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PHARMACEUTICAL AIDS

Pharmaceutical aids are the drugs and substances which have no or little pharmacological effect but they are essentially used in the preparation of pharmaceutical dosage form (like tablet, injection, emulsion, ointments etc).

HONEY

Synonyms : Madhu, Madh, Mel, Purified Honey.

Biological Source

Honey is a viscid and sweet secretion stored in the honey comb by various species of bees, such as *Apis mellifera*, and other species of *Apis*.

Family: Apidae

Geographical Source

Honey is available in abundance in Africa, India, Jamaica, Australia, California, Chili, Great Britain and New Zealand.

Morphology



Colour	Pale yellow to reddish brown viscid fluid
Odour	Pleasant and Characteristic
Taste	Sweet, slightly acid
Extra Features	However, the taste and odour of honey solely depends upon the availability of surrounding flowers from which nectar is collected. On prolonged storage it usually turns opaque and granular due to crystallization of dextrose and is termed as 'Granulated honey'

Chemical Constituents

- The average composition of honey is as follows: Moisture 14–24%, Dextrose 23–36%, Levulose (Fructose) 30–47%, Sucrose 0.4–6%, Dextrin and Gums 0–7% and Ash 0.1–0.8%.
- It is found to contain small amounts of essential oil, beeswax, pollen grains, formic acid, acetic acid, succinic acid, maltose, dextrin, colouring pigments, vitamins and an admixture of enzymes, for example, diastase, invertase and inulase.

Chemical Tests

Adulteration in honey is determined by the following tests:

1. **Fiehe's Test for Artificial Invert Sugar:** Honey (10 ml) is shaken with petroleum or solvent ether (5 ml) for 5–10 min. The upper ethereal layer is separated and evaporated in a china dish. On addition of 1% solution of resorcinol in hydrochloric acid (1 ml) a transient red colour is formed in natural honey while in artificial honey the colour persists for sometime.
2. **Reduction of Fehling's Solution:** To an aqueous solution of honey (2 ml) Fehling's solutions A and B are added and the reaction mixture is heated on a steam bath for 5–10 min. A brick red colour is produced due to the presence of reducing sugars.

3. **Limit Tests:** The limit tests of chloride, sulphate and ash (0.5%) are compared with the pharmacopoeial specifications.

Uses

- Honey shows mild laxative, bactericidal, sedative, antiseptic and alkaline characters.
- It is used for cold, cough, fever, sore eye and throat, tongue and duodenal ulcers, liver disorders, constipation, diarrhoea, kidney and other urinary disorders, pulmonary tuberculosis, marasmus, rickets, scurvy and insomnia.
- It is applied as a remedy on open wounds after surgery. It prevents infection and promotes healing.
- Honey is an important ingredient of certain lotions, cosmetics, soaps, creams, balms, toilet waters and inhalations. It is used as a medium in preservation of cornea.
- Honey is used as an ingredient in various cough preparations. It is also used to induce sleep, cure diarrhoea, and treat asthma.

Adulterant and Substitutes

Adulterated either with **artificial invert sugar** or simply with **cane-sugar syrup**.

ARACHIS OIL

Synonyms

Groundnut oil; monkeynut oil; peanut oil; katchung oil; earth-nut oil.

Biological Source

Arachis oil is obtained by expression of shelled and skinned seeds of *Arachia hypogaea* Linn.,

Family : Papilionaceae.

Geographical Source

South America (Brazil) is the original home of ground nut and now found in South and Central America, Peru, Argentina, Nigeria, Australia, India, Gambia, and other reasonably warm regions of all countries.

Characteristics

- Colourless/ yellowish liquid.
- Nut like odour.
- Bland taste.
- Lighter than water.



Chemical Constituents

The important constituents of the **glycerides of** groundnut oil are the **fatty acids** palmitic (8.3%), stearic (3.1%), oleic (56%), linoleic (26%), arachidic (24%), eicosenoic, behenic (3.1%), and lignoceric (1.1%) acids.

Uses

- Groundnut oil is used as an edible oil, as a substitute for Olive oil, as a solvent in pharmaceutical aid.
- Used for the manufacture of soap, liniments, plasters, and ointments.
- Used as vehicle for intramuscular medication and
- Used in the laboratory as heat transfer medium in melting point apparatus.

STARCH

Synonyms : Amylum.

Biological Source

Starch consists of polysaccharide granules obtained from the grains of

-maize (*Zea mays* Linn.) or

-rice (*Oryza sativa* Linn.) or

-wheat (*Triticum aestivum* Linn.); belonging to family Gramineae or

from the tubers of

-potato (*Solanum tuberosum* Linn.), family Solanaceae.

Geographical Source

Most of tropical, as well as, sub-tropical countries prepare starch commercially.

Description

Colour	Rice and maize grains are white, while wheat is cream coloured and potato is slightly yellowish
Odour	Odourless
Taste	Mucilaginous
Shape	Starch occurs as fine powder or irregular, angular masses readily reducible to powder



Chemical Constituents

- Starch contains chemically two different polysaccharides, such as **amylose** (β -amylose) and **amylopectin** (α -amylose), in the proportion of 1:2.
- Amylose is water soluble and amylopectin is water insoluble, but swells in water and is responsible for the gelatinizing property of the starch.

Identification Tests

1. Boil 1 g of starch with 15 ml of water and cool. The translucent viscous jelly is produced.
2. The above jelly turns deep blue by the addition of solution of iodine. The blue colour disappears on warming and reappears on cooling.

Uses

- Starch is used as a nutritive, demulcent, protective and as an absorbent.
- Starch is used in the preparation of dusting talcum powder for application over the skin.
- It is used as antidote in iodine poisoning, as a disintegrating agent in pills and tablets, and as diluent in dry extracts of crude drug.

- Starch is also a starting material for the commercial manufacture of liquid glucose, dextrose and dextrin.

Substitutes and Adulterants

Tapioca starch or Cassava or Brazilian arrowroot- This starch is obtained from *Manihot esculenta* (Euphorbiaceae) and is used as substitute for starch.

KAOLIN

Synonyms : China clay.

Source

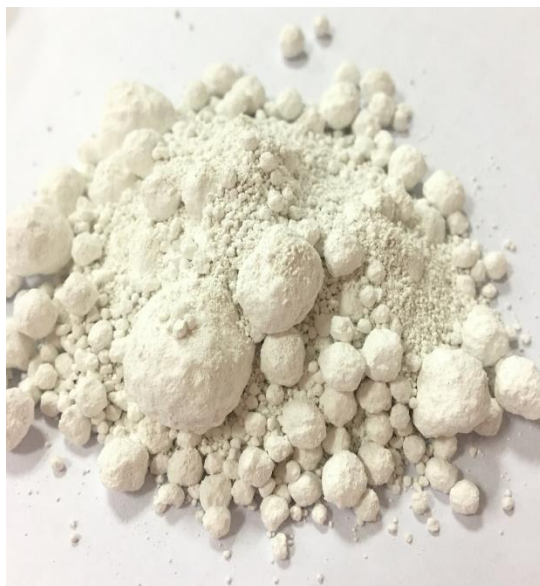
Kaolin is a purified native hydrated aluminium silicate free from gritty particles. It is obtained by powdering the native kaolin.

Description

- Kaolin is white soft plastic clay composed of well-ordered kaolinite with low iron content.
- It is coloured pink-orange-red by iron oxide.
- Lighter concentrations yield white, yellow or light orange colours also.
- Odourless when dry but has clay like odour when wet.

Types :

- There are two types of kaolin: **coarse** (heavy) and **colloidal** (light).
- The coarser kaolin when treated with water forms a plastic and slightly sticky mass while colloidal kaolin with water forms sticky, stiff mass and if suspended in water forms a turbid solution or slurry.



Chemical Constituents

- Chemically kaolin is **anhydrous aluminium silicate** with a chemical formula: $\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$ or $\text{H}_4\text{Al}_2\text{Si}_2\text{O}_9$.
- Natural kaolinite usually contains small amounts of uranium and thorium, octahedral sheet of alumina octahedral.

Identification Test

Heat kaolin on charcoal black with cobalt nitrate, it forms blue mass due to alumina.

Uses

- It is used as an adsorbent by oral administration, in the treatment of enteritis, dysentery and in alkaloidal and food poisoning.
- It is also applied externally as a dusting powder and also as clarifying agent during the filtration.
- Light kaolin used in pharmaceutical preparations.
- Heavy kaolin used in the preparation of kaolin poultice.
- It is used as filler in paper, rubber, ceramics, cement, and fertilizer industries.