantages of solutions* include susceptibility to microbial contamination, the oxidation reaction and the hydrolysis in aqueous solution of susceptible active ingredients.
- In addition, the taste of some drugs is more unpleasant when in solution.
- A range of additives is used in the formulation of oral solutions, including buffers, flavors, antioxidants, and preservatives.

# EMULSION

An emulsion is a thermodynamically unstable heterogeneous system consisting of at least one immiscible liquid intimately dispersed in another in the form of droplets.

The two phases of an emulsion are known as the dispersed phase and the continuous phase.

Emulsions for oral administration are usually oil (the active ingredient) in water, and they facilitate the administration of oily substances such as castor oil or liquid paraffin in a more palatable form.

# SYRUP

A syrup is a concentrated aqueous solution of sugar or a sugar substitute with or without flavoring agents and a water-soluble drug. Sucrose is the most frequently used sugar, and syrups usually contain 60%–80%.

Syrups may also contain co-solvents, solubilizing agents, or stabilizers.

Non-medicated syrups are used as vehicles for water-soluble drugs.

# PASTE AND GEL

A paste is a two-component semisolid in which drug is dispersed as a powder in an aqueous or fatty base.

The particle size of the active ingredient in pastes can be as large as 100 µm.

Pastes are a popular dosage form for treating cats and horses, and can be easily and safely administered by owners.

# PASTE AND GEL

Pastes and gels are semi-fluid masses that can be administered from a flexible tube, syringe, package, or other specialized dosing device.

The advantage of a paste or gel dosage form is that it cannot be expelled from the animal's mouth as readily as a tablet or liquid. Also, mass medicating of animals can be achieved rapidly and easily with a paste medication using a multiple-dose dispenser such as a syringe.