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A REVIEW ON TOOTH POWDER

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ABSTRACT

Toothpowder is an alternative to toothpaste. It comes in both fluoride and non fluoride. Toothpowder is a mild abrasive powder that is used in combination with toothpaste to maintain oral hygiene. Primary objective is the homogenous distribution of all the ingredients without contamination by foreign substance. It is used to fight against multipurpose like cavities, discoloration of teeth, plaque tartar, bad odour. Toothpowder include abrasive and polishing agent, detergent and foaming agents, sweetening agent and flavouring agent. The prepared tooth powder was evaluated for its organoleptic and physical characteristics such as color, odor, taste, stability, formability, pH, moisture content, swelling index, flow property, bulk density, tapped density, abrasiveness etc..

KEYWORDS: Toothpowder, Bulk density, Tapped density.

1.1 INTRODUCTION

Dentifrices are the preparation meant to clean the teeth and other parts of the oral cavity. Dentifrices are the products which are used to maintain the oral hygiene such as freshness of mouth and to avoid tooth decay. Oral hygiene is an important key to uphold good appearance,

impression of individual and gives confidence. Dentifrice can be used as a prophylactic cosmetic for the tooth to avoid tooth decay and bad breath. Dentifrice can be prepared by synthetic and herbal ingredients. Nowadays, herbal formulation is high in demand due to its effectiveness to avoid the side effects when compared with synthetic formulation.[1]

Dental problems are very common in globalising countries. The common dental problems like gingivitis, halitosis (bad breath), tooth discolouration, plaque or tartar deposition are caused by the poor food habits, and having lack of knowledge of oral hygiene. These problems become severe to our health, if it is not maintain properly. The three types of dental problems are dental plaque, dental caries, periodontal disease.

Plaque is the immiscible sticky film of bacteria, salivary proteins and polysaccharide which accumulates on the teeth. When this layer is not removed, lead to bad breath and poor oral hygiene. Dental calculus (tartar) is the result of the thickening and hardening of the dental plaque. If it is not removed daily, it accumulates on the tooth surface. It is a hard mineral deposit containing calcium and phosphate.

Periodontal disease is a disease when gingivitis is not treating and inflammation spreadsaround the tooth. This inflammation makes gaps and infection between gums and teeth. Due to this infection the supports of teeth such as gums, bones and tissues get destroy by which teeth become loose and remove from this place. Dental caries in Latin means ‘rot’ or rotten. Rotten teeth are signs of a disease which is called ‘dental caries’ or ‘tooth decay’ and an area of rot is called “Carious lesion’’. It is disease of calcified tissue of the teeth characterised by remineralisation of the inorganic portion and destruction of organic substance of the tooth.[2]

1.1 TYPES OF ORAL AND DENTAL DISEASE

1. CAVITIES

Caries, or tooth decay, is another name for cavities. These are regions of the tooth that have sustained long term harm and, may even be hole filled. Cavities are relatively typical. They happen when food, acid and bacteria combined to form a plaque on teeth. Teeth enamel starts to dissolve due to the acid on them, and then dentins or connective tissue beneath follows. This may eventually irreparable harm.

2. GUM DISEASE

Gingivitis, another name for gum disease, is gum inflammation. It happened when plaque

accumulates on teeth as a result of bad brushing and flossing practises. When brush or floss, gingivitis can cause increase bleeding in gums. Gingivitis, if left untreated, can develop into periodontitis, a more serious infection.

3. PERIODONTITIS

Jaw and bones may become infected when periodontitis worsens. It cause an inflammatory response across the entire body.

4. CRACKED /BROKEN TEETH

An injury to the teeth, eating harsh foods or overnight teeth grinding can all cause a tooth to fracture or break. A broken tooth might hurt a lot. It is important to visit the dentist right soon if any cracked or broken tooth present.

5. SENSITIVE TEETH

Drinking or eating cold or hot things may cause pain or discomfort. Tooth sensitivity is additionally called dentin hypersensitivity. It might possible come from:

- Receding gums
- Cracked tooth
- Gum disease
- Worn down fillings or crowns

Some people naturally have sensitive teeth due to thinning enamel. Oral hygiene routine can help to cure naturally sensitive teeth.

6. ORAL CANCER

It embrace cancer of the

- Gums
- Tongue
- Lips
- Cheek
- Floor of the mouth

The leading causes of mouth cancer are smoking and chewing tobacco.[3]

The tooth consist of two parts, the crown and the roots. The crown of the tooth is coveredby an outer surface called enamel and it is the hardest tissue in the tooth. The major compositionof

enamel is hydroxyl apatite other than that it consist of water and keratin. Dentine is the under part of the enamel which is a composite of hydroxyl apatite. Oral consists of not only tooth but also saliva for easy to consume the food. Saliva is the major element proposed for lubricate the food and to maintain an appropriate environment in the mouth. Saliva is formed by various glands such as labial, lingual, buccal, and palatal are the larger and smaller glands that producesaliva continuously to keep the tooth environment in the dynamic state.[4]

1.2 POWDER

Powder is a pharmaceutical solid dosage form of a drug containing one or more solid substance reduced to a fine state. Powder can be for internal and external use.

Powders are encountered in almost every aspects of pharmacy both in industry and in practice. Powders are available in crystalline and amorphous form. A pharmaceutical powder is a mixture of finely divided drugs and chemicals in dry form, which are meant for internal and external use. Drugs and other ingredients, when they occur in the solid state in the course of being processed into dosage form, usually are in finely divided condition. A powder whose state of subdivision is critical in determining its behaviour both during processing and in the finished dosage form. Although the use of powders as a dosage form has declined, the properties and behaviour of finely divided solid materials are considerable importance in pharmacy. Theyare considered as simple dosage form.[5]

1.3 ADVANTAGES[6]

- They are less susceptible to microbial growth than liquid dosage form.
- Powders are used both internally and externally.
- Powders are convenient to handle, store and carry than liquid dosage forms.
- They are more chemically stable to solid state than liquid state.
- Due to high surface area, they have fast dissolution and can produce rapid onset of action than that of the other solid dosage forms.

1.4 DISADVANTAGES

- Not suitable for oral administration of bitter drugs.
- Dispensing of powder is a time consuming process.
- Inconvenient to carry.
- Less dose accuracy than that can be achieved with tablets or capsules.

- The inter particular friction among the fine powders may lead to formation of lumps.

2.1 TOOTH POWDER

Tooth powder is a mild powder that is used in combination with toothbrush to maintain oral hygiene. The manufacturing of tooth powder is a simple operation. The primary objective is the homogenous distribution of all the ingredients without contamination of foreign substance. Tooth powder is different from toothpaste. It is available in fluoride and non-fluoride type. Fluoride make enamel insoluble; bacteriostatic and enzyme inhibitors prevent fermentation of carbohydrate. Smooth uniform free or sluggishly flowing fine powder mixture.[7]

2.2 IDEAL PROPERTIES[8]

- ❖ Good abrasive effect.
- ❖ Non-irritant and non-toxic.
- ❖ Impart no stains on teeth.
- ❖ Keep the mouth fresh and clean.
- ❖ Economically and easily available.
- ❖ Prolonged refreshing effect.
- ❖ It provides polishing effect.
- ❖ It provides foaming effect.
- ❖ It should be finely powdered.
- ❖ Compatible with sweetening and flavouring agents.
- ❖ Must reduce the tooth decay.
- ❖ Improve gum health.
- ❖ It should not damage tooth enamel because of abrasiveness.
- ❖ Effective formulation for reducing dental hypersensitivity.
- ❖ Eliminate bacteria causing bad breath.
- ❖ It provides surfactant activity.
- ❖ It shows binder property especially in tooth paste.
- ❖ It should posses good flavour.
- ❖ It provides healthier gums.

2.3 TYPES OF TOOTH POWDER[1]

Figure 1: Types of tooth powder.

(a) Whitening tooth powder

- Its purpose is to freshen teeth, help heal gums and help to reduce gums inflammation in the mouth.
- It can also polish and whiten teeth.
- They may contain abrasive ingredients that gently whiten and remove stains.
- The tooth powder is constituted of eatable silica dioxide, sodium bicarbonate, sodium glutamate, cyclohexyl amino sodium sulphonate, sodium saccharine, natural menthol,mint powder extract. These materials are comminuted, screened, mixed equally and applies.
- The application method using cotton swab dipping into tooth powder and cleaning inner and outer surface slightly everyday.

(b) Natural tooth powder

- Natural tooth powder uses naturally derived ingredients.
- They won't contain harsh chemicals and are generally safe for people with sensitiveteeth.
- Ingredients like sea salt, which acts as an abrasive natural chalk. It contains essential oils like peppermint and eucalyptus.
- Formulation of herbal tooth powder consist of powder of Zanthoxylum armatum, Zingiber officinale, Santalum album, Spilanthes calva, Pistacia lentiseus, Quercus infectoria, as well as roasted alum and common salt are weighed and mixed well and applied. These plant powders are employed for tooth care mainly.

(c) Herbal tooth powder

- Sore and bleeding gums can be cured by herbal tooth powder.
- It has baking soda, whiten clay and chalk.
- It is the part of teeth cleaning regimen.

(d) Homemade tooth powder

- These powders can be made at home and beneficial for their low cost.
- It involves chewing sticks made out of young woody stem or root pieces.
- It can be easily formulated by using organic neem powder, baking soda, sea salt, clove powder/fennel seed powder are weighed and mixed well and applied.

3.1 FORMULA OF A TYPICAL TOOTH POWDER

Table No. 1: Formula for tooth powder.

Rx	
Di calcium phosphate, Dihydrate	75.0 g
Precipitated calcium carbonate	22.0 g
Sodium lauryl sulphate	1.0 g
Soluble saccharin	2.0 g
Peppermint oil	0.4 ml
Cinnamon oil	0.2 ml

3.2 COMMON INGREDIENTS OF TOOTH POWDER[2]

Tooth powder can be purchased from manufactures or made at home.

Common ingredients include:

Baking soda

Baking soda is also known as sodium bicarbonate or carbonic acid monosodium salt.

This ingredient has mild abrasive property that help to remove surface stains and dental plaque from the teeth.

Activated charcoal

Activated charcoal has a porous nature is used to remove toxins from the teeth.

9 Bentonite clay

Bentonite clay is added to natural tooth powder to improve its overall texture, giving it a smooth consistency.

Fluorides

Fluorides is a common ingredient of tooth paste and tooth powder that increases the resistanceagainst the acid released by bacterial plaque. It also provides remineralisation of the enamel. The most common fluoride compounds are sodium monofluorophosphate, sodium fluoride, andcertain organic amines fluorides.

Coarse sea salt

Sea salt helps balance pH levels in the mouth and acts as a natural antibacterial agent.

Calcium carbonate

This ingredient can be added to tooth powder to whiten the teeth gently.

Essential oils

Some essential oils have antiseptic properties that can help to reduce bacteria in mouth.

Flavourings

Flavourings enhance the tooth powder's taste, making the brushing experience more enjoyable.

3.3 MANUFACTURING OF TOOTH POWDER[9]

Teeth cleansing of tooth powder is attributed to abrasive effect imparted dicalcium phosphate, precipitated calcium carbonate or other similar agents and surface tension lowering properties of surfactant like sodium lauryl sulphate. The abrasive agents under the applied force scrap offthe debris whereas the surfactant helps to dislodge the debris or plaque. In addition, powder contains sweeteners and flavouring agents.

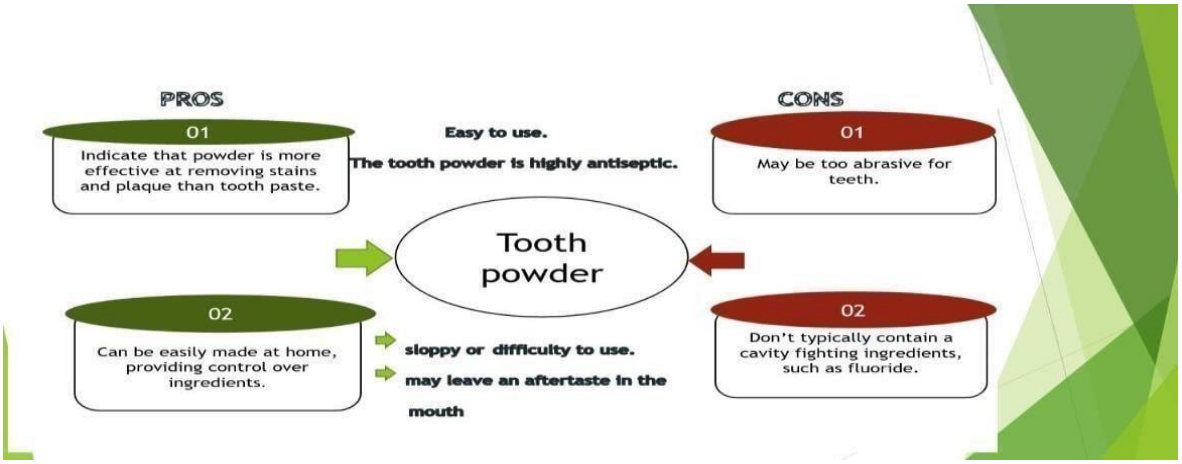

Figure 2: Pros and Cons of tooth powder.

Properties of each ingredients

Abrasive/polishing agents: These are solid cleansing materials which primarily, act by removing debris and residual stain from the teeth by providing friction and secondarily by polishing the surface of the enamel. They generally comprise of 20-50% of the total formulation.[10]

Precipitated calcium carbonate or chalk were prepared by double decomposition of calcium chloride and sodium carbonate in an aqueous solution. These are low cost and are easily available in number of density grades, ranging from light to extra dense. Also has been some impurities present and variation in the abrasivity in different grades. Dicalcium phosphate, anhydrous is very abrasive and generally used in medium concentration as foaming/wetting/cleaning/surface active agents.

Abrasive agents penetrate and loosen surface deposits, emulsify and suspend the debris, which the tooth powder remove from tooth surface. These agents are either a surface active agent or soap which is used to aid the action of abrasives by reducing surface tension of the tooth. Surface active agents are foaming agents employed at levels of 0.5-2% to provide necessary foaming action. Sodium lauryl sulphate most widely used and other surfactants that are used are sodium lauryl sarcosinate, sodium lauryl sulfoacetate, the soap should be completely saponified, should contain 2% moisture, not more than 0.3% free alkali.[11]

Sweetening Agents: These are agents added to mask the bitter tastes of ingredients specially produced foaming and flavouring agents. These are synthetic compounds like saccharine, aspartame, cyclamates are used between 0.05-0.25%.

Flavouring agents: Tooth powders flavour belongs not only to satisfy the requirements of the formula but for satisfying the consumers who is looking forward to freshen breath after brushing. Peppermint oil, clove oil, oil of winter green, eucalyptus oil helps to prepare product which have pleasant long-lasting effect and which preferable has medicinal and freshening impact, used between 0.2-2%.[12]

PROCEDURE

- Pass the calculated, weighed quantity of dicalcium phosphate and precipitation calcium carbonate through sieve no:80.
- Mix flavouring agents with 1 g of precipitated calcium carbonate. Add sodium lauryl

sulphate to it and mix well.

- Continue mixing according to the principle of geometric dilution.

CONTAINERS

Tooth powders are packed in metal or plastic container with perforated lid.

DIRECTION

To be applied on the surface of the teeth with the help of tooth brush.

STORAGE

Store in a cool, dry place, protect from moisture.[13]

4.1 EVALUATION METHODS

1. Organoleptic evaluation

Table No. 2: Organoleptic evaluation.

Parameters	Method	Result
Colour	Colour was checkedvisually.	Brown
Odour	Odour was checked by smelling the product.	characteristic
Taste	Taste was checked manuallyby tasting the product.	Sour

2. Physic-chemical evaluation

pH

It was observed by using pH metre, 5 g of tooth powder placed in a 100 ml of beaker. Allow the 10 ml of boiled water and then cool water. Stir vigorously to make a suspension and measure the pH.

Moisture content

To determine the amount of moisture that present in tooth powder. Take 100 g of tooth powderand dried it in oven at 105˚C, then cooled. The loss of weight is recorded as percentage moisturecontent and calculate density the given formula.[1]

$$\text{Percentage moisture content} = \frac{\text{original sample weight}}{\text{dry sample weight}}$$

3. Rheological Evaluation[14]

Bulk density

The tooth powder is poured in a measuring cylinder. Surface of the powder is made regular byusing a spatula. The volume occupied by the powder is noted down and represented as bulk volume and weight as bulk mass. The bulk density is determined by using following expression.

$$\text{Bulk density} = \frac{\text{mass of the powder}}{\text{bulk volume occupied by powder}}$$

Tapped density

Powder is taken in a measuring cylinder is tapped up and down position until it is compressed to constant volume.

Tapped density is determined by using the following formula;

$$\text{Tapped density} = \frac{\text{mass of the powder}}{\text{bulk volume occupied by powder}}$$

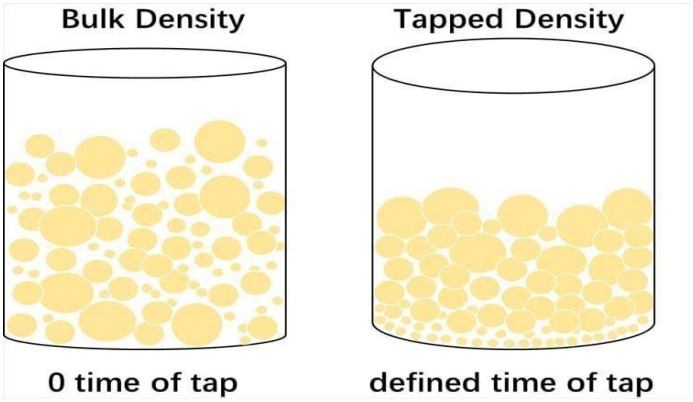

Figure 3: Bulk Density and Tapped Density.

Porosity

It is the void space that is occupied by the mass of powder along with entrapped air. Porosity is determined by using the following formula;

$$\text{Percentage porosity} = 1 - \frac{\text{tapped volume}}{\text{bulk volume}} \times 100$$

Carr's index (compressibility index) and Hausner's ratio

The usefulness of simple ratio (Carr's index) based on the decrementing powder volume during tapping, is to predict flowability of powders. The lower the number, the more is the free flowing of powder. An increase in the value is proportional to adhesion and friction properties of a powder. Both the Carr's index (compressibility index) and Hausner's ratio is determined by using following formulae;

$$\text{Carr's index} = 100 \times \frac{(V_\circ - V)}{V_\circ}$$

$$\text{Hausner's ratio} = \frac{V_\circ}{V_f}$$

Angle of repose

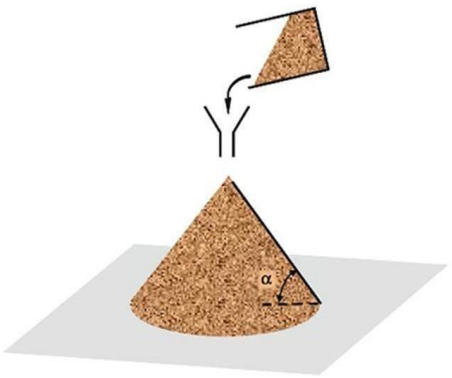

Figure 4: Angle of repose.

It is determined by heap method. Powder is poured through a funnel from a definite distance to the smooth horizontal surface until a heap of maximum height is formed in a conical form. The diameter and the height of the heap is determined by following expression:-

$$\text{Angle of repose } (\theta) = \tan^{-1}\frac{h}{r}$$

Table No. 3: Angle of Repose.

Angle of repose (°)	Type of flow
25	Excellent
25-30	Good
30-40	Passable
>40	Very poor

Where ‘h’ is the height of heap and ‘r’ is the radius heap made by powder.

The table shows,

The powder having angle of repose 25 exert an excellent powder flow.

The powder having angle of repose between 25-30 exert good powder flow.

The powder having angle of repose between 30-40 exert passable powder flow.

The powder having angle of repose greater than 40 exert very poor powder flow.

Abrasiveness

It is the measurement of the powder fineness that by rubbing on the teeth surface scrubs out the adhered particles of consumed food articles and maintains the shiny smooth surface of teeth. It is measured by rubbing the known amount of powder on glass slide for 15 minutes with the help of fingertip in the similar manner of brushing the teeth. The surface of the slide is observed microscopically and the scratches on slide generated by rubbing the powder is noted down. The results are expressed arbitrarily in positive and negative signs indicating the scratches on glass slide. More positive signs indicated the more abrasiveness. It would be evaluated manually.[15]

Determination of swelling index

2 g of prepared formulation was accurately weighed and transfer to a 50 ml stoppered measuring cylinder. The initial volume occupied by the powder was noted and the volume was made up to 100 ml with distilled water. The cylinder was stoppered, shaken gently and set aside for 24 hrs. The volume occupied by the prepared formulation was noted after 24 hrs.

Swelling index (s) is expressed in percentage and calculated by the following equation.

$$S.I\ (\%) = [VT - V_{\circ}]$$

Determination of ethanol-soluble extractive

A 5.0 g of air dried tooth powder is macerated with 100 ml of ethanol of the 95 % v/v strength in a closed flask for 24 hours and shaken frequently during the first 6 hours and then allowed to stand for 18 hours. Thereafter, it is filtered rapidly taking precautions against loss of ethanol and then 25 ml of filtrate is evaporated to dryness in a tare flat-b-bottomed shallow dish, dried at 105ºC and weighed. The percentage of ethanol-soluble – extractive with reference to air dried tooth powder is calculated. Ethanol-soluble extractive value should be 10.16 % w/w.[16]

Foaming index

It is determined by taking 10 ml of 1 % w/v dispersion of tooth powder in 100 ml measuring cylinder. The dispersion is stirred mechanically for 30 minutes for creating the foams. When the maximum foams are produced, the volume occupied by the foams is recorded and the mean of the three respective observation is recorded. Result calculated by measuring the height of foam developed in the measuring cylinder.

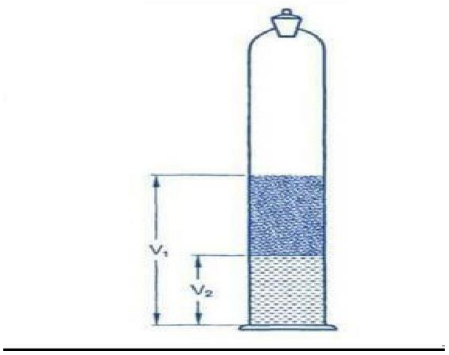

Figure 5: Foaming test apparatus.

DETERMINATION OF FOAMING CHARACTER[17]

(WHO Guideline 2002)

- 1 g of drug taken in 500 ml conical flask containing 100 ml of boiling water.
- Moderate boiling temperature maintained for 30 minutes.
- Cooled and filtered in 100 ml volumetric flask and volume made up to 100 ml withwater.
- The decoction poured into 10 test tubes in successive portions of 1-10 ml and the volume of each test tube made up to 10 ml with water.
- Then test tubes shaken for 15 seconds and allowed to stand for 15 minutes and the height of the foam measured.
- The foaming index calculated according to the height of foam observed in every testtube.

Density of powder

The density of powder is determined by liquid displacement method in pycnometer.

Figure 6: Pycnometer.

Determination of water-soluble extractive

A 5.0 g of air dried tooth powder is macerated with 100 ml of chloroform water in a closed flask for 24 hours and shaken frequently during the first 6 hours and then allowed to stand for 18 hours. Thereafter, it is filtered rapidly taking precautions against loss of chloroform and then 25 ml of filtrate is evaporated to dryness in a tare flat-b-bottomed shallow dish, dried at 105ºC and weighed. The percentage of water-soluble–extractive with reference to air dried tooth powder is calculated. water-soluble extractive value should be 2.56 % w/w.

Compatibility and Cohesiveness of tooth powder

Tooth powder is poured into 50 ml measuring cylinders of bulk density test apparatus through an angle of 45º and the heap of particles in the cylinder is labelled off horizontally with a thin metallic spatula and the bulk ($v_\circ$) is accurately measured.

The cylinder is then mechanically tapped and values for the volume of powder column (v) after a specific number of taps 'N' is determined. Three measurements taken and the contents of the linear equation is calculated using tapping numbers. The following kawakita equation is applied to access the value of compatibility and cohesiveness of powders.

$$\frac{N}{C} = \left[\frac{N}{a} + \frac{1}{ab}\right]$$

Here 'a' and 'b' are constants 'a' describe the degree of volume reduction at the time limit of tapping and is called compatibility. 'C' is the degree of volume reduction and is calculated from the initial '$v_\circ$' and tapped volume 'v'.

$$C = \frac{(V_\circ - V)}{V}$$

Here 'a' and 'b' are constants whose values are obtained from the slope and intercept of the graph plotted between 'N/C' and number of taps 'N'. As the cohesiveness increases flow property decreases also when compatibility increases flow property decreases.

Spreadability

Complex characteristic features of a powder (as obviously influenced by particle properties)

evaluated by spreading the powder manually. This allow the powder to be spread uniformly as a thin layer of a few multiplies of particle size without the formation of any empty patches, presence of agglomerates and rough surfaces.

Determination of pH

A 1 % w/v dispersion of tooth powder is prepared in distilled water and shaken gently for 30 minutes for homogenous dispersion. The dispersion is filtered through Whatman filter paper at room temperature and the pH of the filtrate is measured by digital pH meter. The measurement of sample is performed in triplicate and the results is expressed as the mean of measured observations. The acceptable pH is between 3.76 - 8.03.[18]

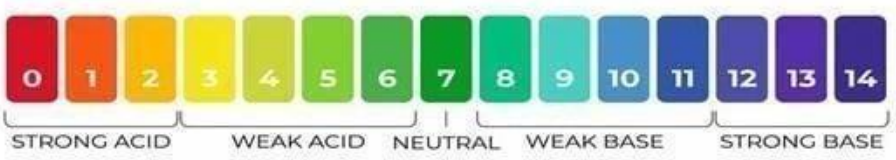

Figure 7: pH scale.

4.2 COMMERCIALLY MARKETED BRANDS[19]

1. Colgate Super Rakshak tooth powder.
2. Dabur Red Lal Dant Manjan -Ayurvedic tooth powder.
3. Vicco Vajradanti tooth powder.
4. Clove, Pudina Dabur Red tooth powder.
5. K. P. Namboothiri's tooth powder.
6. Pathanjali Divya Dant Manjan.
7. Wheezal Hekla Lava tooth powder.
8. Gopal tooth powder.
9. Star Herbal tooth powder.
10. Lordent tooth powder.
11. Tansukh Dashan Sanskar Churna.
12. Gurukul Payokil.
13. Garvident tooth powder.
14. Planet Ayurveda Gum Care tooth powder.
15. Urban Botanic Activated Charcoal teeth whitening powder.
16. Payorin tooth powder.

17. Georganics tooth powder.
18. Sitaram tooth powder.
19. Jindal Herbal tooth gum powder.
20. Kajah special tooth powder.

4.3 USES[20]

- ✓ To prevent tooth decay.
- ✓ To prevent bad breath.
- ✓ It helps to polish teeth.
- ✓ It helps to whiten the teeth.
- ✓ It helps to remove the discolouration of the teeth.
- ✓ To control plaque.
- ✓ Maintains strong teeth and gums.
- ✓ To prevent dental caries.

DISCUSSION

Tooth powder has higher benefits in today's lifestyle. Tooth powder is a good to use a very mild abrasive that gently scrubs and beautifully polish teeth. Powders are pharmaceutical solid dosage form encountered in almost every aspect of pharmacy both in industry and practice. They are mixture of finely divided drugs and chemicals in dry form, meant for external and internal use.[19]

Tooth powder is used to maintain the oral hygiene such as freshness of mouth and to avoid tooth decay. Dental problems are very common in globalising countries. The common dental problems like gingivitis, halitosis, tooth discolouration, plaque or tartar deposition are caused by the poor food habits and having lack of knowledge of oral hygiene. The three types of dental problems are dental plaque, dental caries, periodontal disease.

Periodontal disease is a disease when gingivitis is not treating and inflammation spreads around the tooth. This inflammation makes gaps and infection between gums and teeth. Due tothis infection the supports of the teeth such as gums, bones and tissues get destroy by which teeth become loose and remove from this place. Dental caries in Latin means 'rot' or rotten. Rotten teeth are signs of a disease which is called 'dental caries' or 'tooth decay' and an area of rot is called "carious lesion". It is disease of calcified tissue of the teeth characterised by remineralisation of the inorganic portion and destruction of organic substance of the tooth.

Different tooth powders are whitening tooth powder, natural tooth powder, herbal tooth powder, homemade tooth powder. Tooth powder always follows formula with different penetrating agents like abrasives, polishing agent, flavouring agents. Their storage condition, containers, direction and packaging are very important for better quality.

Different commercial brands of tooth powder is available in market. Evaluation methods including foaming index, density of powder, bulk density, tapped density, porosity, Carr's index and Hausner's ratio, angle of repose, determination of ethanol-soluble extractive, determination of water soluble extractive, particle rearrangement behaviour, compatibility and cohesiveness of tooth powder.[18]

CONCLUSION

Tooth powders are oral product used to control plaque and other deposits from tooth surface thereby reducing gingivitis. Tooth powder provide cleanliness and polishness in teeth to prevent dental caries. Tooth powder doesn't cause any harmful effect, instead, it impacts good freshness and away from bad odour.

Oral hygiene can be maintained in a reliable, safe and inexpensive way by using tooth powder. The proper use of tooth powder prevent oral disease due to their useful components which are present in it. Some of these components are baking soda, abrasives, charcoal and fluorides. From the current study, it may be concluded that tooth powder has been shown to be statistically used for controlling dental plaque and gingivitis. The impact of tooth powder in the oral healthcare system can't be excluded.[21]

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