



ISSN 2456-3110

Vol 3 · Issue 4

July-Aug 2018

Journal of **Ayurveda and Integrated Medical Sciences**

www.jaims.in

JAIMS



Charaka
Publications

Indexed

Upcycling of *Sneha Kalka* - A Novel Design

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ABSTRACT

Sneha Kalka is the by-product formed due to addition of *Kalka* and *Drava Dravya* to *Sneha* (oil or ghee) during *Snehapaka* which is considered as waste and discarded. *Sneha Kalpana* is a type of dosage form which is extensively used in clinical practice and prepared on large scale production leading to formation of huge quantity of *Sneha Kalka*. This study is an attempt to convert this *Sneha Kalka* into a new dosage form i.e., Granules. In this study, the *Sneha Kalka* of *Ashwagandha Ghrita* was converted into *Ashwagandha* Granules. The resultant product was highly palatable and can act as a substitute to expensive malt based health drink powders.

Key words: *Khanda Kalpana, Avaleha, Ashwagandha, Sneha Kalka.*

INTRODUCTION

Upcycling of waste is the hottest trend considering the current scenario of humans taking earth towards destruction. Waste or industrial waste is generated in many forms which can be classified under biodegradable and non-biodegradable. Though biodegradable wastes are considered relatively non-hazardous, they still have their own disadvantages. One such biodegradable waste generated in Ayurveda pharmaceutical industries is *Sneha Kalka*.

This *Sneha Kalka* is a by-product formed due to addition of *Kalka* and *Drava Dravya* to *Sneha* (oil or ghee) during *Paka*. *Sneha Kalpana* forms a major

dosage form manufactured industrially and practiced widely due to its innumerable benefits. According to classical reference,^[1] 1/4th part of *Kalka* is added to 1 part of *Sneha* i.e., 250g for every 1000ml of *Sneha* and the quantity of *Drava Dravya* is 4 times to that of *Sneha* i.e., 4000ml to 1000ml of *Sneha*.

These *Drava Dravyas* (liquids) are mostly *Swarasa* (extracted juice), *Kashaya* (decoction), *Dadhi* (curd), *Takra* (buttermilk), *Ksheera* (milk) etc.^[2] While the *Swarasa* and *Kashaya* contribute to *Sneha Kalka* negligibly, the milk and milk products contribute a lot in increasing its weight. Hence, the initially added *Kalka* may gain upto 20% weight. And this entire volume of *Kalka* is discarded. Even in a small scale setup, for a batch of 5 Liter *Sneha* almost 1.25Kg of *Kalka* is generated and discarded as waste. This gets magnified for large scale preparations.

Since this *Sneha Kalka* consists of substances with medicinal value and is processed with *Sneha*, instead of wasting it, it can be used for preparation of other dosage forms. This study is an attempt in that direction.

Here, *Sneha Kalka* obtained after preparing *Ashwagandha Ghrita* was taken, added with sugar syrup to convert it into granules. Thus rendering them consumable as it is or as an additive to milk.

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Submission Date : 05/07/2018

Accepted Date: 15/08/2018

Access this article online

Quick Response Code



Website: www.jaims.in

DOI: 10.21760/jaims.v3i4.13304

MATERIALS AND METHODS

Ingredients

Table 1: Showing Ingredients of Ashwagandha Granules.

SN	Ingredient	Quantity
1.	<i>Sneha Kalka</i>	1 Part
2.	Sugar	4 Parts
3.	Water	Q.S. for <i>Paka</i>

Procedure

The classical method of preparing *Avaleha* was adopted^[3] and *Paka* was continued till the product turned into granules. The preparation was carried out under following steps;

- A. Preparation of Sugar Syrup
- B. Mixing of *Kalka* with Sugar Syrup
- C. Preparation of Granules

A. Preparation of Sugar Syrup

Sugar was added with water and heated on *Madhyamagni* till attainment of 1-2 thread consistency.

B. Mixing of *Kalka* with Sugar Syrup

To the prepared sugar syrup, the *Sneha Kalka* was added and mixed thoroughly. It should be ensured that the mixture is homogenous and no lumps are present. It is heated till *Avaleha Siddhi Lakshanas* appear.^[4]

C. Preparation of Granules

The heating is continued with constant stirring for 10 minutes. By then, the *Avaleha* turns into granules. It is then taken off the heat and allowed to cool. Then they are packed in air-tight containers.

DISCUSSION

As previously mentioned, *Sneha Kalka* can be a composition of multiple drugs. In this case, *Sneha Kalka* of *Ashwagandha Ghrita* is selected.^[5] It mainly

consists of remnants of *Ashwagandha* and *Ksheera*. Both these ingredients are told as *Rasayana* in Ayurveda classics.^{[6],[7]} Hence, this *Kalka* was selected for this dosage form. Granules are multifaceted dosage forms which can be mixed with milk and consumed or consumed as it is. The sugar content in granules renders it palatable.

One of the simplest methods of preparing granules is by heating the *Avaleha* further. This can be found in our classics in the form of *Khanda Kalpana*. Also, many of the *Rasayana Yogas* are administered in *Avaleha* form. Hence, this *Sneha Kalka* was converted into *Avaleha* and then to granules.

Acharya Sharangadhara mentions *Anukta Mana* for preparation of *Leha*.^[8] It can be inferred that this *Anukta Mana* is applicable while designing a new formulation because most of the classical formulations have their ingredient's quantities mentioned. In relation to this, the quantity of sugar was decided. For any *Avaleha* to be prepared, *Sneha* is an important constituent. Here, that was omitted because the *Kalka* itself was processed in *Sneha*. Hence, addition of extra *Sneha* is not necessary. Also, when we speak of upcycling it indicates towards the process of transforming by-products or wastes into new product of better quality with minimal investment. So, addition of *Ghrita* will mean unnecessary investment.

Ashwagandha, as such is a *Tikta Dravya*. Even after preparation of *Ghrita*, the *Ghrita* ends up tasting bitter. The *Sneha Kalka* obtained from it is also extremely bitter to taste. On addition of *Sharkara*, the bitterness of the drug reduces substantially rendering it palatable. Also, the *Sheeta Veerya* of *Sharkara* helps in balancing the *Usnatva* of *Ashwagandha*. Hence, this can also be given in children as a substitute for expensive malt based health drinks.

Also, to enhance the taste and acceptability ingredients like cocoa powder, vanilla essence etc. can be added to the preparation after the stage of granulation. There is a wide scope for exploration in this purview.

CONCLUSION

In an era where new medicinal plant is being added to the list of endangered species, this way of upcycling might be of tremendous help. The so prepared *Ashwagandha* granules are an efficient substitution because the *Sneha Kalka* formed out of *Sneha Paka* might retain certain amount of active principles making it beneficial. Also, since the waste is upcycled, the wastage of large quantities of *Dravya* is minimized and converted into new dosage form. As the saying goes "It's not about what it is, It's about what it can become". There is tremendous scope for further exploration and research in relation to waste management in the Ayurveda Pharmaceutical Industry.

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How to cite this article: Dr. Swathi R, Dr. Pooja Krishna Prasad, Dr. Sanketh V. Sharma, Dr. Rangrej Divya ManishKumar. Upcycling of Sneha Kalka - A Novel Design. J Ayurveda Integr Med Sci 2018;4:162-164. <http://dx.doi.org/10.21760/jaims.v3i4.13304>

Source of Support: Nil, **Conflict of Interest:** None declared.
