

QUALITY CONTROL STUDY ON THE DASHANASAMSKARA CHURNA

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ABSTRACT

Dashanasamskara choorna has a vital role in periodontitis, because these drugs are easily available at low cost, safe and people have faith in them. As the usage of these herbal medicines has increased, issues regarding their quality, safety, and efficacy have raised up. The purpose of standardization of medicinal plants is to ensure the therapeutic efficacy. *Dashanasamskara Churna* is a caustic alkali preparation of the drug. Analytical parameters like Physicochemical studies, like , total ash, water soluble ash, acid insoluble ash, loss on drying at 105°C and determination of pH, TLC were carried out as per the WHO guidelines has to be carried out in order to standardize the *Dashanasamskara Churna*. *Dashanasamskara Churna* fulfills the standard criteria of analytical parameters. *Dashanasamskara Churna* is an important formulation with various biological properties. Hence, efforts have been made to provide scientific data on standardization of *Dashanasamskara Churna*.

KEYWORDS: *Dashanasamskara Churna*. Physicochemical analysis, Thin layer Chromatography.

INTRODUCTION

Dashan Sanskar Churna is an Ayurvedic medicine in herbal powder form. The key ingredients of *Dashan Sanskar Churna* are *Haritaki*, *musta*, *Khadira*, *Karpura*, *puga*, *Maricha*, *lavanga*, *twak*, *shunti*, *churnam(lime)*¹. It is used as tooth powder, It helps to strengthen teeth, improves shine and whiteness, Dental Plaque, Bleeding Gums, Dental Abscess, Toothache. In the present era in rural and urban area more number of healthy individuals are not maintaining proper mouth hygiene, and more number of people continuously chewing tobacco, gutka and pan masala by these habits they affect with above mentioned oral cavity disorders. In this condition if they not took treatment further complications may occur so for this *dashana samskaara churna* is the best treatment to reduce

those problems This *dashana samskaara churna* mentioned in our classics². *Upakusha* can be correlated with Periodontitis. Periodontitis is an inflammatory disease of supporting tissues of the tooth, caused by single or multiple microorganisms resulting in progressive destruction of the periodontal ligament and alveolar bone with pocket formation. It is characterized by redness, swollen gums, bleeding gums, burning sensation; foul smell from mouth. The prevalence of chronic periodontitis in the urban population was found to be 42.3% (localized form - 29.3% and generalized form - 13%)³. The management includes cleaning the pockets around the tooth, the teeth involved by periodontal disease can be saved if the bone loss has not been too extreme, irritants are removed by scaling and curettage and pocket are eliminated by gingival recession

or by surgical removal of gingiva; osseous deformities are eliminated and tooth supporting tissues are recontoured to a normal physiologic architecture; occlusal force are balanced; and systemic factors are corrected. Finally gingivectomy and gingivoplasty, which are quite expensive and cause lot of inconvenience to the patients. To develop a cost effective and safe *Ayurveda* treatment protocol for management of *Upakusha* (periodontitis) this clinical study of *lekhana* (scaling), *dashanasamskara churna* *pratiasarana* and *yashtimadhu ghrita kavala* is

Preparation of *Dasanasmskara churna*:

Table 1: *Dashan Sanskar Churna*. Raw drugs

Drugs	Botanical name	part used
<i>Haritaki</i>	Terminalia Chibula	fruit
<i>Musta</i>	Cypers rotandus	root
<i>Khadira</i>	Acacia catechu	bark
<i>Karpura</i>	Cinnamomum camphora	whole part
<i>Maricha</i>	Piper nigrum	fruit
<i>Lavanga</i>	Syzygium aromaticum	flower
<i>Twak</i>	Cinnamomum zeylanica	leaves
<i>Shunti</i>	zingiber officinalae	root
<i>Puga</i>	Areca catechu	Beeja
<i>Churnam(limestone)</i>	Limestone (Caco3)	whole part

(*Haritaki, Musta, Khadira, Karpura, Maricha, Lavanga, Twak, Shunti*) collected in dry form. Weighed each drug in one part, except limestone. The lime stone takes 9 parts as said in *samhitas*. Then the drugs were added into *khalwa yantra* (*Haritaki, musta, Khadira, Karpura, Maricha, lavanga, twak, shunti*) and made *churn* then added *puga bhasma*, then the *bhasma* prepared same as that of *masi Kalpana* as said in *Bhaishajya Kalpana4*. Limestone collected

being taken up.

Objectives: Quality control study on the *Dasanasamskara churna*.

Materials and Methods:

Sample collection: Drugs collected from authenticated Ayurvedic vendors and identified by taxonomists.

Study setting (study conducted): Avishkara Central Research Laboratory – SJGAMC&H Koppal

from the market, dipped it in 1:4 part of water, kept the whole night next day morning discarded supernatant water, then the remaining part collected and kept it in sunlight for drying and made it fine powder, sieved it later collected powder in separately. Then mixed these ten drugs homogeneously and kept it in an airtight container. In this study organoleptic parameters of *Dashan Sanskar Churna*. Those parameters are Color, Odour, Taste, Appearance and Touch along with these parameters also studied Physico-chemical

parameters of *Dashan sanskar churna*, those parameters are pH, Loss on drying, Total ash value, Acid insoluble ash, Water soluble ash and Alcohol soluble extractive. Belows following,

The Physical tests like organoleptic evaluations, pH analysis, loss on drying, total ash, acid insoluble ash, water soluble ash, refractive index, and specific gravity done as per standard method⁵.

pH value: The pH Value of an aqueous liquid may be defined as the common logarithm of the reciprocal of the hydrogen ion concentration expressed in gram per liter. The acidity or alkalinity of a solution has a profound influence on the decomposition of drugs. If it is very acidic or less alkaline there will be more decomposition of the drug. pH influences the rate of oxidation. When the pH is low it is less readily oxidized. It shows the drug is alkaline in nature due to the presence of alkali salts. Absorption, efficacy, and irritability of a medicine will depend on the pH value also. The pH value of the sample range between 11.5 – 11.7. This shows the alkaline character of the drug.

Loss on drying: Loss on drying indicates the presence of moisture content in the drug, higher % of moisture content indicates the sample will spoil faster and reduce shelf life. Weigh accurately about 1 gm of drug in a silica crucible and dry it in a hot air oven at 105°C until the constant weight is obtained. The difference in the two weights gives the loss on drying and calculates the percent loss on drying. This method is used to measure the amount of water content and other volatile material in the sample upon drying.

Total ash value: Weigh accurately about 2 gm of drug in a silica crucible and heat it in a muffle furnace at 450°C for about 1 hour until the constant weight is obtained. The difference in the two weights gives the total ash content, and calculates the percentage of total ash. In the determination of total ash values the carbon must be removed at a slow temperature (450°C) as possible because alkali chlorides, which may be

volatile at high temperature, would otherwise be lost. This indicates the amount of ash content present in the sample, more will be the content of ash in the sample more will be the presence of alkaline matter in the sample.

Acid insoluble ash: Weigh accurately about 2 gm of drug in a silica crucible and dry it in a muffle furnace at 450°C-550°C for about 1 hr until the constant weight is obtained, then cool the crucible and add 40% HCl to the ash of the drug and heat it on a hot plate for few minutes and filter it by using whatman filter paper 41, and keep the residue along with filter paper in muffle furnace for about 1 and half hour, then weigh and calculate the percentage of acid insoluble ash. Acid insoluble ash was carried out to evaluate the percentage of insoluble inorganic content of the sample in dilute acid.

Water soluble Extractive:

Macerate 5 gm of coarsely powdered drug with 100 ml of water in a closed flask for 24 hours, shaking frequently during six hours and allowing to stand for 18 hours. filter rapidly taking precautions against loss of solvent evaporate 25 ml of filtrate to dryness in a tared silica crucible, and dry at 105° to constant weight and weigh. Calculate the % of water soluble extractive with reference to the air dried drug.

Alcohol soluble Extractive: Macerate 5 gm of coarsely powdered drug with 100 ml of alcohol (Ethanol) of the specified strength in a closed flask for 24 hours, shaking frequently during six hours and allowing to stand for 18 hours. filter rapidly taking precautions against loss of solvent evaporate 25 ml of filtrate to dryness in a tared silica crucible, and dry at 105° to constant weight and weigh. calculate the % of alcohol soluble extractive with reference to the air dried drug⁶.

Chromatographic study:

Readymade TLC plates were used with the help of capillary tube the sample is applied plate is kept in developing chamber containing the solvent of the interest, after sometime solvent front reached at the top of mark line, visualization of the spots were appreciated by iodine chamber

later Rf value was calculated.

RESULT

Parameter	Sample
Colour	Yellowish
Odour	Characteristic
Taste	Salty / Saline
Appearance	TransparentLiquid
Touch	Slimy

Table 1: organoleptic parameters of *Dashan Sanskar Churna*.

Parameters	Results
Ph	11.65
Loss on drying	9.8%
Total –ash value	61.6%
Acid-insoluble ash	5.05%
Water soluble extractive	8.2%
Alcohol soluble extractive	4.3%

Table 2: Physico-chemical parameters of *Dashan sanskar churna* .

DISCUSSION

Ph of *Dashan sanskar churna* is 11.65%, Ph is alkaline in nature on Loss on drying *Dashan sanskar churna* moisture content indicated 9.8% which is minimum standard. Total ash value determine quality and purity of crude dry too high indicates adulteration contain heavy metals ,too low indicates the drug is having low potency. *Dashan sanskar churna* having 61.6% total ash value. Acid insoluble ash value of the crude

drugs is always less than total ash value of the drug. The acid insoluble ash of the *Dashan sanskar churna* appreciated 5.05%. Water soluble ash is used to estimate the amount of inorganic compounds present in the drug. Water soluble ash indicate the percentage of solubility of contents of the sample soluble in water the sample shows 8.2% were almost soluble in water. and alcoholic soluble extractive value is 4.3%.

Table 3: Aqueous Extract and Ethanol Extract of *Dashan Sanskar Churna*.

Particular	Aqueous Extract	EthanolExtract
Steroids	-	-
Terpenoids	0.254	0.267,0.571
Flavonoids	0.236	0.774
Alkaloids	0.877	0.946

Sample		Steroids	Terpenoids	Flavonoids	Alkaloids
Dashan samskaarachurna	Aqueous Extract	-	+	+	+
	EthanolExtract	-	+	+	+

TLC profile of *Dashan sanskar churna* as indicated the presence of Terpeonids, Flavonoids Alkaloid in aqueous extract & ethanol extract .The Rf value as follows-0.267,0.571. 0.774. 0.946.

Aqueous extrac: Ethanolic extract



Fig 1: TLC profile Aqueous extract of *Dashan Sanskar Churna*.

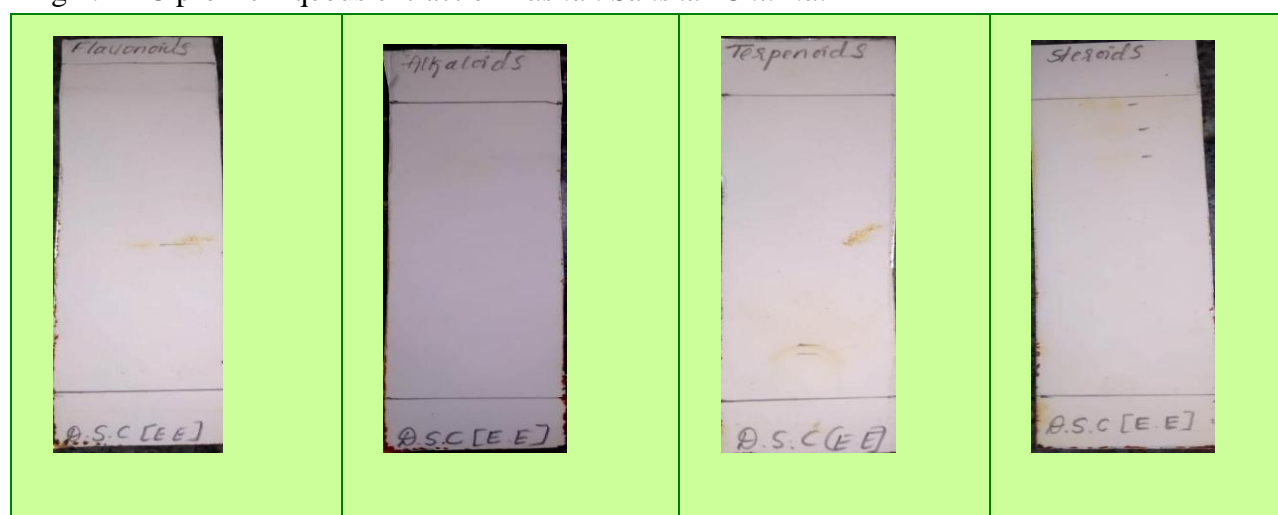


Fig 2: TLC profile of ethanolic extract of *Dashan Sanskar Churna*

CONCLUSION

As per Bhaishajya Ratnavali *Dashana samskaara churna* was selected as following ingredients were *Haritaki, musta, Khadira, Karpura, puga, Maricha, lavanga, twak, shunti, churnam(lime). Dashana samskara churna* as met all

aims and objectives of study, analytical parameters like Physicochemical studies, like, total ash, water soluble ash, acid insoluble ash, loss on drying at 105°C and determination of pH, TLC were carried out as per the API guidelines has to be carried out in order to standardize the

Dashanasamskara Churna, all met were standardization as per API.

It is safe and protective in gum and dental disorders. It can be given in the following disease Dental

1. Plaque, Bleeding Gums, Dental Abscess,..etc

2. Still much more research need on *dashana samskara churna*, like HPTLC, inorganic analysis with flame photometer and mineral analysis to confirm the what are the compounds present in *Dashana samskara churna*.

3. Present study only focusing on physic chemical analysis & chromatographic study on *Dashanasamskara churna*.

The purpose of standardization of *Dashanasamskara Churna* is obviously to ensure therapeutic efficacy. Therefore, maintaining the quality of these plant products is an essential factor. *Dashan samskaara churna* is an important yoga with various biological properties. Hence, efforts have been made to provide scientific data on standardization of *Dashan sanskar churna*.

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