

DENTAL & COSMETIC PREPARATIONS

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INTRODUCTION

- ◉ Cosmetic word derived from greek word 'kosmeticos' means to adorn.
- ◉ According to drug & cosmetic Act & Rules, 1945 cosmetic is defined as an item intended to be rubbed, poured, sprinkled on, introduced into or applied to the human body or any part for cleansing, protecting, beautifying, promoting attractiveness or altering the appearance.

Functions of Cosmetic preparations

- ◉ Maintain body health & hygiene.
- ◉ Avoid premature ageing of skin.
- ◉ Give a sense of well being.
- ◉ Improve overall looks & personality.

Classification of Cosmetics

- ◉ According to their use.
- ◉ According to their function.
- ◉ According to their physical nature.

Cosmetics according to their use

- For the skin: e.g. cream, powders, lotions, deodorants, antiperspirants etc.
- For the nails: e.g. nail polish, nail polish removers etc.
- For the teeth & mouth: e.g. dentifrices & mouth washes.
- For the eye: e.g. eye cream, eye lashes, eye liners.
- For the hairs: e.g. shampoo, hair dyes, hair removers, hair tonic, hair sprays.

Cosmetics according to their function

- ◉ Therapeutic function: e.g. antiperspirants & hair preparations.
- ◉ Protective function: e.g. face powders
- ◉ Corrective function: e.g. face powders
- ◉ Decorative function: e.g. lipsticks, nail polishes & eye liners etc.



Cosmetics according to their physical nature

- Aerosols: e.g. after shave lotion, hair perfumes
- Cakes: e.g. rouge compacts, make up compacts
- Emulsions: e.g. cold cream, vanishing cream, cleansing cream etc.
- Oils: e.g. hair oils.
- Pastes: e.g. tooth paste
- Powders: e.g. tooth powders, face powders etc.
- Solutions: e.g. after shave lotions, hand lotions etc.
- Soaps: e.g. shaving soap, toilet soap etc.
- Sticks: e.g. lipsticks, deodorant sticks.

FACIAL COSMETICS

- Some face cosmetics used for facial purpose for cleansing, refreshing & nourishing effects:
- 1. Face powders.
- 2. Compact face powders
- 3. Rouges
- 4. Cold Creams.
- 5. Cleansing Creams
- 6. Vanishing Creams.
- 7. Moisturizing Creams.
- 8. Foundation Creams
- 9. Eye Make up preparations :
 - a) Eye Shadow
 - b) Eye brow pencils
 - c) Mascara
- 10. Lipsticks
- 11. Bleaches
- 12. Shaving Media:
 - a) Lather shaving creams
 - b) Brushless shaving creams
 - c) Shaving soaps
 - d) Shaving sticks
 - e) After shave products

Face powders



● **FACE POWDER:-**

- ❖ Face powder is a cosmetic preparation meant for improvement of overall attractiveness of the face.
- ❖ It is applied on the face by means of a powder puff & provides visual covering to the skin and imparts smooth finish.
- ❖ In that contains talcum powder, kaolin, mag. Carbonate, zinc oxide, titanium oxide, starch, colors & perfumes

● **Types:**

- a) Light type: used for dry skin, large quantity of talc**
- b) Medium type: used for normal or oily skin, lesser quantity of talc with zinc oxide**
- c) Heavy type: Used for very oily skin, it contain lesser quantity of talc and higher quantity of zinc oxide**

General Method of Preparation of face powder:-

- 1) All the solid ingredients are powdered & pass through sieve number 120.
- 2) Mix them thoroughly, incorporate the required quantity of perfumes & packed in powder box.

Formula:

Talcum powder 75.0g

Kaolin 5.0g

Chalk precipitated 5.0g

Zinc oxide 10.0g

Zinc stearate 5.0g

Perfumes & Color Q.S



Compact face powder



- Compact Face powder is a dry powder which is compressed to form a cake and is applied with the help of powder puff.
- In that suitable binding agents are added to the face powder to bind the particles of the powder, so that the cake formed will not break after compression or during use.

General Method of Preparation of compact face powder:-

- 1) All the solid ingredients are powdered & pass through sieve number 120.
- 2) Mix them thoroughly, add required quantity of binder solution and perfumes, Mix thoroughly to get wet mass and compress the mass and dry to form cake & transfer into suitable container.

Formula for compact powders

Talcum powder 50 gm
Titanium dioxide 5 gm
Kaolin 15 gm
Zinc oxide 10 gm
Calcium carbonate 15 gm
Starch 5 gm
Binders solution 5 ml
Perfume QS

Formula for binder solution:

Gum tragacanth 2 gm
Glucose 5 gm
Water 93 ml
Preservative QS



Rouges

- Rouges are applied to the cheeks for enhancing the face beauty. It imparts rosy freshness, also add beauty.
- Rouges are available in solid, liquid and cream form.
- Color of rouge vary from pink to red or reddish brown.
- The shade of the rouge depends on the type & quantity of color mixed with it.
- The dry compact rouge is applied with help of powder puff



General Method of Preparation of Dry rouge:-

Formula:

Talcum powder 80 gm

Zinc oxide 5 gm

Zinc stearate 5 gm

Rice starch 10 gm

Perfume & Colour QS



- Method: 1) all powders mix & incorporate with perfume & colour. The moulded mass is pressed to expel the air from the powders.
- 2) After compact they dried at specific temperature to avoid dry mist & an undesirable top cast.

Cold cream O/W

- Cold cream is an emulsion, which when applied on the skin a cooling effect is produced due to slow evaporation of water present in the emulsion. These are generally prepared by emulsification of oil and water.
- In olden days animal fat & vegetable oils were used but vegetable oils have a rancid tendency so they were replaced by mineral oils.



General Method of Preparation of Cold cream:-

Formula:

Bees wax 5.0g

liquid paraffin 45.0g

White soft paraffin 10.0g

Hard paraffin 7.0g

Borax 0.2g

Water 32.8ml

Perfumes & Preservative Q.S.

- 1) Melt the wax, white soft paraffin, hard paraffin on a water bath.
- 2) Add liquid paraffin & heat the mixture to 70° C.
- 3) Dissolve the borax in water at 75° C & add to melted fats with continuous stirring.
- 4) Cool with stirring to 40° C.
- 5) Add the required quantity of preservative & perfumes .
- 6) Transfer the cream to the container while hot.



Cleansing Cream

- Cleansing creams remove facial make up and keeps skin healthy by removing grime, sebum and other secretions, dead cells. This are basically cold creams containing detergent action.
- In case of o/w type of cleansing cream tweens are used along with detergent to remove dirt.
- Pepsin is added to make the facial skin smooth.



Types of Cleansing cream

- i) Liquefying cleansing creams
- ii) Emulsified creams of o/w type
- iii) Emulsified creams of w/o type

1. Liquefying cleansing creams: In that contains simple mixture of mineral oil or synthetic fatty materials

Rx,

Isopropyl myristate 25 gm

Liq. Paraffin 25 gm

White soft paraffin 30 gm

Paraffin wax 20 gm

Method: Melt & mix all the ingredients at 65⁰ C, cool with stirring & after over solidifying transfer into suitable container.

2. Emulsified creams of o/w type :

Rx,

Beeswax 12 gm

Liq.Paraffin 53 gm

Bentonite 0.7 gm

Borax 0.7 gm

Water 33.2 ml

Isopropyl alcohol 0.4 ml

Method: triturate bentonite, Isopropyl alcohol & Liq.Paraffin. Heat beeswax at 75° C & dissolve borax with water at 75° C & slowly mix with oil phase with stirring until temp. comes down at 40 to 45° C. & then transfer into final container.

3. Emulsified creams of w/o type:

Rx,

Liq. Paraffin 50 gm

Paraffin wax 5 gm

Bentone 0.7 gm

Water 43.9 ml

Isopropyl alcohol 0.4 ml

Method: Triturate bentonite & Isopropyl alcohol & some part of liq.paraffin to disperse bentone. Paraffin wax & remaining part of liq. Paraffin heated at 75⁰C then formed gel. Heat the water to 70⁰ C & mix slowly with oil phase with stirring until cream is obtained then transfer into suitable container.

VANISHING CREAM

- These are the O/W emulsion which when applied to the skin leave an almost invisible layer on it hence; this are called as vanishing cream. The main ingredient used is stearic acid which gives pearly white shining appearance to the cream.
- These cream can be quickly washed off because its O/W type.
- In that, oil phase which melts at above body temperature so, it provides an invisible & non greasy layer & produce very attractive appearance.



◉ **Formula**

Stearic acid 18.0g

Glycerin 3.0g

lanolin 2.0g

Triethanolamine 1.0g

Water 80.0ml

Preservative 1.0g

Perfumes Q.S.

◉ **Method:** - Melt stearic acid & lanolin.

- Then, mix water, glycerin & triethalonamine & warm to same temperature as that of melted stearic acid & lanolin.
- Mix the to with continuous stirring & add perfume & preservative.
- Mix them thoroughly in order to obtained a uniform product.

Foundation Cream

- These are applied to face after cleansing to provide a smooth emollient base for facial makeup.
- Act as skin protective and prevent damage caused by sun or wind.
- Type: i) Mostly available in o/w type & ii) W/O for dry skin
- In foundation cream contains fatty materials, Stearic acid, glycerin, surfactants preservative & Perfumes.
- Fatty materials like bees wax, carnuba wax, lanoline they act as emollient.



● Formula

Stearic acid 18.0g

pot hydroxide 0.52g

sodium hydroxide 0.18g

Cetyl alcohol 0.50ml

Glycerin 18.0ml

Water 62.2ml

Preservative and Perfumes Q.S.

Method: mix stearic acid & cetyl alcohol & heat at 75°C till homogenous mass is produced. Dissolve pota. & sodium hydroxide in water & add glycerin. Heat the mixture at 75°C. Then add this mixture to stearic acid solution & stir until temper. falls at 40°C then add perfume & allow to stand. Then, transfer into suitable container.

Moisturising Creams

- These are designated to be left on skin for several hours. These creams are applied at night, the layer of cream prevent rate of transepidermal water loss thus having moisturising effect. It keeps the skin surface smooth by its lubrication action.
- These creams contain mineral oil, vegetable oil, lipophilic substances, humectant (glycerin, sorbitol, propylene glycol) and water.



PREPARATIONS OF EYE MAKEUP

- ◉ Eye shadow
- ◉ Eyebrow pencils
- ◉ Mascara

Eye Shadow

- These are the preparations which produce attractive moist looking background of color to the eyes.
- They Applied to the eye lids.
- They are Available in various shades



Types:

- a) Eye shadow creams
- b) Eye shadow stick
- c) Powder Pressed Eye shadow
- d) liquid Eye shadow



Eye brow pencils

- These are hard pencils which are used for darkening the eye brows. Contains mainly black iron oxide.
- Manufactured by pencil manufacturers.
- Available in black and brown color.
- In that contain a high proportion of waxes to make them hard, so that they can be moulded as a thin stick & sharpened to a point.



Mascara

- Mascara is a black pigmented preparation applied to eye lashes or eyebrows to beautify eyes. It is Used to darken eyelashes or eyebrows and increase their length. It is applied with brush.
- **Types:**
 - Cake Mascara:** melted wax
 - Cream Mascara:** vanishing cream base used
 - Liquid Mascara:** alcoholic solu. With resin in which carbon black is suspended.



LIPSTICKS

- Most widely used cosmetic item by women to give an attractive color & appearance to lips.
- In that pigments dissolved or dispensed in fatty base i.e. fats, waxes with suitable perfume.
- **Ideal qualities:**
 - **Nontoxic**
 - **Non-irritant**
 - **Stable both physically and chemically**
 - **Free from gritty particles**
 - **Free from sweating**
 - **Should not break easily**
 - **Shiny and smooth appearance**
 - **Maintain color of lips for long period & remove easily**
 - **Should not break during storage**

◉ FORMULATION OF LIPSTICKS:

1. **Bases:** Oily, fatty materials and waxes like mineral oil, veg oil, cocoa butter, lanolin, carnauba wax, beeswax etc.
2. **Coloring Materials:** Titanium dioxide, soluble eosin, halogenated derivatives of fluorescein and tetra bromofluorescein.
3. **Perfumes:** Floral fruity and light spicy fragrances
4. **Antioxidants:** They are used for prevent rancidity BHA , BHT, Propyl gallate etc.

Formula

Carnauba wax 1.0g

Beeswax 15g

lanolin 5g

Cetyl alcohol 5g

Castor oil 65.0ml

Coloring matter and Perfume

Q.S.



Bleaches

- These are agents which lighten the skin colour.
- The lightening of the skin colour may be reducing pigmentation, decolorise the melanin present or prevent new melanine from being formed.
- They also protect the skin from UV radiations.
- The bleach contain sun screening agent which prevent reoxidation by UV light.



○ In the bleaches contain skin lighting agents which are of following types:-

- Opaque covering agents: e.g. titanium dioxide, zinc oxide, talc, kaolin.
- Oxidising agents: e.g. hydrogen peroxide, sodium hydrochloride solution.
- Mercury compounds: e.g. red mercury oxide
- Hydroxyl quinoline
- Some natural lighting materials are butter milk, lemon juice, crushed strawberries etc.

Shaving media

- They are used to remove hair, particularly from men's faces. Some women's are also used for removal of hairs from legs, under arms.
- Shaving media are 3 types:
 - Pre-shave products: for softening of beard
 - Shaving products: shaving cream, leather shaving cream
 - After-shave products: to refresh the skin



Antiperspirants & Deodorants

- Antiperspirants are play to inhibit the flow of perspiration.
- Deodorants are play to inhibit the formation of bad odour in perspiration by suppressing the growth of bacteria or mask the unpleasant odour.
- Aluminium carbohydrate shows both qualities.



⦿ **Antiperspirants mechanism of action:**

- Antiperspirants contain substance having astringent action & on reacting with skin proteins it causes coagulation which is accompanied by a swelling at the opening of sweat glands. This helps in blocking the openings of sweat glands. Thus reduce the flow of sweat.

⦿ **Ideal properties:**

- Non-toxic
- Non-irritant
- It should have pH between 4 to 4.5.
- It should have no effect on fabrics.
- It should have astringent properties

Shampoos

- Shampoos defined as a preparation containing surface active agents which are used to remove dirt, grease & debris from the hair, scalp & other parts of the body without affecting the natural gloss of hair.
- It also helps to give fragrant, softness to the hairs.
- It is available in solution or suspension form prepared by dissolving cleansing agents & other agents to improve the quality of shampoo.



○ Qualities of ideal shampoos:

- Non-toxic, Non-irritant
- It should be capable of removing grease, dirt & skin debris from hair & scalp.
- It provides sufficient fragrance to the hair after it's use.
- It should be effective in small amount.
- It should get easily removed by washing.
- It should produce sufficient foam both in hard & soft water.
- It make the hair soft & shiny.

Types of shampoos:

- Medicated dandruff shampoos
- Powder shampoos
- Clear liquid shampoos
- Gel shampoos
- Soap shampoos
- Cream or paste shampoos
- Liquid cream or lotion shampoos
- Baby shampoos
- Aerosol shampoos



○ Formulation of shampoos:

- **Surfactant:** the following types of surfactants used in various types of shampoos

1. Anionic 2. Cationic 3. Amphoteric 4. Non-ionic

1. Anionic type of surfactants are widely used as detergent in shampoos e.g. sodium lauryl sulphate.

2. Cationic surfactant used as additives in small quantity. Bec. They have low cleansing & foam property compared to anionic. E.g. cetylpyridinium salt

3. Amphoteric surfactants are used for mild shampoos such as baby shampoos e.g. derivatives of amino acids.

4. Non-ionic surfactants are used in combination with other surfactants. E.g. lauric mono ethanoamide

- **Conditioning agents (Conditioners):** used for improve the texture of the hair. E.g. mineral oils, humectants etc.
- **Thickening agents:** they provide viscosity & desired consistency to the preparation e.g. methyl cellulose, CMC, sodium stearate etc.
- **Opacifiers:** used to shampoo opaque e.g. glyceryl stearate, calcium or zinc salts of stearic acid etc.
- **Sequestering agents:** to make the shampoo effective in hard water e.g. EDTA
- **Preservatives:** e.g. methyl & propyl paraben

HARIR DRESSINGS

- Hair dressings are mainly used for dry hairs for providing extra gloss & also use for natural hairs.
- The main purpose is to apply a thin film of oil to maintain a natural looking gloss without any appearance of oiliness.
- Qualities or Properties:
 - Non-toxic
 - Provide gloss & grooming action
 - Provides anti-dandruff & wetting action
 - Provides some degree of hair conditioning.

○ No. of preparations used for hair for Men & Women's are as follows:

1. Hair Conditioners
2. Hair tonics
3. Brilliantines
4. Hair waving & hair straightening preparations

1. Hair conditioners: they reduce the fluffiness & smoothness the hair shaft & also provides smooth texture to hairs which are damaged by over shampooing, bleaching & dyeing.

2.Hair tonics: they are applied to the hair for curing baldness & also used for prevent or cure the dandruff. In that contains, rubefacient, an antiseptic & sebaceous gland stimulant. They rubbed in night & wash on next day using shampoos.

3.Brilliantines: they are mainly used for men providing glossiness to hairs & keeping the hair in place.

They are 2 types

- Liquid brilliantines
- Solid brilliantines



- **Liquid brilliantines:** in that type contain oil with deodorised agents i.e. kerosene or isopropyl myristate. An alcoholic brilliantines contains oil with alcohol. It provides freshness & stimulate the skin e.g. castor oil, almond oil etc.



- **Solid brilliantines:** in that brilliantines are thicker by adding waxes such as bees wax, carnuba wax, paraffin wax etc. Aluminium tristearate used as a gelling agent for transparent.



4. Hair waving & Hair straightening Preparations:

- These preparations used for men & women for their hair style.
- Some peoples having interesting to make straight hair from curly hairs & some, interested to make curly hairs from straight hairs.
- The curling of hairs required some devices like brush, hot air blower & combs & these produce curly hairs produce by this method is temporary.
- Now a days hair waving liquids are presents in the markets.

- Hair waving liquids consisting of thick colloidal solutions of gum tragacanth, gum acacia, gelatin, sodium carbonate or borax, glycerin & alcohol etc.

-Formula:

Gum tragacanth 1.2 gm

Alcohol 10.05 ml

Glycerin 5.0 ml

Sodium benzoate 0.5 gm

Water 83.8 ml

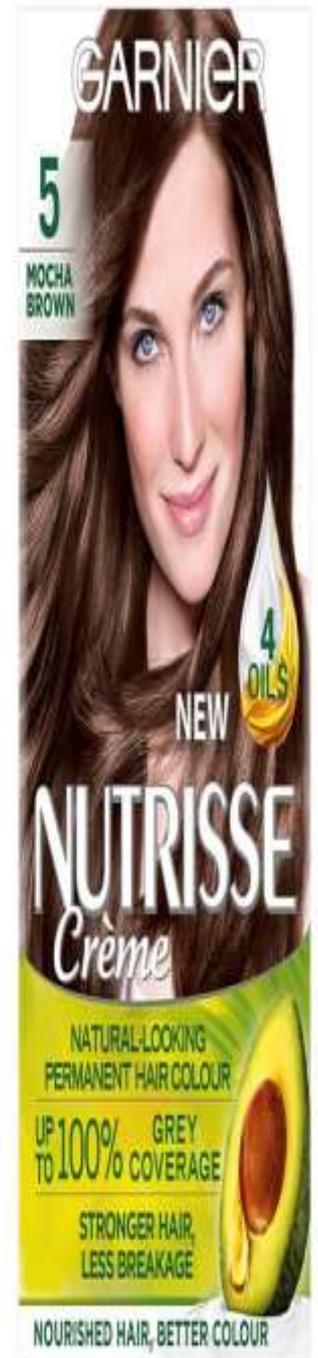
Perfume q.s

- Method: sodium benzoate + warm water +tragacanth to form mucilage. Then, alcohol + perfume & add into above solution & then add glycerin & stir continuously.

- After application on the hair wash with water after some time & apply oil. In that oil contains waxes, perfume, lanolin & conditioners.

Hair Dyes

- Hair dyes classified accordingly of action.
 - Temporary
 - Semi-permanent
 - Permanent
- Hair dyes also classified into dyes nature:
 - Vegetable dyes e.g. henna & chamomile.
 - Metallic dyes: e.g. bismuth citrate, silver nitrate, copper chloride etc.
 - Synthetic organic dyes: e.g. para-amino-diphenylamine, para-toluylenediamine, sulpho-ortho-aminophenol etc.



Depilatories (Hair Removers)

● The unwanted hairs from the skin can be removed by following 3 methods:

1. Epilation Method

2. Depilation Method

3. Electrolysis Method

1. Epilation Method: in that wax, rosin etc used for plucking the hair but this method is very painful & have the chances of skin damage & also have the chance for skin infection. In that formulation contains rosin, beeswax with mineral or vegetable oils, cooling agent, antibacterial agent

2. Depilation Method: In this method use the chemicals for removing of hairs without pain & injury the skin. For that purpose calcium sulphide is most commonly used in formulation also, calcium thioglycerol, barium sulphide etc. The formulation Present in powder & paste form.

Formula:

Barium sulphide 8 gm

Calcium carbonate 32 gm

Powdered soap 4 gm

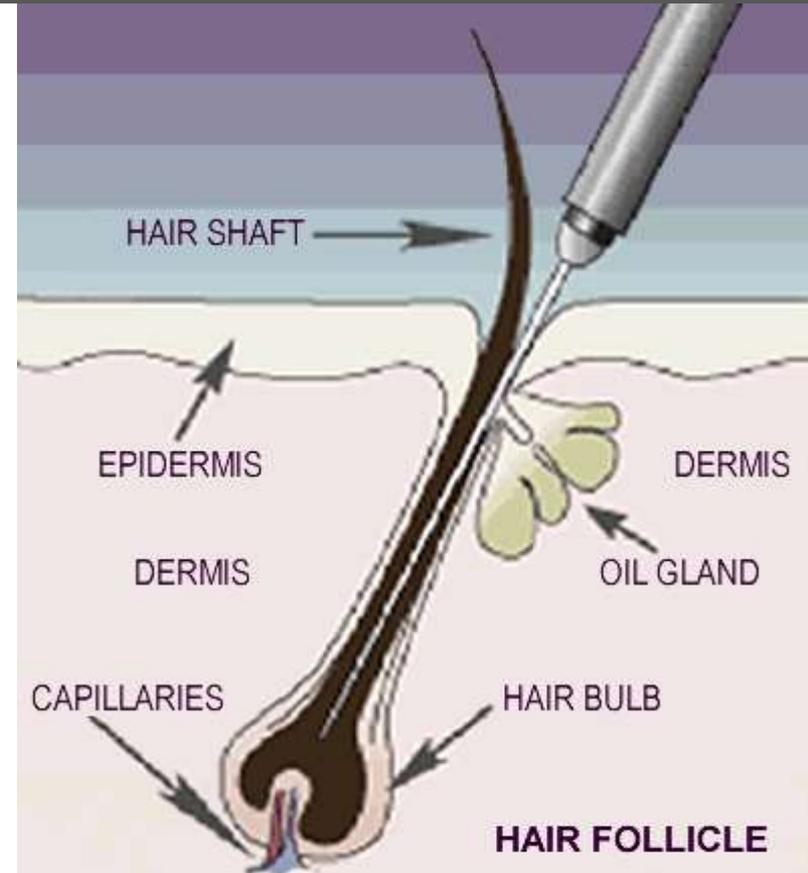
Glycerin 2 ml

Water 54 ml

Perfume q.s

Method: powder soap + water. Glycerin + barium sulphide + calcium carbonate & mix with above solution & then add perfume & triturate till smooth paste is obtained.

3. Electrolysis: In this method the inserting of needle into the hair follicle & hair root is completely destroyed by weak current. In this method hair removed permanently. This method is very time consuming & expensive.



Antidandruff Preparations

- The major causes of dandruff are:
 - Dysfunction of the scalp
 - Microbial attack
 - Combination of above two
- They can be controlled by using shampoo, it should be allowed to remain in the hair half & hour & then washed with warm water & after proper drying of hair, it should be massaged to increase the blood circulation of the scalp.

○ Antidandruff Preparations:

Formula:

Selenium disulphide 2.5 gm

Stabilizer 5 gm

Surfactant 17.5 gm

Water 75ml



Dentifrices

- Following ingredients are used in the formulation of dentifrices
 - Abrasives agent
 - Binders
 - Detergents
 - Flavouring agents
 - Humectants
 - Preservatives
 - Sweetening agents
 - Therapeutic agents



- **Abrasive agents** : they also called polishing agents use for removal of stains & polishing the tooth surface e.g. calcium carbonate, cal. phosphate, mag.trisilicate etc.
- **Binders**: used for solids & liquids in united form & maintain consistency. E.g. gum tragacanth, sodium alginate, methyl cellulose etc. tragacanth is commonly used in concentration of 1 to 2.5%.
- **Detergents**: they having good foaming property & used to enhance the action of abrasives. E.g. sodium lauryl sulphate & sodium alkyl sulphosuccinate.

- **Flavouring agent:** e.g. peppermint oil, cinnamon oil etc.
- **Humectants:** they used for retain the moisture & will not allow the paste to become dry. E.g. glycerin, sorbitol, propylene glycol etc.
- **Preservatives:** e.g. methyl paraben & propyl paraben.
- **Sweetening agent:** saccharin in the ratio 0.005 to 0.25% commonly used as sweetening agent.
- **Therapeutic agent:** these are included in the medicated tooth paste for tooth disease & to removal of bad odour. E.g antibiotics, fluorides, crystal growth inhibitors etc.

Formulations of various Dentifrices

- Liquid Dentifrices



- Tooth Powders



- Tooth Paste



Liquid Dentifrices

- These are preparations are not popular but they are used for cleansing purpose.
- They are aqu. Or hydro alcoholic solutions.

Formula:

Hard soap 6 gm

Saccharin 0.2 gm

Amaranth solution 1 ml

Cinnamon oil 0.5 ml

Peppermint oil 0.5 ml

Clove oil 1 ml

Alcohol 75 ml

P.W 100 ml

Method: soap + saccharin + volatile oil in alcohol. Then add amaranth solution & water to make up the volume.

Tooth Powders

- These are oldest, cheapest & simple preparation.
- In that abrasive, surfactants, sweetening & flavoring agents included.
- Formula:

Hard soap in fine form 5 gm

Calcium carbonate 93.5 gm

Saccharin sodium 0.2 gm

Cinnamon oil 0.2 ml

Peppermint oil 0.4 ml

Methyl salicylate 0.8 ml

Method: divided calcium carbonate into two parts. In one part saccharin, volatile oil & methyl salicylate triturate & mix & in another part mix with hard soap in fine form. Then mix two powders thoroughly & pass through fine sieve.

Tooth Paste

- These are most popular & widely used preparation for cleansing the teeth.
- In tooth paste containing abrasive, foaming agent, sweetening agent, flavours, binding agent, humectants, preservatives & therapeutic agents.

- Formula:

Dicalcium phosphate 35 gm

Calcium carbonate 14 gm

Glycerin 20 ml

Gum tragacanth 1.2 gm

Saccharin 50 mg

Sodium lauryl sulphate 10gm

Water 19.8 ml

Water 19.8 ml

Flavour q.s

Method: mix glycerin & water & then add solid ingredients in it with stirring. Add flavour & mix them & transfer into collapsible container.

Thank You!