



PHARMACEUTICO-ANALYTICAL STUDY OF *KRISHNADI CHURNA* AND ITS *LEHYA*

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ABSTRACT:

Krishnadi Churna (powder) is a very common formulation prescribed for respiratory disorders. Palatability, mode of administration, refusal for intake due to *Katu* (pungent) and *Kashaya* (astringent) *rasa*, mixing with honey and carrying honey along with drugs are the drawbacks of *Krishnadi Churna*. If the same could be modified into a form which would render same results of that of *Churna*, it would be a better dosage form. Another dosage form namely *Lehya* is also an important form because the preparation has got good palatability, easy mode of administration and better absorption capacity. In this study, *Krishnadi Churna* was prepared as per mentioned in *Bhaishajya Ratnawali*. Then it was converted into *Lehya* (Semisolid preparations) form. The pharmaceutico-analytical data were observed and recorded. Analysis of both prepared formulations was carried out as per mentioned in Ayurvedic Pharmacopoeia of India (API). The prepared *Lehya* has shown upper hand over *Churna* in palatability, shelf life, action and absorption. The overall results are encouraging in the present study.

Keywords: *Krishnadi Churna*, *Krishnadi Lehya*, Pharmaceutical and analytical study.

INTRODUCTION

Among the different routes of administration of medicine, oral route is more appreciable. Thus, the concept of *Panchavidha Kashaya Kalpana* was developed by our *Acharyas*^[1]. Later, *Upakalpanas* like *Vati*, *Choorna*, *Avaleha* were discovered to fulfil furthermore demands like palatability, long shelf life, easy dispensation and handling etc^[2]. *Churna* is one among such *Upakalpana* of *Kalka kalpana* (Paste preparations) obtained by pounding dry drugs and filtering them. *Krishnadi Churna* is one such *Churna* which shows significant effect in respiratory system diseases^[3]. *Krishanadi churna* mentioned in *Hikkaswasa chikitsa* shows significant effect in respiratory system diseases^[4]. It finds a place in *Swasa*, *Kasa*, *Kshaya*, *Parshwashoola* etc. Even though it is being an extensively prescribed formulation, it has got certain demerits like poor palatability, mixing of adjuvant, refusal for intake due to *Katu* and *kashaya rasa* and it also involves rigorous task of carrying drug along with honey^[5]. Thus, there is need to modify this *Churna* to *Lehya* form. *Avaleha* is the most common *Upakalpana* gaining more admiration because of its palatability due to addition of sweetening agents, easy mode of administration, long shelf life better drug absorption in oral cavity and convenience for handling and administration. However, the

acceptance of this product is beyond age limits. Thus, here an effort is made to modify classical form of *Churna* to conventional form of *Lehya*.

MATERIALS AND METHODS

The pharmaceutical study and analytical study are the two methods adopted in this work. In pharmaceutical study aspect, *Krishnadi Churna* and *Lehya* were prepared and observations were noted. In the analytical study, different parameters mentioned for assessment of *Churna* and *Lehya* were carried out. The drugs required for the preparation were collected from GAMC Bareilly. Authentication of drugs was done in the Department of *Dravya Guna*, GAMC Bareilly.

Pharmaceutical study

The preparation of *Krishnadi Churna* was done at teaching pharmacy of *Rasashastra* and *Bhaishajya Kalpana*, GAMC Bareilly with help of mortar and pestle as per the classical reference. After that *Churna* (Powder) was filtered through 120 no. sieve^[6].

Preparation of *Krishnadi Lehya*: *Pippali Kashaya* is prepared as per classics, that is 200 g of *Pippali Yavakuta Churna* is boiled in 1600 ml of water and is reduced to half. 800 g of sugar is added and dissolved. 200 ml of *Ghrita* is added to the preparation just before obtaining *Lehya Paaka Siddhi Lakshanas*. As

Avaleha attains its *Paaka Lakshanas*, fine powders of 200 g of dry *Amalaki churna*, and 200g of *Shunthi churna* are added with constant stirring. Then the vessel is taken out of fire and allowed to cool. 200 ml Honey is

added to preparation after it's completely cooled. Then it is packed in airtight wide mouthed container. The obtained *Lehya* has got all *lehya Paaka Siddhi Lakshanas*^[7].

Table No.1 : Ingredients and quantity of *Krishnadi churna*

S.N.	Ingredients	Botanical name	Part used	Quantity
1	Dry <i>Pippali</i>	<i>Piper longum</i>	Fruits	50 gm
2	Dry <i>Amalaki</i>	<i>Phyllanthus emblica</i>	Fruits	50 gm
3	<i>Shunthi</i>	<i>Zingiber officinale</i>	Stem	50 gm
4	<i>Mishri</i>	Sugar	-	150 gm
5	<i>Krishnadi churna</i> obtained	-	-	265 gm



Dry Amalkai



Pippali



Shunthi



Krishnadi churna



Krishnadi leha

Fig. No. 1 – Ingredients of *Krishnadi churna* and prepared *Krishnadi leha*

Table No.2 : Ingredients and quantity of *Krishnadi leha*

S.N.	Ingredients	Botanical name	Part used	Quantity
1	Dry <i>Pippali</i>	Piper longum	Fruits	200 gm
2	Jala (Water for Decoction)	-	-	1600 ml
3.	Pippali Kwatha	-	-	800 ml
2	Dry <i>Amalaki</i>	Phyllanthus emblica	Fruits	200 gm
3	<i>Shunthi</i>	Zingiber officinale	Stem	200 gm
4	<i>Sharkara</i>	Sugar	-	800 gm
5	<i>Madhu</i>	Honey	-	200 gm
6	<i>Krishnadi leha</i> obtained	-	-	2.14 kg

Analytical Study

The Pharmaceutical analysis of *Krishnadi Churna* was done with parameters like total ash, acid insoluble ash, alcohol soluble extract, water soluble extract and pH. The pharmaceutical analysis of *Krishnadi Lehya*

with parameters like loss on drying at 105 degree Celsius, acid insoluble ash, total ash, fixed oil, reducing sugar and pH were done as per the Ayurvedic Pharmacopoeia of India^[8].

RESULT:

Pharmaceutical study

Table no. 3 - Organoleptic characters of *Krishnadi churna*

S. N.	DESCRIPTIONS	RESULTS
1	Form	Fine powder
2	Colour	White grayish
3	Odour	Characteristic Aromatic Odour

Table No. 4 – Physiochemical analysis of *Krishnadi churna*

S.N.	DESCRIPTIONS	RESULTS
1	Loss on drying	9%
2	pH value	4
3	Water soluble extract	28 %

4	Alcohol soluble extract	6 %
5	Total ash	7 %
6	Acid insoluble ash	2 %

Table No. 5 – Organoleptic characteristic of *Krishnadi lehya*

S.N.	DESCRIPTIONS	RESULTS
1	Form	Semisolid
2	Colour	Blackish brown
3	Odour	Characteristic Aromatic Odour
4	Taste	Sweet, Pungent

Table no. 6 - Physiochemical analysis of *Krishnadi Lehya*

S.N.	DESCRIPTIONS	RESULTS
1	Loss on drying	44 %
2	pH value	7.1
3	Total ash	0.54 %
4	Acid insoluble ash	0.014 %
5	Reducing sugar	Present

DISCUSSION

In Ayurveda, *Bhaishajya Kalpana* (Ayurvedic pharmaceuticals) is a branch which deals with the revolution of standard raw drugs to the different preparations like *Churna* and *Avaleha*. In *Avaleha Kalpana*, the liquid media of *Aushadha Dravyas* added with sweetening agents, lipid medium, powdered form of additives along with honey. Later on, *Asanna Paaka Lakshanas* and *Lehya Paaka Siddhi Lakshanas* are noted [9-10]. Whereas in *Churna* preparation, finely powdered drugs are mixed according to the ratio. Different analytical studies were carried out. The organoleptic

character of *Krishnadi Churna* showed white greyish colour, pungent and astringent taste with characteristic aromatic odour whereas in *Krishnadi Lehya* it is blackish brown in colour, sweetish pungent taste with characteristic aromatic odour. The ash value determines the identity and cleanliness of drug and the value is 7% and 0.54 % for *Churna* and *Lehya* respectively. The acid insoluble ash indicates the presence of inorganic matter as impurity in which *Churna* and *Lehya* showed only 2% and 0.014% respectively. The pH of *Lehya* being 7.1 moves towards alkaline property, thus have a good move towards palatability. It is noticed

that shelf life of *Lehya* is comparatively more than *Churna* form due to addition of sweetening agent that is sugar. Sugar chemically interacts with water, rendering it inaccessible to organisms. The shelf life of the formulation is extended as a result of this process. The sweet taste of the medication improves its palatability. *Krishnadi Lehya* has faster absorption than *Churna* due to its semisolid consistency. The main reason behind converting *Krishnaadi churna* into *Krishnaadi lehya* is that, *churna* is mainly prescribed in *hikka kasa* disease and it is easier to take medicine in *lehya* form than *churna* especially in *hikka kasa* disease.

CONCLUSION

Here the well-known *Krishnadi Churna* is modified into *lehya* form. *Krishnadi Churna* and *Lehya* are prepared according to classical reference and is subjected to pharmaceutico-analytical study with different parameters. *Lehya* are having better palatability and it is widely accepted even by the children because of its sweet taste. It is also noticed that shelf life of *Lehya* is comparatively more than *Churna* form. It is also proved that liquids and semi solid act faster than solids because of faster absorption. To get protected from early deterioration the *lehya* consist of concentrated sugar solution and honey. Thus, here the *Lehya* form of classical formulation

Krishnadi Churna is prepared and analysed. These preparations can be utilized for clinical trial and upper hand of preparation one over the other can be documented and recommended for wider therapeutic use.

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