BALAJI COLLEGE OF PHARMACY

HERBAL DRUG TECHNOLOGY

UNIT-III

HERBAL COSMETICS

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What are cosmetics?

According to D & C Act 1940 : Any article intended to be rubbed, poured, sprinkled or sprayed on or introduced to or applied to any part of human body for cleansing, beautifying, promoting, attractiveness or altering the appearance and includes any article intended for use as component of cosmetics.

TYPES ACCORDING TO SITE OF APPLICATION

- Skin
- Hair
- Dentifrice / Dental Products
- Nail
- Eyes

HERBAL COSMETICS USED FOR

- **Skin:-**

1.Powders 2.Bath and cleansing products 3.Creams 4. Make-up preparations 5.Lotions 6.Deodorants

- **Hair:-**

1.Shampoos 2. Beard softeners 3.Tonics 4. Shaving media 5.Hair dressing 6. Depilatories (hair removers)

- **Teeth and mouth:-**

1.Tooth powders 2. Dentifrices 3. Mouth washes

HERBAL COSMETICS FOR SKIN

• The herbal approach of proper skin care is principally based on three essential steps.

- **Cleanse**
- **Nourish**
- **Moisturize**

Whatever may be the type of skin, these three steps are performed to protect the skin from the constant effect of environment, stress and skin's natural process of cell degradation decay.

HERBAL COSMETICS FOR VARIOUS TYPES OF SKIN

FOR DRY SKIN

- Example of Herbs: *Rubia Cardifolia* (Manjista), Tulsi, *Glycerrhiza glabra* in sesame oil.
- Fruit face mask: Banana or avocado pulp.

FOR SENSITIVE SKIN

- Example of Herbs: *Curcuma longa*, *Azadircta indica*.
- Fruit face mask: Banana or pineapple pulp.

FOR OILY SKIN

- Example of Herbs: *Terminalia arjuna*, *Curcuma longa*, mustaka in musterd oil , milk, sour milk,
- Fruit face mask: Strawberry or papaya pulp.

SKIN CARE PRODUCT

CLEANSING CREAMS:

A satisfactory cleansing cream is water in oil emulsion that melts at temperature of body and spreads readily over the skin

Formula: chamomile cleansing creams

HERBAL INGREDIENTS USED IN SKIN CARE

Latin name	Common name	Part used	Uses
Acorus calamus	Sweet flag	Rhizome	Aromatic, Dusting powders, Skin lotions
Allium sativum	Garlic	Bulb	Promotes skin healing, Antibacterial
Aloe vera	Aloe	Leaf	Moisturizer, Sun screen, Emollient
Alpinia galanga	Galanga	Rhizome	Aromatic, Dusting powders
Avena sativa	Oat	Fruit	Moisturizer, Skin tonic
Azadirachta indica	Neem	Leaf	Antiseptic, Reduce dark spots, Antibacterial
Echinacea purpurea	Echinacea	roots, stem, and leaves	Skin regeneration
Centella asiatica	Gotu kola	Plant	Wound healing, Reduce
Symphytum officinale	Comfrey	leaves	cell regeneration, stimulates the growth of new cells, rejuvenate the skin
Crocus sativus	Kesar	Flowering top	Skin cleansing lotion

HERBAL HAIR CARE PRODUCTS

- **HAIR OIL:**
- The hair oils are used for dressings and nourishing the hair.

This preparations is generally used to increase the growth of hair and to make them healthy.

Hair oil should have following properties:

- They should give luster (soft glow) to the hair.
- Retain them soft and flowing.
- Invigorate their growth.
- Keep the brain cool.
- Should not be sticky.

SHAMPOO:

Shampoo is preparation of surfactant in suitable form liquid, solid or powder- when used under the condition specified will remove surface grease, dirt, and skin debris from the hair shaft and scalp.

QUALITIES OF AN IDEAL HAIR CARE PRODUCT

It should:

- Protect the hair cuticle.
- Cleans without stripping natural oils.
- Replace lost protein, moisture, and nutrients.
- Condition without weighing down the hair.
- Even without porosity and prevent moisture loss.
- Smooth abraded cuticle scales.
- Prevent intense drying from environment

Herbal ingredients used in Hair care

Latin name	Common name	Part used	Uses
Aloe vera	Aloe	Leaf	Moisturizer, Shampoos
Bacopa monneri	Brahmi	Entire herb	Hair growth, Good for sleep, Shampoos
Arctium lappa	Burdock root	Roots	Promots hair growth.
Cedrus dessential oilsdara	Dessential oilsdar	Wood	Soaps, Shampoos
Centella asiatica	Gotu kola	Plant	Hair care, Darkening of hair, Hair oil
Citrus aurantium	Orange	Peel	Soaps, Shampoos
Citrus limon	Lemon	Peel	Prevents hair loss
Eclipta alba	Bhringraj	Plant	Promoting hair growth, Shampoos, Hair oil
Acacia Concinna	Shikakai	pods	promots hair growth and preventing dandruff

HERBAL INGREDIENTS IN ORAL CARE

- In many traditional cultures, there are no plastic-bristle brushes, rather, the use of herbal **"chewing sticks"** are common.
- Chewing sticks are usually taken from plants, shrubs or trees with high anti-microbial activity. The ends of selected sticks are shredded and they are used to massage the gums and **"floss"** the teeth.
- young twigs of any of a number of **Neem, oaks, willows** have served for chewing sticks, and are still available today

HERBALS USED IN DENTIFRICE

Definition.

Dentifrice are the preparations intended for use with a toothbrush for the purpose of cleaning the accessible surfaces of teeth. They have been prepared in paste, powder and to a lesser extent in liquid and block form.

HERBAL INGREDIENTS USED IN ORAL CARE

• Some of the important herbs and their use in dentistry and oral care as follows:

Clove Oil (*Syzygium aromaticum*)

• It has got excellent analgesic and antiseptic properties which inhibit growth of all disease causing bacteria

• USES: 1. Relieve toothache 2. Treating bleeding gums.

Aloe Vera (*Grita kumari*)

• It is analgesic, antibacterial, antiviral, antifungal, and antiseptic in nature

USED IN : Toothpick injuries, chemical burns.

Tea Tree Oil (*Melaleuca alternifolia*)

• It has antiseptic and antifungal properties.

• Used in the treatment of Throat Irritation.

Garlic (*Allium sativum*)

•Its antibacterial activity depends on allicin produced by enzymatic activity of allinase

•USES: Inhibits the growth of Streptococcus mutans, and therefore, can be used as an effective remedy in the prevention of dental caries.

Evening Primrose (*Oleum Oenothera biennis*)

•It has anti-allergic and anti-ulcer activity.

•USED IN : Treatment of dental caries.

Neem (*Azadirachta indica*)

•USED IN: preventing and healing gum diseases and other ental problems such as bleeding and plaque

Thyme (*Thymus vulgaris*)

•It is mainly composed of volatile oils namely phenol, thymol, and carvacrol

•USED IN : it contains fluoride & used in toothpaste

Turmeric (*Curcuma longa Linn.*)

•It is an antiseptic, antibacterial, anti-inflammatory and painkiller.

Meswak (*Salvadora persica*)

•It is a derivative from Arak tree, used as a traditional toothbrush for oral hygiene.

Pharmaceutical Excipient

Pharmaceutical excipients can be defined as non-active ingredients that are mixed with therapeutically active compounds to form medicines. The ingredient which is not an active compound is regarded as excipients. Excipients affect the behavior and effectiveness of the drug product more and more functionality and significantly. The variability of active compounds, excipients and process are obvious components for the product variability.

Significance of substances of natural origin as excipients

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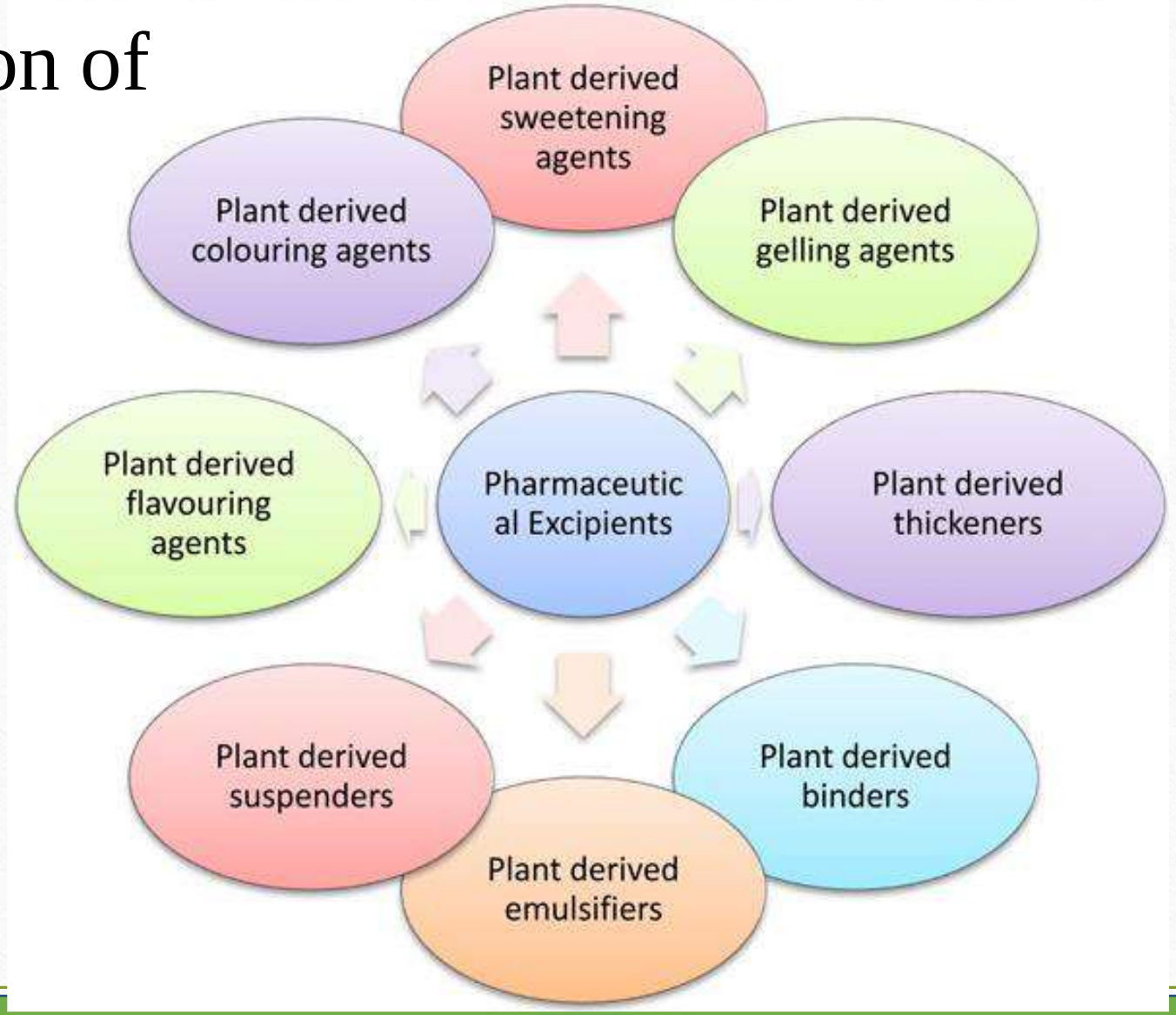
The variability of active compounds, excipients and process are obvious components for the product variability Natural excipients and derivatives occur ubiquitously throughout the plant and animal kingdoms. Examples of polymers or derivatives that have been used or investigated as vaccine adjuvants are Individual saponins derived from the South American tree Quillaja saponaria. Keyhole limpet hemocyanin, a nonheme copper containing protein found in arthropods. a monophosphoryl derivative of the Lipid a molecule found in gram-negative bacteria. Leishmania elongation initiation factors, a protein produced by the parasite leishmania. Ricin, a potent immunotoxin obtained from the seeds of castor bean plants.

Classification of Excipients



Colorants

Colorant/color additiveis a substance that is added or applied in order to change the Colour of a material or surface. Colorants can be used for many purposes including printing, painting, and for Colouring many types of materials such as foods and plastics.

Classification

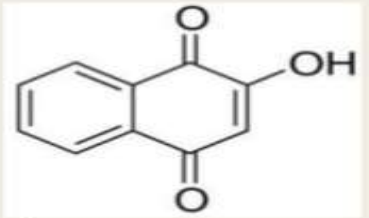
Natural dyes obtained from plants - Berry, flower, bark, leaf, seed etc.

(e.g. Catechu, Indigofera, Myrobalan and Pomegranate).

Natural dyes obtained from mineral – Clay, ochre and malachite.

Natural dyes obtained from animal – Mollusk, murex snail, cuttlefish and shellfish.

Henna



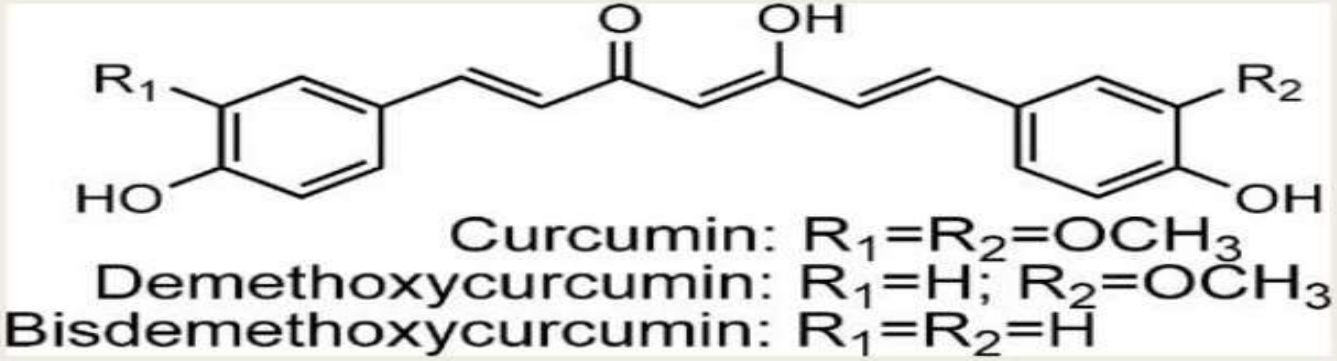
- Source: dried leaves of *Lawsonia inermis (L. alba)*
- Family: Lythraceae
- GS: North Africa, India, Srilanka
- Constituents: Phenolic glycosides, Coumarins, Xanthene, Flavonoids, Fats, Resin and Henna tannin
- Coloring matter: Lawesone, which can be extracted from the leaves by $NaHCO_3$.
- Lawsone is 2,5-dihydroxy-1,4-naphthoquinone
- used to dye protein fiber in an orange shade, in conjuction with dihydroxyacetone as a sunscreen agent

Turmeric

- Source: dried rhizomes of *Curcuma longa*
- Family: Zingiberaceae
- GS: Subtropical regions
- Contains a yellow natural pingment, which dissolves in alcohol to form a deep yellow solution.
- Alkali changes the colour to reddish orange
- Constituents: 5% curcumins and its derivatives, which are diaryl heptanoid compounds of dark yellow color. Curcumin, desmethoxy curcumin and bisdesmethoxy curcumin.

Turmeric

- Use: principally as a constituents of curry powder.
- It imparts dark yellow color to food preparations.
- A tincture is used for preparation of turmeric paper which is used as a test for boric acid and borates
- Curcumin is used as a yellow coloring matter but the color is fugitive in solution.



Curcumin: $R_1=R_2=OCH_3$
Demethoxycurcumin: $R_1=H$; $R_2=OCH_3$
Bisdemethoxycurcumin: $R_1=R_2=H$

Herbal sweeteners:

A sugar substitute is a food additive that provides a sweet taste like that of sugar while containing significantly less food energy than sugar-based sweeteners, making it a zero-calorie or low-calorie sweetener. Artificial sweeteners may be derived through manufacturing of plant extracts or processed by chemical synthesis. Sugar alcohols such as erythritol, xylitol, and sorbitol are derived from sugars.

Stevia

It is a very popular low-calorie sweetener.

It’s extracted from the leaves of a *Stevia rebaudiana*.

Chemical constituents

The main ones are stevioside and rebaudioside A.

Both are hundreds of times sweeter than sugar, gram for gram.

Pharmacological actions

Additionally, a few human-based studies suggest stevia has health benefits.

Stevia can lower high blood pressure in people with hypertension by 6–14%

Stevia is used in many parts of the world as a non-caloric sweetener.

2. **Erythritol:** It is another low-calorie sweetener. It's a sugar alcohol found naturally in certain fruits. However, powdered erythritol available for purchase is most likely made via an industrial process. It contains 0.24 calories per gram, or about 6% of the calories in an equal amount of sugar, with 70% of the sweetness

•**SYRUP:-**

• Syrups are viscous liquids containing high amount of sugars or other sweetening agents.

• May or may not contain medicine & flavoring agents

• Due to high sugar content, they are susceptible to microbial contamination so they contain preservatives.

EVALUATION: • Organoleptic characters • pH • Specific gravity • Total solid content • Viscosity • Stability

Preparation: Preservative, colorants, flavoring agent may be added. Plant decoction is mixed with simple syrup in 1:4 ratio. Solution is filtered Decoction of plant material is prepared by boiling in water. 40 gm of sucrose is dissolved in sufficient water to get 100 ml of conc. Simple syrup.

Dosage: 1-2 teaspoonful thrice a day.

Example: Hempushpa syrup, Brahmi syrup, Cough syrup, Heart tonic syrup.

PHYTOSOMES

• Phyto- plant; soma- cell like. • Phytosomes are NDDS of standardized plant extract or water soluble phytoconstituents which are entrapped into phospholipids to produce lipid compatible molecular complexes. •

Preparation:

•Phospholipids are dissolved in organic solvent

•Extract of phytoconstituents mixed in above solution in 1:1 ratio Phospholipids are dissolved in organic solvent

•Isolation of phytosomal complex by lyophilization or spray drying

• Purification & evaluation.

Example: silymarin phytosome showed increased bioavailability , quercetin phytosome exhibit improved hepato-protective action.