



Herbal Toothpastes

What's the Composition?

Ever wondered what is the composition of the first thing that goes into your mouth every day? It's a routine: you wake up in the morning, wash your face and brush your teeth. Yet, what is perhaps perfunctory for you is deserving of some thought and more, since many toiletries brands will leave no stone unturned to make sure that it is their toothpaste tube that you squeeze. They do not miss out on any opportunity to reach out to you with dozens of (sometimes confusing) messages – claiming anything from decay protection to teeth strengthening to whitening to gum shielding...

For you, it becomes really puzzling to understand what you need and what you must avoid. Some of you, in the hope of avoiding chemical-induced products, even switch to herbal toothpastes. You may also believe that choosing a herbal toothpaste brings you out of the clutter of normal toothpaste users.

Fact is, if you were to take a three-minute break to understand the fundamental composition of toothpastes, you would perhaps not want to change

your toothpaste brand often. Why? Well, because there is not much difference in the fundamental ingredients of toothpastes – yes, these include the herbal ones too.

Looking at the composition of the so-called herbal toothpastes, you will know that your paste is, at the most, five per cent different from other toothpastes. Although there are some dozen brands that claim or position themselves as natural, chemical-free, made-of-herbs toothpastes, none of them really qualify to position themselves as 'herbal'.

Comparative Test 2

Brands Tested
FLOURIDATED TOOTHPASTES
Colgate Herbal
Patanjali Dant Kanti
Himalaya Complete Care
Neem Active
NON-FLUORIDATED TOOTHPASTES
Herbodent
Babool Neem
Meswak Complete Oral Care
TYPE NOT DECLARED
Dabur Red
Amar Premium
Vicco Vajradanti
TOOTH POWDERS (Type not declared)
Dabur Red Powder
MDH Powder

CV VERDICT

Herbal Toothpastes are NOT Purely Herbal

In the real sense of 'herbal', none of the brands tested by CV can justify their usage of the term 'herbal'. Over 90 per cent of their composition is the same as that of regular toothpastes and contain about 2.5 per cent or slightly more herbal elements.

In order to find out what really goes into their making and also to test the quality of the supposedly herbal as well as Ayurvedic toothpastes and two brands of tooth powders, *Consumer Voice* bought them from major retail stores and took them to an NABL-certified lab, where experts dug deep into their composition as well as tested them for their ability to do what they are meant to do. As there are no Indian Standard formulated specifically for herbal toothpastes, the team referred to IS 6356-2001, which covers toothpastes based on precipitated calcium carbonate; IS 4707 (Part 1), as it refers to the dyes and pigments used in making toothpastes; and IS 4707 (Part 2) because it deals with Ayurvedic ingredients.

CV Recommendations for Toothpaste

Dabur Red and Colgate

- If you are interested in a bit more foam and a little extra fluoride, Colgate is for you.
- If you want your toothpaste to be a bit tastier and make you feel relatively better after brushing, Dabur is for you.

Note: CV is only recommending the topper among the tested lot and not saying that they qualify as 'herbal' or 'natural' toothpastes.



CV Recommendation for Tooth Powder

NONE

The two brands that we tested – Dabur and MDH – failed the microbiological tests and, hence, are not safe for oral hygiene.

Note: Tooth powders are anyway a dated method of cleaning the teeth. Toothpaste used along with a toothbrush is a much better and efficient way of keeping teeth healthy.

Value for Money

Dabur Red

Rs 38 for 100 gm

Microbiological Tests

Failed

Vicco toothpaste, Dabur tooth powder and MDH tooth powder failed the microbiological test as their total viable count (TVC) surpassed the maximum permissible limit as per existing National Standards for toothpastes.

Sensory Tests

Most Preferred

Dabur was chosen as the best toothpaste on sensory parameters by the experts' panel. Babool and Amar were rated as the second and the third best, respectively.

Just OK

Meswak was the least liked brand by the experts' panel.

Why They Are NOT Herbal?

Herbal toothpastes, at least the ones on retail shelves in India, cater to the demand of consumers who want 'natural' alternatives to chemical-based products. You will notice that there is not much difference in the texture or consistency of the herbal toothpastes when compared to conventional toothpastes, and are different mainly in colour and flavour. Most herbal toothpastes do not look pristine white, but have a range of colours and also tend to taste rawer and less sweet. However, herbal toothpastes should ideally not contain any unnatural chemical, dyes or artificial flavours and preservatives, and should be made with only natural ingredients. These ingredients should not be treated with growth hormones, chemicals or pesticides. Unfortunately, no brand in India can claim to be that 'natural'.



The Differences that Are Not

We did not find any 'significant' difference between regular toothpastes and the herbal ones. Ordinary or regular (non-herbal) toothpaste includes abrasives or excipient (calcium carbonate and silica), foaming agents (surfactants), anti-cavities fluoridation, flavouring agents and sweetening agents (sodium saccharin). These ingredients form over 90 per cent of the paste and the rest 10 per cent is generally those added flavours or other agents that become differentiation elements and also help in creating a unique selling proposition (USP) that brands talk about in their marketing messages. When this 10 per cent element also includes 2.5 per cent of herbal extracts or Ayurvedic elements, the paste becomes herbal – in any case, that is what a consumer is made to believe.

The truth is this: There are no herbal toothpastes in general retail stores within the reach of the common consumer. The ones that are available are normal toothpastes with very limited extracts of herbs.

Comparative Test 2

		Herbal and Ayurvedic					
Brands →	Weightage, %	Dabur Red	Colgate	Herbodent	Babool	Patanjali	
							
Parameters ↓							
MRP (Rs)/Weight (gm)		38/100	44/100	89/100	60/185	35/100	
Cost per 5gm (in Rs)		1.9	2.2	4.4	1.62	1.75	
1. General Tests							
1.1 Packaging	4	4	4	4	4	4	
1.2 Marking	6	4.8	5.4	5.4	4.2	5.4	
1.3 Net weight	3	3.0	3.0	2.98	2.87	3.0	
2. Sensory Panel Tests*	25	20.25	18.0	15.55	19.92	17.1	
3. Physico-Chemical Tests							
3.1 Foaming power	16	15.32	16	15.32	12.13	12.8	
3.2 pH	5	4.68	4.36	4.50	4.74	4.25	
3.3 Fineness	5	4.25	4.92	4.94	4.89	3.9	
3.4 Fluoride ion	6	3.87	4.44	6.0	4.61	5.90	
3.5 Gritty matter	5	5	5	5	5	5	
3.6 Homogeneity	5	5	5	5	5	5	
3.7 Heavy metals	8	8.0	8.0	8.0	7.92	7.92	
4. Microbiological Tests	12	12	12	12	12	12	
Overall Score % (Rounded off)	100	90	90	89	87	86	

Rating: >90: very good*****, 71-90: good****, 51-70: fair***, 31-50: average**, up to 30: poor*

* Sensory panel tests include ease of use, taste, sensation, feel after brushing, sensation until one hour, and overall judgement.

Foaming power is not applicable for tooth powders.

Herbal Toothpastes

Toothpastes					Herbal Tooth Powders		
	Himalaya	Amar (Ayurvedic)	Neem	Meswak	Vicco (Ayurvedic)	Dabur	MDH
							
	45/100	30/100	59/200	72/200	63/100	30/100	60/150
	2.25	1.5	1.47	1.8	3.15	1.5	2.0
	4	4	4	4	4	4	4
	5.4	4.2	4.2	4.2	4.2	4.8	4.2
	3.0	2.99	2.99	3.0	3.0	3.0	2.99
	15.1	18.95	16.67	14.3	16.52	18.12	15.97
	14.66	11.99	11.99	12.0	8.8	#	#
	3.78	4.73	4.80	4.34	4.60	3.32	3.46
	4.58	4.57	4.93	4.59	4.24	1.5	1.5
	5.69	3.63	2.14	4.26	4.11	4.52	2.12
	5	5	5	5	5	5	5
	5	5	5	5	5	5	5
	8.0	7.92	8.0	8.0	8.0	7.84	8.0
	12	12	12	12	2.4	3.24	2.4
	86	85	82	81	70	72	65

Comparative Test 2

RESULTS General Tests

◆ Packaging

The toothpaste has to be packed in a PVC collapsible tube so that it can be easily extracted and spread on to the brush. The tube has to be of food-grade quality as the paste is in direct contact with the packaging material.

- All the brands were packed in PVC collapsible tube with printed cardboard box for outer covering. The toothpastes, too, were packed in adequate PVC bottles. Hence, all scored equal points.

◆ Marking and Labelling

Apart from the regular details like name, type, date, batch number, price and instructions to use, tooth pastes and powders must contain information that guides consumers on how and where to dispose of the used packing or the outer cover.

- None of the brands has given instructions for disposability, which is a must for environment friendliness packaging.
- Amar, Babool, Neem, Meswak, Vicco and MDH tooth powder do not provide instructions for use.

◆ Net Weight

The net weight is measured and then compared with the declared values on their individual packaging. As per legal metrology rules, a weight error of plus or minus 4.5 grams is acceptable in 100 gram packs, while 4.5 per cent less on a 100 grams–200 grams pack is acceptable.

- Babool had 7.48 grams less paste than declared quantity, but was within the permissible error.
- Rest all brands had near to the declared quantity of paste and hence were given full scores in comparative rating.

Physico-Chemical Tests

◆ Foaming Power

Imagine you have paste in your mouth and it does not create foam...

In order to test the foaming ability of herbal toothpastes, a specific amount of toothpaste was taken in the measuring cylinder. The paste in the cylinder was then mixed with 100 millilitres of water and shaken. The quantity of foam formed in the measuring cylinder was considered as the toothpaste's



ability to create foam. The minimum required limit for the same is 50 millilitres.

- Colgate generated the highest foam height (160ml) and hence given full score.
- All the brands created foam way above the minimum requirement of 50ml/100ml.

◆ Microbiological Tests

Herbal toothpastes and powders were tested for the presence of three microbes as total viable count (TVC) and gram-negative pathogens – Pseudomonas aeruginosa and Escherichia coli – as per the requirements of national standards.

While TVC should not exceed 1,000, there should not be any amount of gram-negative pathogens.

- Vicco toothpaste does not comply with the standards. The sample had 44,400 TVC instead of less than 1,000.
- Dabur and MDH tooth powders, too, failed the test with total viable count at 13,040 and 24,970, respectively.

◆ pH Levels (measure of acidity)

The pH of toothpaste should be neutral or nearer to neutral. It is required to remain well within 5.5–10.5 units.

- A few brands of toothpastes and powders were

Herbal Toothpastes

found to be nearer to the neutral, but all were within the required units.

◆ **Fineness (particles retained on sieve)**

Fineness of the paste and powder was checked on two sieves of 150 microns and 75 microns. For 150 microns sieve, the weight-by-weight percentage (%w/w) should be 1 for fluoridated and 10 for non-fluoridated toothpastes. Likewise, on 75 microns sieve, it should be 2.5 for fluoridated as well as non-fluoridated toothpastes.

- Both tooth powder brands – Dabur and MDH – weighed more than the requirement.
- All toothpastes brands were well within requirements.

◆ **Fluoride Ion**

Fluoride is the fluorine ion added to toothpastes and dental rinses to help protect your teeth from cavities. Although increasing the concentration of systemic fluoride (through fluoridating drinking water) has not been proven to reduce the incidence of tooth decay, it does strengthen and help in mineralizing damaged enamel when it comes in direct contact with teeth.

Toothpastes that claim to be ‘fluoridated’ should have not more than 1,000 ppm of fluoride, while the maximum limit of fluoride for non-fluoridated pastes is 50 ppm.

- All the brands of fluoridated as well as non-

fluoridated toothpastes were found well within the requirements.

◆ **Gritty Matter (tested on butter paper)**

This test is done to check the presence of solid particles in the paste. In order to find gritty matter, a small amount of toothpaste is rubbed onto a piece of butter paper. The number and intensity of scratches that appear on the butter paper help in judging the presence of solid particles.

The test is important as regular usage of toothpaste with gritty matter can wear off the teeth in the long run.

- All the brands passed the test.

◆ **Homogeneity**

No one would like to struggle to get the solidifying toothpaste out of the tube, nor would they want their paste to be so thin that the tube cannot hold it. At room temperature, the toothpaste should extrude from the collapsible tube in the form of a homogeneous mass with the application of normal force – applied from the crimped end of the tube.

- All the brands passed the homogeneity test and scored equal points.

◆ **Nicotine**

Despite research showing its ill effects, tobacco is still considered to be a dentifrice (agents used along with a toothbrush to clean and polish natural teeth)



Comparative Test 2

by some. To be sure that none of the herbal toothpaste brands was adding tobacco in their products, we checked them for the presence of nicotine.

- *All the brands were found to be free of nicotine content.*

◆ Heavy Metals

Presence of heavy metals above the maximum permissible limit (as per the Indian Standard) could be harmful. All the brands were tested for lead and arsenic. The lead amount should not exceed 20 ppm in any toothpaste, while arsenic should not be more than 2 ppm.

- *All the brands were found well below the specified limit for heavy metals.*

Sensory Panel Test

The sensory tests were carried out by a panel comprising non-smokers, non-drinkers and non-tobacco chewers who did not suffer from any cough or cold, and did not have any dental or mouth

Brands ↓	Score out of 25
HERBAL TOOTHPASTES	
Dabur Red	20.25
Colgate	18.0
Herbodont	15.55
Babool	19.92
Patanjali	17.1
Himalaya	15.1
Amar	18.95
Neem	16.67
Meswak	14.30
Vicco	16.52
HERBAL TOOTH POWDERS	
Dabur Red Powder	18.12
MDH tooth powder	15.97

Dabur was chosen as the best toothpaste on sensory parameters.



ailment. Each panel member used every toothpaste brand twice a day for about three days and shared their judgements and personal experiences on the following parameters:

Ease of use (extraction of paste): User checked for convenience in taking out the right amount of paste as required (squeeze the paste by pressing the tube from the bottom).

Sensation: Mouth sensation is to be described as mint, cool or any other sensation observed while brushing.

Taste: Taste scores were given on the basis of personal preference/liking of users.

After-brushing feel: After brushing the user thoroughly rinsed their mouth and described the overall feeling.

Sensation up to half an hour or an hour: Sensation in the mouth was observed after one hour of brushing or after eating breakfast.

The scores to all brands were given by panel members on a scale of 10 for each parameter and the computing of all scores helped us in doing overall performance analysis.