

Efficacy of Malati Kashtha Churna (*Jasminum officinale* Linn.) for Dantadhavana

Rakesh R. Shukla

Department of Swasthavritta, College of Ayurved, Bharati Vidyapeeth Deemed University, Pune, Maharashtra, India

Correspondence should be addressed to Rakesh R. Shukla, drakesh.ayur@gmail.com

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Abstract In modern life, however due to lack of time and negligence; Oral hygiene not properly maintained. Malati having Tikta, kasaya rasa and katu vipak and Ushna, snigdha guna. Dantadhavana prevent us from Mukhadaurgandhya, Asyavairasya, Dantamala, Dantamalina and Aruchi. Clinical trials on 40 individuals between the age group 20-50 years in both the sex were carried out. In Group A, 20 individuals were given Malati kashtha churna for Dantadhavana and in Group B, 20 individuals were given colgate powder for Dantadhavana, follow ups were taken on 7th, 15th, 30th and 45th (post treatment) days and observation was noted. Malati having Tikta, kasaya rasa and katu vipak and Ushna, snigdha guna. The Tikta, Kasaya Rasa helps in pacifying the Kapha Dosha while Ushna Guna help in pacifying the Vata Dosha, thereby removing the Doshas from the oral cavity and it increases taste recognizing power. 25% cases of Group A have shown good response, 55% shown moderate response, and 20 % shown mild response. In Group B, 15% have shown good response, 40% shown moderate response and 45% shown mild response. The Group A advocated Dantadhavana with Malati kashtha churna shown better result than those followed Colgate powder for Dantadhavana.

Keywords Dantadhavana, Malati kashtha, Oral Hygiene

1. Introduction

In Swasthavritta to maintain personal hygiene, Dinacharya and Rutucharya are elaborated. By following rules of Dinacharya we can take care of our indriya that is necessary organs and keep them clean so they can do their functions normally. Nasya, Karnapoorna, Anjan, Dantadhavana are some of activities described in Dinacharya for cleanliness of sensory organs.

As Mukha is one of the main nine openings of our body. It is beginning of important gastrointestinal system of our body. Mukha swasthya is very essential to remain healthy, because many of the infections start from the Mukha.

In modern life, however due to lack of time and negligence; Oral hygiene not properly maintained. In slum areas due to low hygiene, there are same problems. Hence, Dantadhavana Upakrama mentioned in Dinacharya can play important role in present situation.

2. Need of Study

2.1. Findings from Dentists' Survey

(Research conducted by Nielsen, in December 2011, amongst 823 Respondents and 201 Dentists conducted in Mumbai, Delhi, Kolkata & Bengaluru aged between 18 – 45 years of age)

Dental problems have been on the rise during this decade and have almost quadrupled in 3 years. 87% of the dentists said that oral hygiene problems are common among Indians. 83% of the dentists agree that in India, people immediately visit their doctor if affected by cold, fever, body ache / stomach ache but not for tooth ache. 87% of the dentists said that patients have no dental hygiene routine prior to their first visit to a dentist. 72% of the dentists said that people come for a check on oral hygiene after embarrassing gossip by colleagues. 92% of the dentists said that it is important to brush for at least 2 minutes twice a day and visit a dentist every 6 months for optimum oral health. These are alarming statistics in themselves.

Dantadhavana prevent us from Mukhadaurgandhya, Asyavairasya, Dantamala Dantamalinta and Aruchi [1]. One should clean his Danta by using these Dantapavana twice daily (morning & evening) by using these herbs- vata, asana, arka, khadir, karanja, karvir, irimed, apamarga, malti, and which have similar properties [2, 3]. Malati (jasminum officinale linn.) having Tikta, kasaya rasa and katu vipaka and Ushna virya, snigdha guna, and Mukharoganashaka, Dantadaurbalya hara karma [4]. The active extracts of the drug jasminine (benzyl acetate) which have anti septic action [5].

Hence present study “Efficacy of Malati kashtha churna for Dantadhavana” was undertaken to find out solution to have better “Mukha swasthya”.

3. Materials and Methods

3.1. Drug: MALATI

- **Family:** Oleaceae- Olive family
- **Latin name:** *Jasminum officinale linn*

3.2. Pharmacodynamics [4]

- Rasa - Tikta, Kasaya
- Virya - Usana
- Vipaka - Katu
- Guna - Laghu, Snigdha, Mrudu

3.3. Preparation of Drug

- Identification, Authentication of Malati kashtha was done at Department of botany, University of Pune, India.
- For convenience in today's fast lifestyle and to prevent injury to gums; Malati kashtha churna was used instead of Malati kashtha. Malati churna was prepared from dry Malati kashtha, the finely powdered raw material was passed through sieve number 85 and particle size of churna was 180 µm, and used in dry form [6].

- Standardization of Malati kashtha churna was done at Late Prin. B.V. Bhide Foundation, Pune India.



Figure 1: *Malati Kashtha*



Figure 2: *Churna of Malati Kashtha*

3.4. Study Design/Method

I) Details of Clinical Study

Clinical trials on 40 healthy individuals between the age group of 20-50 years of both the sex was carried out. 40 individuals were divided into two groups each containing 20 individuals.

Group A: 20 individuals were given Malati kashtha churna for Dantadhavana.

Group B: 20 individuals were given Colgate powder for Dantadhavana.

II) Upkrama: Dantadhavana

Time: In morning & at night (after meal)

Quantity: 3 grams (Churna)

III) Procedure

Adhodantpurvakam - One should clean lower teeth first then upper teeth properly with help of finger (Resembling that of vertical style of cleaning teeth) [7].

IV) Period of study: 45 days

V) Parameters: Dantamala, Dantamalinta, Mukhadauryagandha, Asyavairasya, pH of saliva.

3.5. Procedure for Data Collection

A standard case paper regarding oral health with informed consent letter was prepared and observations were noted accordingly.

Follow Up

Both groups were examined time to time.

1 st follow-up	- on 7 th day,	2 nd follow-up	- on 15 th day
3 rd follow-up	- on 30 th day,	4 th follow-up	- on 45 th day (Post treatment)

3.6. Statement of Limitations

I) Inclusion Criteria

- Individuals with lakshanas – Asyavairasya, Dantamalinta, Mukhadaurgandhya & Dantamala were included.
- Individuals between the age group of 20-50 years were included.
- Individuals of both the sex were included.

II) Exclusion Criteria

- Contraindication for Dantadhavana [8]
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- Individuals suffering stomatitis, oral cancer and major oral diseases, accidental dental injuries were excluded.
- Individuals suffering any systemic disease were excluded.

3.7. Parameter's Assessment

I) Dantamala (Debris)

Grade – 0	No debris or stain present
Grade – 1	Soft debris covering not more than one third of the tooth surface, or presence of extrinsic stains without other debris regardless of surface area covered
Grade – 2	Soft debris covering more than one third, but not more than two thirds, of the exposed tooth surface
Grade – 3	Soft debris covering more than two thirds of the exposed tooth surface

II) Dantamalinta (Plaque)

Grade – 0	No plaque
Grade – 1	A film of plaque adhering to the free gingival margin and adjacent area of the tooth. The plaque may be seen in situ only after application of disclosing solution or by using the probe on the tooth surface
Grade – 2	Moderate accumulations of soft deposits within gingival pockets seen by naked eyes
Grade – 3	Abundance of soft matter within the gingival pocket and/or on the tooth and gingival margin

III) Mukhadauryagandha (Freshness of Mouth)

Grade – 0	No odor present
Grade – 1	Rarely noticeable odor
Grade – 2	Clearly noticeable odors.
Grade – 3	Strong offensive odors

IV) pH of Saliva

Grade – 0	6 – 7 (Normal range)
Grade – 1	± 1 of normal range
Grade – 2	± 2 of normal range
Grade – 3	± 3 of normal range

V) Asyavairasya

Grade – 0	Proper taste perception, enjoys taste of the food
Grade – 1	often complains regarding the taste of food
Grade – 2	Shows disinterest towards food
Grade – 3	Often skips meal

VI) Oral Hygiene Index

OHI-S = Debris Index Score + Calculus Index Score

Grade – 0	0.1 - 1.2 score
Grade – 1	1.3 - 3.0 score
Grade – 2	3.1 - 6.0 score

VII) Criteria for Assessment of Overall Responses

Based on the changes in the signs and symptoms the cure rate was classified into

Good response	- Above 76 % relief in overall features
Moderate response	- 51%- 75% relief in overall features
Mild response	- 26%- 50% relief in overall feature
No relief	- Below 25% relief in overall features

3.8. Statistical Analysis

Data analysis consisted of two parts, first part to describe the characteristic of the study subjects by using descriptive methods viz. general points like age, sex, diet, prakruti, vyan, etc. second part consisted of comparisons of pre treatment measurements of the outcome with that of post treatment measurements where we used inferential methods and statistics. Statistical analysis was done for the results using student t - test of significance.

3.9. Observation**I) Distribution According to Age**

Out of 40 patients, 29 (72.5 %) were in the age group of 20-30 years, 4 (10%) were in the age group of 31-40 years, 7 (17.5 %) were in the age group of 41-50 years.

Table 1: Showing Incidence of Age in Both Groups

Age	Group A		Group B		Total	
	No	%	No	%	No	%
20-30	15	75 %	14	70 %	29	72.5 %
31-40	1	5 %	3	15 %	4	10 %
41-50	4	20 %	3	15 %	7	17.5 %

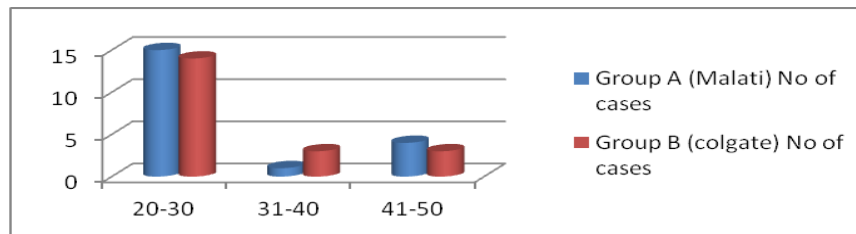


Chart Representation of Table 1

II) Distribution According To Sex

Table 2: Showing Incidence of Sex in Both Groups

Sex	Group A		Group B		Total	
	No of cases	%	No of cases	%	No of cases	%
Male	16	80%	16	80%	32	80%
Female	4	20%	4	20%	8	20%

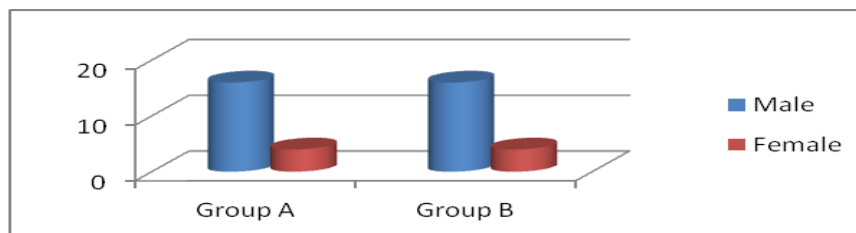


Chart Representation of Table 2

Out of 40 patients, 32 (80%) were male and 8 (20%) were females. In Group A, 16 (80%) patients were male and 4 (20%) patients were female. In Group B, 16 (80%) patients were male and 4 (20%) patients were female.

III) Distribution According to Prakruti

Table 3: Showing Incidence of Prakruti in Both Groups

Prakruti	Group A		Group B		Total	
	No	%	No	%	No	%
VP	4	20%	5	25%	9	22.5%
PK	3	15%	4	20%	7	17.5%
VK	4	20%	3	15%	7	17.5%
KP	2	10%	3	15%	5	12.5%
KV	3	15%	2	10%	5	12.5%
PV	4	20%	3	15%	7	17.5%

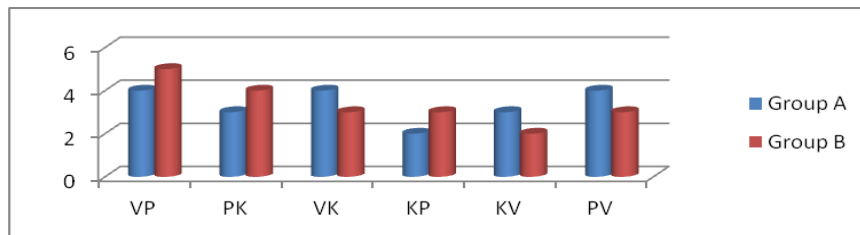


Chart Representation of Table 3

Prakriti wise distribution shows more patients 4 (20%) in Group A & 5(25%) in Group B were of Vata Pitta pradhan.

IV) Distribution According to Vyasana

Table 4: Showing Incidence of Vyasana in Both Groups

Vyasana	Group A		Group B		Total	
	No	%	No	%	No	%
Tea	12	60%	10	50%	22	55%
Smoking	2	10%	3	15%	5	12.5%
Tobacco	4	20%	5	25%	9	22.5%
Pan & supari,	3	15%	4	20%	7	17.5%

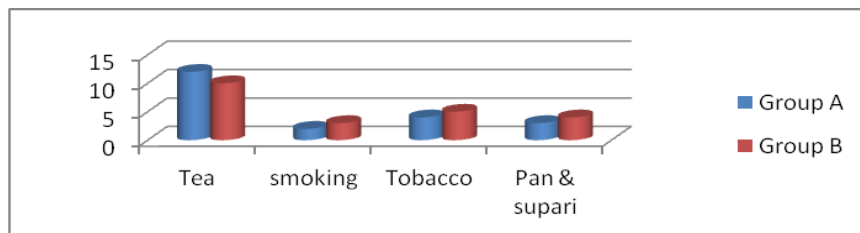


Chart Representation of Table 4

Out of 40 individuals, 22 (55%) had habits of tea and out of 40 individuals, 9 (22.5%) had habits of tobacco chewing.

V) Distribution According to Frequency of Cleaning

Table 5: Showing Incidence of Frequency of Cleaning

Frequency	Group A		Group B		Total	
	No of cases	%	No of cases	%	No of cases	%
Once	15	75%	14	70%	29	72.5%
Twice	5	25%	6	30%	11	27.5%

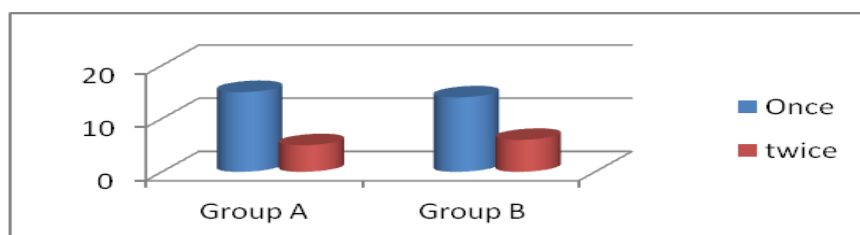


Chart Representation of Table 5

Out of 40 patients, 29 (72.5%) were cleaning their teeth once in a day and 11 (27.5%) were cleaning their teeth twice.

4. Results

4.1. Dantamala

Table 6: Dantamala – Comparison of Group A and B

	Mean (B.T.)	Mean (A.T.)	% Relief	S. D. of Difference	T Value	T Table Value	P Value
GROUP A	0.850	0.250	70.58 %	0.6803	3.943	2.093	0.0009
GROUP B	0.80	0.40	50 %	0.5026	3.559	2.093	0.0021

- Mean B.T in Group A was 0.850 that reduced to 0.250 where as in Group B mean B.T was 0.80 which was reduced to 0.40.
- Group A has shown 70.58% relief and Group B has shown 50% relief.

4.2. Mukhadaurgandhya

Table 7: Mukhadaurgandhya – Comparison of Group A and B

	Mean (B.T.)	Mean (A.T.)	% Relief	S. D. of Difference	T Value	T Table Value	P Value
GROUP A	1.1	0.35	68.18 %	0.7164	4.682	2.093	0.0002
GROUP B	0.8	0.35	56.26 %	0.6048	3.327	2.093	0.0035

- There were significant changes seen in both the groups at 5% level of significance since t values are greater than t table value in both group.
- P values are < 0.05 in both groups.

Comparison between group A and Group B

- Mean B.T in Group A was 1.1 that reduced to 0.35 where as in Group B mean B.T was 0.8 which was reduced to 0.35.
- Group A shown 68.18% relief, Group B shown 56.26 % relief.

4.3. Dantamalinta

Table 8: Dantamalinta – Comparison of Group A and B

	Mean (B.T.)	Mean (A.T.)	% Relief	S. D. of Difference	T Value	T Table Value	P Value
GROUP A	0.95	0.250	73.68 %	0.8013	3.907	2.093	0.0009
GROUP B	0.75	0.350	53.34 %	0.5982	2.99	2.093	0.0075

- There were significant changes seen in both the groups at 5% level of significance since t values are greater than t table values in both group.
- P values are < 0.05 in both groups.

Comparison between Group A and Group B

- Mean B.T in Group A was 0.95 that reduced to 0.25 where as in Group B mean B.T was 0.75 which was reduced to 0.35.
- Group A shown 73.68% relief, Group B shown 53.34% relief.

4.4. Asyavairasyata

Table 9: Asyavairasyata – Comparison of Group A and B

	Mean (B.T.)	Mean (A.T.)	% Relief	S. D. of Difference	T Value	T Table Value	P Value
GROUP A	1.55	0.35	77.42 %	0.7678	6.990	2.093	< 0.0001
GROUP B	1.3	0.40	69.23 %	0.6407	6.282	2.093	< 0.0001

- There were significant changes seen in both the groups at 5% level of significance since t values are greater than t table values in both group.
- P values are < 0.05 in both groups.

Comparison between Group A and Group B

- Mean B.T in Group A was 1.55 that reduced to 0.35 where as in Group B mean B.T was 1.3 which was reduced to 0.40.
- Group A shown 77.42 % relief, Group B shown 69.23 % relief.

4.5. pH of saliva

Table 10: pH of Saliva – Comparison of Group A and B

	Mean (B.T.)	Mean (A.T.)	% Relief	S. D. of Difference	T Value	T Table Value	P Value
GROUP A	1.10	0.700	36 %	0.5026	3.559	2.093	< 0.0001
GROUP B	1.050	0.70	33.33 %	0.4894	3.199	2.093	0.0047

- There were significant changes seen in both the groups at 5% level of significance since t values are greater than t table values in both group.
- P values are < 0.05 in both groups.

Comparison between Group A and Group B

- Mean B.T in Group A was 1.10 that reduced to 0.70 whereas in Group B mean B.T was 1.05 which was reduced to 0.70.
- Group A shown 36% relief, Group B shown 33.33% relief.

4.6. Oral Hygiene Index

Table 11: Oral Hygiene Index- Comparison of Group A and B

	Mean (B.T.)	Mean (A.T.)	% Relief	S. D. of Difference	T Value	T Table Value	P Value
GROUP A	1.350	0.350	74.08%	0.5620	7.958	2.093	< 0.0001
GROUP B	1.0	0.35	65%	0.5026	5.339	2.093	0.0047

- There were significant changes seen in both the groups at 5% level of significance since t values are greater than t table values in both group.
- P values are < 0.05 in both groups.

Comparison between Group A and Group B

- Mean B.T in Group A was 1.35 that reduced to 0.35 where as in Group B mean B.T was 1.0 which was reduced to 0.35
- Group A shown 74.08% result, Group B shown 65% relief.

5. Discussion

5.1. On Observation

Age

- In this study more number of cases (72.5%) was observed under the age group of 20-30 years.
- The incidence of improper dental hygiene was seen more in Adolescents, may be due to negligence or lack of time regarding oral hygiene.

Sex

- As for sex is concerned in present study, it is observed that 80% of the individuals were male and 20% of the individuals were female.
- This may be because of the increased number of male in the population or may be the males have smoking and tobacco chewing habits more than females.

Prakruti

- Prakruti wise distribution shows 9 individuals were of Vata kapha Pradhan Prakruti while 7 were of Kapha vata Pradhana Prakruti.
- As Vata is predominant in teeth and Kapha also being Sthana in oral cavity vitiation of both these Doshas leads to various diseases of oral cavity.

Vyasan

- The present study shows, 22(55%) individuals had habit of tea, 9 (22.5%) had tobacco chewing habit.
- After intake of such items if mouth is not washed properly, there will be growth of bacteria S. Mutans which are responsible for plaque accumulation.

Frequency of Cleaning

- Observation shows 72.5% (29) individuals clean their teeth only once in a day and 11(27.5%) individuals clean their teeth twice in a day.
- These are alarming figures in themselves.
- It shows people are less concerned about oral health.

5.2. Discussion on Results

Dantamala

- Group A has shown 70.58 % relief and Group B has shown 50% relief.
- Since Malati having tikta & kasaya rasa, Tikshna guna and Tridosha samshanana karma it reduces dental debris –Dantamala.
- The rubbing of the churna i.e. procedure of brushing helped in removing the food debris stuck in the teeth.

Mukhadaurgandhya

- Group A has shown 68.18 % relief and Group B has shown 56.26% relief.
- Due to Tikta, kasaya rasa and Ushna Virya and by rubbing the churna on teeth Chhedan of Kapha and Mukha shuddhi occurs.
- The active extracts of the drug jasminine (benzyl acetate) helps in freshens up the breath, protects the gum from other infections.

Dantamalinta

- Group A has shown 73.68 % relief and Group B has shown 53.34 % relief.
- Malati having Tikshna properties helped in reducing the dental plaque.
- The rubbing of the churna i.e. procedure of brushing remove food particles and plaque and lead to regeneration of healthy gingival tissues.

Asyavairasya

- Group A has shown 77.42 % relief and Group B has shown 69.23 % relief.
- The Tikta, Kasaya Rasa helps in Pacifying the kapha Dosha thereby removing the Doshas from the oral cavity and it increases taste recognizing power

pH of Saliva

- Group A has shown 36 % relief and Group B has shown 33.33 % relief.
- While comparing Group A & B, Group A is equally significant to that of Group B in reducing pH to normal level

Oral Hygiene Index

- Group A has shown 74.08 % improvement and Group B has shown 65 % improvement.
- Better results were seen in the Group A in maintenance of oral hygiene and removing of Danta and Mukhagata Malas.
- The Tikta, Kasaya Rasa and Ushna virya helps in Pacifying the kapha - Vata Dosha, thereby removing the Doshas from the oral cavity.
- The Mukharoganashak & Dantadaurbalya hara action of Malati helps in maintaining the Hygiene of the oral cavity

Overall Effect

- 25% cases of Group A have shown good response, 55% shown moderate response, and 20 % shown mild response.
- In Group B, 15% have shown good response, 40 % shown moderate response and 45% shown mild response.
- The Group A advocated Dantadhavana with Malati kashtha churna shown better result than those followed Colgate powder for Dantadhavana.
- This may be because rubbing of powder with Malati kashtha churna which have Tikta, Kasaya Rasa, Ushna Virya.

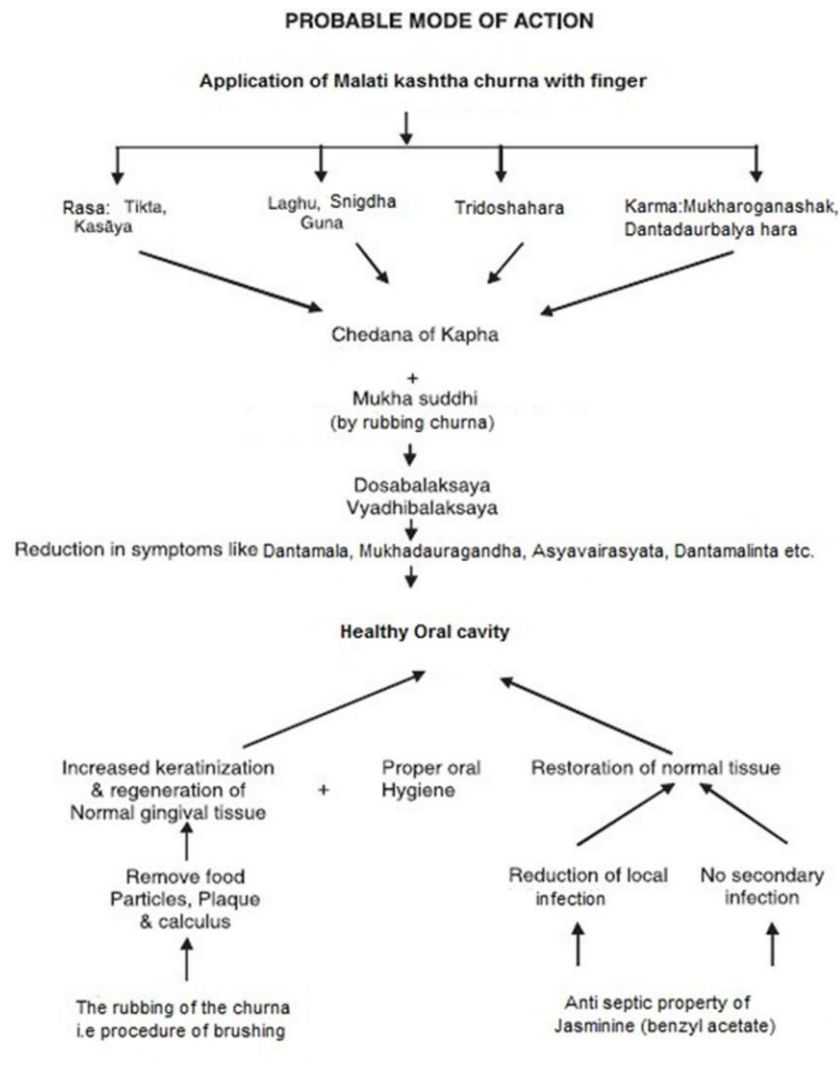


Figure 3: Probable Mode of Action

6. Conclusion

- Dantadhavana is one of the important procedures of Dinacharya for maintaining the health of oral cavity.
- Dantadhavana also gives strength to the gingiva, tooth and other structures in the oral cavity.
- Malati having tikta, kasaya rasa and katu vipak and Ushna, snigdha guna.
- The Tikta, Kasaya Rasa helps in Pacifying the kapha Dosha while Ushna Guna help in pacifying the Vata Dosha, thereby removing the Doshas from the oral cavity and it increases taste recognizing power.
- The active extracts of the drug jasminine (benzyl acetate) helps in freshens up the breath, protects the gum from other infections.
- The rubbing of the churna i.e. procedure of brushing helped in removing the food debris stuck in the teeth.
- The Group A advocated Dantadhavana with Malati kashtha churna shown better result than those followed Colgate powder for Dantadhavana.
- Post Treatment follow up showed reduction in
 - Dantamala - Mukhadauragandhya
 - Dantamalinta - Asyavairasya

- Hence from the study it is concluded that, Dantadhavana is an important upakrama of Dincharya mentioned in Samhitas which should be followed regularly, in order to prevent Mukharogas and to maintain oral hygiene.

Limitation of Study

- Study has been restricted to symptoms like Dantamala, Dantamalinta, Asyavairasya, Mukhadaurgandhya and pH of saliva.
- Limited sample size.

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