

# **DEVELOPMENT AND CHARACTERIZATION OF HERBAL TOOTHPASTE CONTAINING NEEM BARK POWDER AS ABRASIVE**

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## **ABSTRACT**

Toothpaste is a cosmetic preparation which has been used by humans for ages due to oral health, cleansing and best oral hygiene, There are enormous number of marketed toothpaste product which are available in the market having number of application and pros. In this work an attempt was made to use dried Neem bark coarse powder as an abrasive since in most of the commercial formulation we use Precipitated chalk, calcium phosphates or hydrated alumina but none of these have medicated property if we compare it with the Neem bark coarse grade powder, In this formulation we used stevia a natural sweetening agent which made this formulation and true herbal formulation in all the sense.

## **INTRODUCTION**

Toothpastes have been in use for ages, and they are one of the main irreplaceable hygiene products in oral health in our daily life. The design of toothpaste formulations began in China and India, during 300–500 BC.<sup>1</sup>

Toothpaste have been formulating by using synthetic or semisynthetic agent but it has been observe that some native plants have nutritional and therapeutic value, most of these native plants have considerable amounts of micronutrients, such as minerals, fibers, that can be used in dentistry for develop best tooth preperation for oral hygiene. The therapeutic effect showing plants has been beneficial the oral health from the thousands of year throughout the world.<sup>2</sup>

Neemis already researched tropical trees for its therapeutic action, To achieve better cleaning

mentioned above and other desired characteristics various materials have been used in the formulation of oral dental products like toothpastes.<sup>3-4</sup> They are Abrasives-which is used to remove food debris and residual stains of the teeth and the polish the teeth surface. Detergents and other foaming materials in tooth pastes are used for cleansing action, They promote penetration of paste and help in removal of derosites and debris. The other agent is Humectants used to prevent their drying out. They also impart some plasticity to toothpastes. Binding agent has been used in toothpaste include natural gumStarch and synthetic resins since they maintain the texture of toothpaste by homogeneously mixing all the agent and Sweetening agents which has been commonly used in toothpaste to impart sweet taste.<sup>5-6</sup>

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Gel base Alovera gel used as base of herbal toothpaste. In this research work an attempt is made to formulate Herbal toothpaste by using Neem bark coarse power, Stevia as sweetening agent and freshly collected Alovera gel as base.

## **MATERIAL AND METHOD**

Neem Bark powder was collected and prepared in the lab, Sodium lauryl Sulphate, Glycerin, Gum tragacanth, Purchased from chemical Drug House New Delhi. Stevia tablet was purchased from Herb Veda company.

Preparation Method of Herbal Toothpaste-All herbal ingredient were dried and grounded using domestic mixer in which bark was grounded up to coarse grade. The required quantity of ingredients were weighed and taken in mortar. Neem bark powder, Sodium lauryl sulfate, gum tragacanth, stevia and glycerin were mixed well then Alovera gel were added into the above mixture. This mixture was triturated well until a paste consistency was obtained, All the ingredients are taken as shown in Table no-1

### **Evaluation of Herbal Toothpaste -**

- **Physical Examination** Formulated toothpaste was evaluated for its colour. The visually color uniformity was checked. Taste was checked. Manually by tasting the formulation. The Smoothness was tested by rubbing the formulation between the fingers.
- **pH** pH of formulated herbal toothpaste was determined by using pH meter. 10g of toothpaste placed in 150ml of beaker then pH meter probe was used to check the pH of the prepared herbal toothpaste.

- **Foamability** The foamability of formulated toothpaste evaluated by taking small amount of water in measuring cylinder with paste then initial volume was noted and then shaken for 10 times. Final volume of foam formed was noted.
- **Determination of moisture and volatile matter**
- g of formulation placed in a porcelain dish. Dry the sample in an oven at 105°C.

### **Calculation**

% by mass =  $\frac{100 \times \text{Loss of mass (g) on drying}}{\text{M}}$

M-Mass (g) of the material taken for the test

## **RESULT AND DISCUSSION**

In this work an effort was made to formulate herbal tooth paste by using Neem bark coarse grade powder (800 to 1500  $\mu\text{m}$ ) particle size as abrasive, glycerin as humectant, stevia as sweetener, Sodium lauryl sulphate as surfactant and alovera gel as base. The main aim was to check whether powder of Neem bark in paste consistency give better cleaning or not since it is having medicated properties also that was the reason to use it.

Now a days in toothpaste artificial sweeteners are used and this was replaced by using stevia which is a natural sweetener. Alovera gel was also used as a base for the toothpaste formulation, since it has many medicinal properties. It was observed that moisture content, color, taste were 16.8%, Brown and sweet. pH of the formulation was 8.3 and foamability was also good.

**Table 1. Different Ingredients used in the herbal toothpaste**

S No	Ingredients used	Quantity (%)
1	Neem bark Powder	40.0-60.0%
2	Sodium lauryl sulphate	1.50-3.00%
3	Glycerin	5.00-3.00%
4	Gum tragacanth	0.50-2.50%
5	Stevia	0.50-2.50%
6	Preservative	0.2-0.5%
7	Alovera (Freshly collected)	To make 100

**Table 2. Different results of prepared herbal toothpaste**

S. No	Parameter	Observation
1	Color	Brown
2	Taste	Characteristic
3	Smoothness	Smooth
4	pH	7.3
5	Foamability	10
6	Moisture content	16.8%

**CONCLUSION**

The research concluded that herbal toothpaste and emphasizing and more acceptable in dental health and they are safer with minimum side effect then synthetic preparation. The formulated toothpaste capable to the tooth and oral hygiene. The formulated herbal toothpaste has been good scope in future in nature remedies research and dental health of public.

**REFERENCES**

[1]. R. Davies, C. Scully, and A. J. Preston, "Dentifrices-an update," *Medicina Oral, Patología Oral y Cirugía Bucal*, vol. 15, no. 6, pp. 976-982, 2010.

[2]. M. Ersoy, J. Tanalp, E. Ozel, R. Cengizlier, and M. Soyman, "The allergy of toothpaste: a case report," *Allergologiae*

*tImmunopathologia*, vol. 36, no. 6, pp. 368–370, 2008.

[3]. Siswomihardjon W, Badawi S S, Nisimura M. The difference of neem leaves and stick extract, *Int Chin J Dent* 2007; 7: 27-29 .

[4]. Prashant GM, ChanduGN, Murlikrishna KS, Shafiulla MD. The effect of mango and neam extract on four organisms causing dental caries. *Indian J Dent Res*. 2007 Oct-Dec; 18(4): 148-51.

[5]. Shah S, Venkataraghvan K, Chaudhary P, Mohammad S, Trivedi K, Shah S G. Evaluation of anti microbial effect of Azadirachtin pant extract. *J Indian SocPedodPrev Dent* 2016; 34:210-6.

[6]. *Cosmetics formulation, manufacturing and Quality control* by P.P. Sharma Vandana Publications. Edition: 5th 2014, 760.