



DENTAL PRODUCTS

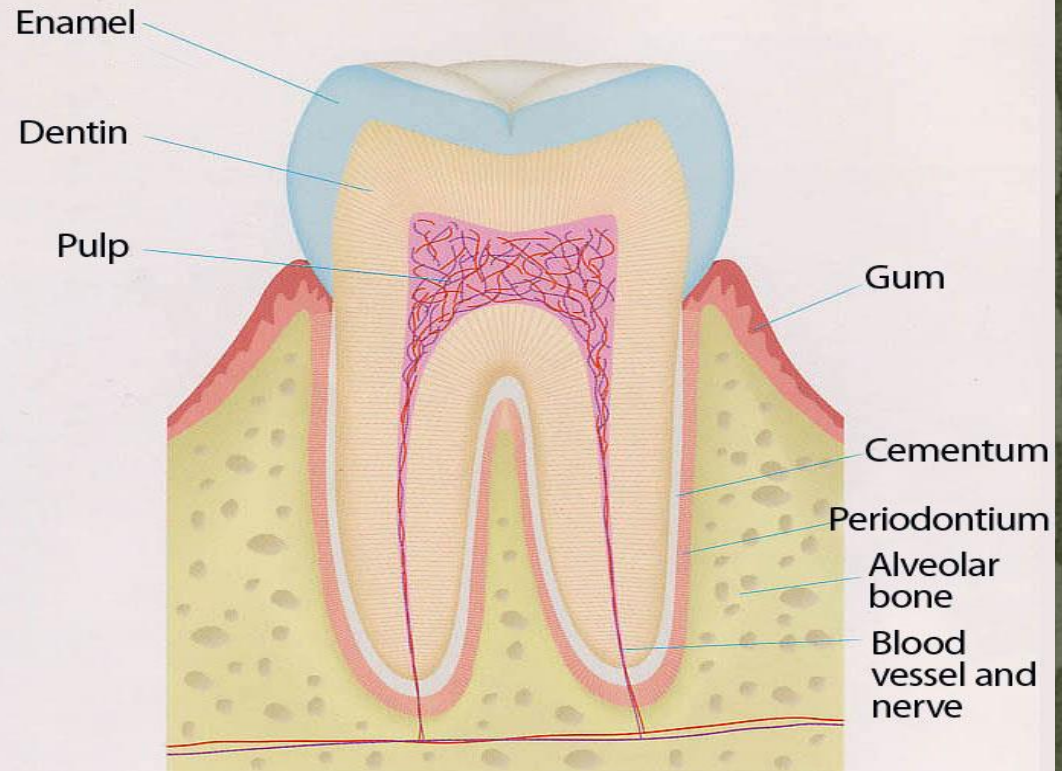
PHARMACEUTICAL CHEMISTRY 1
UNIT II (SECTION E)

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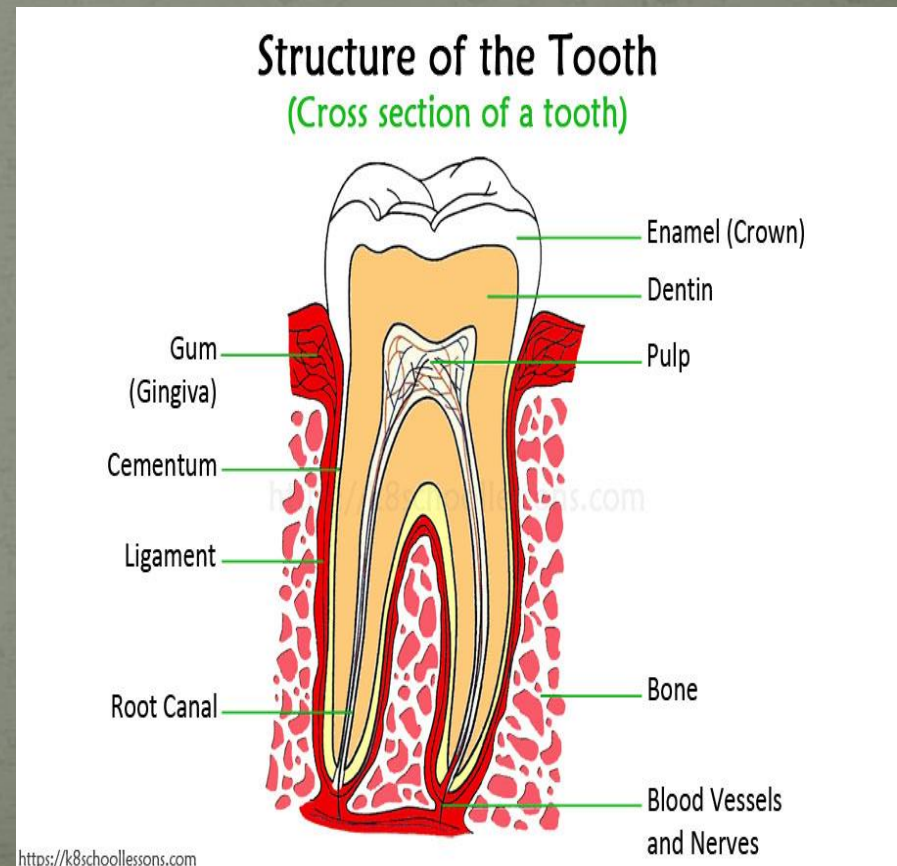
Tooth

- A tooth is a hard , calcified structure found in the jaws(or mouth) of many vertebrates & used to break down food .
- The teeth roots are covered by gums.



Anatomy of teeth

- ✓ Humans are diphyodont, meaning that they develop two sets of teeth throughout life . The first set (the 'baby' , 'milk' , 'primary', or 'deciduous' set) normally starts to appear at about six months of age.
- ✓ The second permanent set of teeth consists of 32 teeth .
- ✓ Teeth have parts including :
 - ✓ Dentin
 - ✓ Pulp
 - ✓ Cementum
 - ✓ Enamel
 - ✓ Peridontal membrane
 - ✓ Nerve & blood supply



Anatomy

ENAMEL

- ✓ The hardest & most highly mineralized substance of the body & with dentin, cementum, & dental pulp is one of the four major tissues which make up the tooth.



DENTIN

- ✓ Is a mineralized connective tissue with an organic matrix of collagenous proteins.
- ✓ Dentin has microscopic channels, called dentinal tubules, which radiate outward through the dentin from the pulp cavity to the exterior Cementum or enamel border.

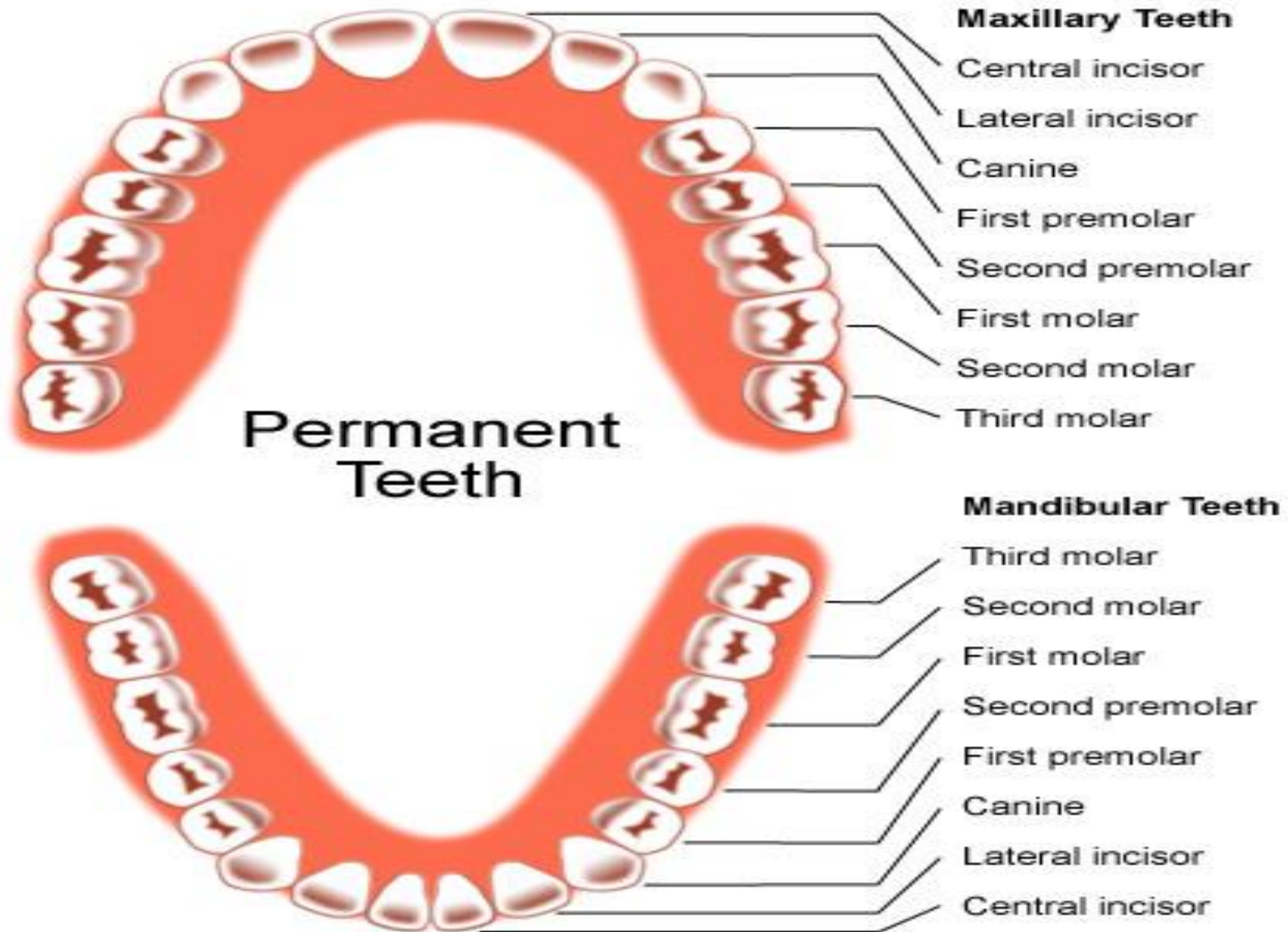


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- ✓ **Pulp:** The soft tissue found in the center of all teeth, where the nerve tissue & blood vessels are located . If tooth decay reaches the pulp, you usually feel pain & may require a root canal procedure to be done.
- ✓ **Cementum:** It is a coating that surrounds the roots of teeth & is similar to enamel, but softer .
- ✓ **Periodontal membrane:** Much as a trees roots help anchor it in the ground, a tooth's roots anchor it in the jawbone .
- ✓ **Nerve & Blood supply:** The area of the teeth is extremely sensitive & is responsible for providing the blood flow & nutrients that are necessary to keep teeth alive.



CLASSIFICATION OF TEETH



DENTIFRICES

(Latin - dens (tooth) fricare (to rub))

Agents or mechanical aids meant for cleanse and polish natural teeth. Maximum cleansing efficiency with minimum tooth abrasion.

Properties of an Ideal Dentifrice

- assist the toothbrush to mechanically remove debris, soft deposits and stains
- impart a polished surface
- Non-poisonous to the body
- pleasant taste, odour, sufficient cleansing property
- reduce caries and mouth odour, healthy gingiva, improve aesthetics

INGREDIENTS OF DENTIFRICES

Abrasive agents:

Fine dental preparations, help the scouring action abrasion -wearing away of a substance or structure through a mechanical process, such as grinding, rubbing or scrapping three categories

Finishing abrasives hard, coarse abrasives to develop contour and remove gross irregularities. Coarse stones

Polishing abrasives Fine particle size and less hard smoothing the surfaces that have been roughened by coarse stones, pumice, polishing cakes

Cleansing abrasives Soft materials with small particle size remove soft deposits that adhere to enamel or restorative material

DENTIFRICES

Humectants:

keep paste from drying out Glycerine, Sorbitol, Propylene glycol

Detergents and foaming agents:

Cleansing agents and decreases surface tension of dentifrice. loosening of debris which adhere to teeth and also dissolving fatty substances and mucous plaques **Sodium lauryl sulphate.**

Binders –Carboxy methyl cellulose

Sweetening agents:

Artificial sweeteners such as Sorbitol Saccharin

More palatable having no food value –Diabetics

MOUTH WASHES

Aqueous concentrated solutions containing one or more active ingredients and excipients meant for cleansing and deodorizing the oral cavity. They contain astringents, antiseptics, obtundents, flavouring and sweetening agents.

Swishing the liquid in the oral cavity using 15–30 ml for about a minute

Antiseptic and astringent mouth wash- for soreness under dentures.

They harden the mucous membrane

Obtundents mouth wash- for sensitive oral lesions

Detergent mouth wash- for cleansing and deodorizing action

MOUTH WASHES

Therapeutic use

- Reduce plaque, dental caries, gingivitis, stomatitis
- Cosmetic purpose
- Bad breath and it contains used antimicrobial and/or flavoring agent
- Soreness under dentures
- Halitosis
- Surgical impaction

COMMONLY USED ABRASIVE AGENTS

SODIUM
CHLORIDE

CALSIUM
CARBONATE

ZINC
CHLORIDE

MAGNISIUM
CARBONATE

DICALSIUM
PHOSPHATE

DESENSITIZERS

Inorganic substance which decrease hypersensitivity of teeth when applied to upper surface, especially where erosion occurs near gum line.

Commonly used desensitizers:

1. Ammoniacal silver nitrate
2. Formaldehyde solution
3. Liquified phenol
4. Zinc chloride solution
5. Strontium chloride solution (10%)

DENTAL CARIES

Caries or tooth decay is one of the most important problem faced worldwide.

Caries develop due to the breakage of enamel and exposure of Dentine.

Tooth decay occurs :

1. Lodging of food particle in between teeth
2. Plaque formation potentiate pocket formation (cervices)
3. Acids produce due to the bacterial decomposition also leads to teeth decay

Anticaries :-

- Sodium Fluoride (NaF)
- Stannus Fluoride (SnF₂)

FLUORIDE

Fluoride:

Fluoride is considered to be the most effective caries inhibiting agent, and almost all toothpastes today contain fluoride in one form or the other.

Most common form:

- ✓ Sodium fluoride (NaF).
- ✓ mono-fluoro-phosphate (MFP)
- ✓ Stannous Fluoride (SnF₂) are also used.

The fluoride amount in toothpaste is usually between 0.10-0.15 %.
Toothpastes are the main vehicle for fluoride.

CALCIUM and PHOSPHATE

Calcium and phosphate supplementation in a toothpaste will increase the concentration of these ions in the oral cavity. This has been reported to improve remineralization and increase fluoride uptake.

Sodium Bicarbonate:

Several studies have shown that bicarbonate is one of the salivary components that potentially modifies the formation of caries. It increases the pH in saliva, and in this way creates a hostile environment for the growth of aciduric bacteria. Sodium bicarbonate can also change the virulence of the bacteria that cause tooth decay

A collection of dental whitening products is displayed on a light-colored surface. From left to right, there is a tube of '5 Minute Power Gel Bleaching', a box of 'Colgate Simply White Clear Whitening Gel', a tube of 'EMBRANDT Plus', two syring-like applicators, a bottle of 'Plus' whitening gel, a box of 'Crest Whitestrip' whitening strips, and a bottle of 'Dental White' whitening gel. A blue box with a white smile graphic is partially visible at the bottom center. The text 'THANKING YOU' is overlaid in a large, gold, serif font across the middle of the image.

THANKING
YOU