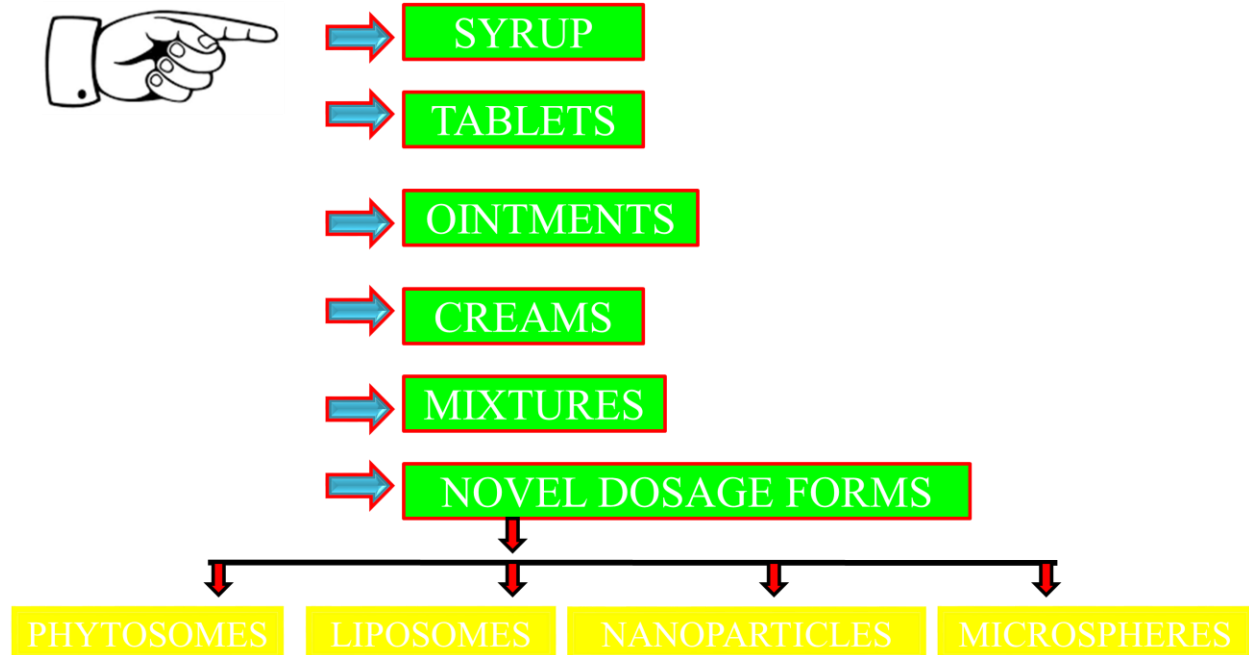


HERBAL FORMULATIONS

INTRODUCTION

- Herbal formulations is a dosage form consisting of one or more herbs or processed herbs in particular quantities to provide specific nutritional.
- Herbal formulations contain a herbal substance or in combination with one or more herbal preparations. Herbal formulations are generally obtained by subjecting herbal substances to the processes like extraction, distillation, expression, fractionation, purification, concentration or fermentation include comminuted or powdered.
- Polyherbal formulation means the use of more than one herb in a therapeutic preparation. In ayurveda, multiple herbs in a particular ratio may be used in the treatment of illness. In the traditional system of Indian medicine, plant formulations and combined extracts of plants are generally used rather than individual ones.
- Polyherbals are used due to some benefits by synergism which is not available in single herbal formulation.
- Different herbal formulations include tinctures, extracts, essential oils, expressed juices and processed exudates.
- Markers are chemically defined as constituents or groups of constituents which are used for control purpose. Markers help to calculate the quantity of herbal substance in the herbal formulations.

HERBAL FORMULATIONS



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SYRUPS

- Syrups are aqueous preparations having a sweet taste and a viscous consistency. It mainly contains sucrose having a concentration of at least 45 percent. The sweet taste can also be obtained by using sweetening agents.
- Syrups generally contain aromatic or other flavoring agents. In addition to sucrose, glycerin or sorbitol may also be added to slow down crystallization of sucrose or to increase the solubility of added ingredients.
- Alcohol is added as a preservative and also acts as a solvent for flavors.
- Antimicrobials are added to resist microbial attack. Syrups having some added medicinal substance are called as medicated syrups. Syrups are generally prepared to mask the taste of bitter.
- For example, **Glycerhiza syrup** has been prepared for masking the salty taste of bromides, iodides, and chlorides. **Acacia syrup** has colloidal character and used as a vehicle for masking unpleasant taste of many drugs.

- In dilute solutions, sucrose acts as an excellent nutrient for molds, yeasts and other microorganisms while in concentrations of 65% by weight or more, the sucrose solution will slow down the growth of such micro organisms.
- A saturated solution may lead to crystallization of a part of the sucrose under conditions of changing temperature.
- Sorbitol solution is the sweetening agent and contains 70% w/w of the total solids, consisting mainly of d-sorbitol. It has about half of the sweetening power of syrup.
- **Sequestering agents** like citric acid or EDTA are used to minimize the effects of trace metals.
- **Antioxidants** are used which delay oxidation by reacting with the free radicals formed in the product. For example propyl, octyl and dodecylesters of gallic acid, butylated hydroxyanisole (BHA) and the tocopherols or vitamin E.

Advantages of Syrups

1. To mask bad taste of the drug.
2. It has sweet taste so generally used for pediatric formulations.
3. It has soothing effect on irritated tissues due to its viscous nature.

Preparation

Syrups are prepared by different method and the choice of the method depends upon the physical and chemical properties of the substances to be dissolved into the syrup.

- ***Solution with heating:*** This method is used when the constituent is nonvolatile and heat stable. The sucrose is added to the purified water and heated until solution is formed. Then it is strained and sufficient purified water is added to make the desired weight or volume.
- ***Agitation without heating:*** This process is used in case of heat labile and volatile constituents. Glass lined tanks with mechanical agitators, especially adopted for dissolving. During manufacturing, packaging, storage and distribution of syrups, suitable measures are taken to ensure their microbial quality.

Preservation

- Syrups may contain preservatives like glycerin, methyl paraben, benzoic acid and sodium benzoate which prevent bacterial growth.
- Combination of alkyl esters of p-hydroxy benzoic acid are effective inhibitors of yeast which have been mixed up in the contamination of commercial syrups.
- Syrups can be preserved by storing at low temperature and or by adding preservative such as sodium benzoate, methylparaben or alcohol in the formulation.
- High sucrose concentrations will usually protect an oral liquid dosage form, from growth of microorganisms.

Evaluation of Polyherbal Syrup

The polyherbal syrup can be evaluated for the following parameters:

1. Evaluation of Physical Constants
2. Determination of pH
3. Determination of total solids
4. Determination of specific gravity
5. Determination of viscosity
6. Phytochemical screening
7. Quantitative Estimation of Phyto constituents like phenols, flavanoids, alkaloids and tannins.
8. Quantitative Estimation of Heavy Metals
9. Microbial Load Analysis
10. HPTLC finger printing of the Polyherbal syrup
11. Accelerated Stability testing of polyherbal syrup