

Methods to Renovate Ayurveda Sastric Churna to Tablet Dosage Form



Amrutha Valli GV*, Aruna V and Gayathri R

Dr. JRK's research and Pharmaceuticals Pvt Ltd., India

Submission: March 20,2019; **Published:** April 04, 2019

***Corresponding author:** Amrutha Valli GV, Dr. JRK's research and Pharmaceuticals Pvt Ltd., No.18 & 19, Perumal koil street, Kunrathur, Chennai 600069, India

Abstract

The science of converting Sastric Ayurveda churna to tablet dosage form was extensively researched. The sastric form of Ayurveda churna is difficult to use by patients due to the coarse powder form as well as the high quantity to be consumed per dose (2-4gm). In order to enhance the acceptance of Ayurveda churna by the modern world necessary change in presentation packaging is needed. The question of how to convert 2gms of churna to 500mg of tablet requires greater scientific investigations and understanding. We have used the extractive value as the key determining factor to convert sastric Ayurveda churna to tablet dosage form. Details are presented in the paper.

Keywords: Ayurveda tablet; Aswagandhadi churna; Sitopaladi churna; Hinguvastaka churna; Avipatti churna; Nimbadi churna; Siva nili churna; Pushyanuga churna; Bhaskara lavana churna

Introduction

Ayurveda or knowledge of life is an extension of vedic way of life of our ancient sages and spiritual leaders. The Lord Dhanvantari is considered to be the god who gifted Ayurveda to humanity. Ayurveda in fact is considered as fifth Veda after Rig, Sama, Yagur and Atharvana Veda's. Ayurveda system predominantly emphasize upon the wellness, health, longevity and finally the eternal salvation of human soul and attainment of eternity. Therefore, preserving the health is the fundamental tenet of Ayurveda System of medicine. Although Ayurveda system is time tested and has surpassed all experimental science and remain as a glorious healing system. But in recent times, it suffers poor acceptance due to the primitive method of preparations followed. Further most of the products are crude and natural. The application of modern technology is necessary to 'pack and present' the Ayurveda drugs to the present world in order to increase the acceptance. However, such transformation should be done carefully in order to preserve the traditional and intuitive values of the system. Simultaneously the system also must be made acceptable to the modern world.

A thorough scientific understanding on the method of preparation and the presentation format of various Ayurveda drugs are essential and only than the 'native science' can be packaged and presented in modern format and can be made the glorious Ayurveda system as an eternal science of our spiritual masters. We Dr. JRK's Research and Pharmaceuticals Pvt Ltd., has been working for the last three decades to propagate the benefits of the Siddha system for the welfare of humanity. With

that understanding, we have made several efforts to revitalize the sastric Ayurveda churna's through changing the dosage form from the existing polyherbal churna form to easily consumable tablet dosage form. We have adopted the use of extractive value to equate the dosage justification from churna to tablet. We believe that our earnest effort would revolutionize the acceptance of Ayurveda system by the world at large and our yeomen effort shall benefit the humanity at large.

Materials and Methods (Table 1)

Calculation of extractive value of sastric Ayurveda drug [1-4]

For the calculation of extractive value 5gm of the sample was weighed accurately and was treated with 100ml of absolute alcohol in a clean conical flask of 250ml. the conical flask was covered and placed the mixture was kept in a rotary shaker at room temperature and was allowed to shake for 6hrs. After 6 hours the mixture was allowed to stand stationary for another 18hrs. Then the mixture was filtered, and the filtrate was evaporated. After complete evaporation of the solvent the residual extract was weighed accurately, and the percentage of extractive value was calculated by using the formula given below

$$\text{Extractive value (\%)} = \frac{\text{Weight of Residue}}{\text{weight of sample}} \times 100$$

Formulation of Tablet [5-12]

The conventional tablet base (Micro Crystalline Cellulose, Poly vinyl pyrrolidone and Magnesium stearate) was used. According to the extractive value of different Sastric Ayurveda

drugs, the tablet dosage form was prepared. For example, if the extractive value of Aswagandhadi choornam was 11% means, every 100gm would contain 11gm of extractable matter and the remaining portion would be fibers which in all likely hood may not have any therapeutic value. The therapeutic dosage

recommended for the Aswagandhadi choornam is 2gm. It means the 2gm of Aswagandhadi will have 220mg of extractable matter of various herbs. The tablet formulation was made with 80mg of the extractable matter of Aswagandhadi choornam presented in either 250 or 500mg of the base.

Table 1: The list of sastric churna studied.

Product	Ingredients	Dosage	Reference
Aswagandhadi churna	<i>Eclipta alba</i>	2-4gm per day	[5]
	<i>Mesua ferrea</i>		
	<i>Elleteria cardamomum</i>		
	<i>Piper nigrum</i>		
	<i>Piper longum</i>		
	<i>Zingiber officinale</i>		
	<i>Withania somnifera and Sugar</i>		
Sitopladi churna	Sugar	2-4gm per day	[6]
	<i>Bambusa arundinacea</i>		
	<i>Piper longum</i>		
	<i>Elettaria cardamomum</i>		
	<i>Cinnamomum zeylanicum</i>		
Hingvastaka churna	<i>Zingiber officinale</i>	2-4gm per day	[7]
	<i>Piper nigrum</i>		
	<i>Piper longum</i>		
	<i>Apium leptophyllum</i>		
	Rock salt		
	<i>Cuminum cyminum</i>		
	<i>Nigella sativa</i>		
	<i>Ferula Asafoetida</i>		
Avipatti churna	<i>Zingiber officinale</i>	2-4gms per day	[8]
	<i>Piper nigrum</i>		
	<i>Piper longum</i>		
	<i>Cinnamomum zeylanicum</i>		
	<i>Cinnamomum tamala</i>		
	<i>Elettaria cardamomum</i>		
	<i>Cyperus rotundus</i>		
	<i>Embelia ribes</i>		
	<i>Phyllanthus emblica</i>		
	<i>Operculina turpethum</i>		
	Sugar		
Nimbadi churna	<i>Andrographis paniculata</i>	2-4gms per day	[9]
	<i>Picrorhiza kurroa</i>		
	<i>Cyperus rotundus</i>		
	<i>Zingiber officinale</i>		
	<i>Piper nigrum</i>		
	<i>Piper longum</i>		
	<i>Wrightia tinctoria (seeds)</i>		
	<i>Plumbago zeylanica</i>		
	<i>Holarrhena antidysenterica</i>		

Siva nili churna	<i>Indigofera aspalathoides</i>	2-4gms per day	[10]
Bhaskara Lavana Churna	Common salt	3-6gms per day	[11]
	Black salt		
	Rock salt		
	<i>Coriandrum sativum</i>		
	<i>Piper longum</i>		
	<i>Piper longum root</i>		
	<i>Nigella sativa</i>		
	<i>Cinnamomum tamala</i>		
	<i>Mesua ferrea</i>		
	<i>Abies webbiana</i>		
	<i>Solena amplexicaulis</i>		
	<i>Piper nigrum</i>		
	<i>Cuminum cyminum</i>		
	<i>Zingiber officinale</i>		
	<i>Punia granatum</i>		
<i>Cinnamomum zeylanicum</i>			
<i>Elettaria cardamomum</i>			
Pushyanuga churna	<i>Cissampelos pareira</i>	2-4gms per day	[12]
	<i>Syzygium cuminii</i>		
	<i>Mangifera indica</i>		
	<i>Bergenia ciliata</i>		
	<i>Berberis aristata</i>		
	<i>Hibiscus sabdariffa</i>		
	<i>Salmalia malabarica</i>		
	<i>Rubia Cordifolia</i>		
	<i>Holarrhena antidysenterica</i>		
	<i>Crocus sativus</i>		
	<i>Aegel marmelos</i>		
	<i>Aconitum hetrophyllum</i>		
	<i>Symplocos racemosa</i>		
	<i>Pavonia odorata</i>		
	Red ochre		
	<i>Zingiber officinale</i>		
	<i>Madhuca indica</i>		
	<i>Vitis vinifera</i>		
	<i>Pterocarpus santalinus</i>		
	<i>Myrica esculenta</i>		
	<i>Oroxylum indicum</i>		
	<i>Wrightia tinctoria</i> (seeds)		
<i>Hemidesmus indicus</i>			
<i>Woodfordia fruticosa</i>			
<i>Glycyrrhiza glabra</i>			
<i>Terminalia arjuna</i>			

Results

Following table shows the extractive value of different Sastric Ayurveda drugs. The extractable matter present per 2gm of various Sastric Ayurveda drugs is also presented in the Table 2.

Aswagandhadi choornam

The extractive value of Aswagandhadi choornam was 11%. The recommended dosage of Aswagandhadi choornam is 2gm. In every 2grams of Aswagandhadi choornam will contain 220mg

of the extractable matter. To the tablet base of 250 or 500mg, 220mg of the extractable matter of Aswagandhadi choornam was incorporated and accordingly the tablet was made.

Sitopaladi Choornam

The extractive value of Sitopaladi choornam was 24 %. The recommended dosage of Sitopaladi choornam is 2gm. In every 2 grams of Sitopaladi choornam will contain 480mg of the extractable matter. To the tablet base of 250 or 500mg, 480mg of the extractable matter of Sitopaladi choornam was incorporated and accordingly the tablet was made.

Table 2: Extractive value of various Sastric Ayurveda products.

S. No	Product	Alcohol extractive value (%)	Quantity of extractable matter present per dosage (gm)
1	Aswagandhadi churna	11	0.22 per 2gm
2	Sitopaladi churna	24	0.48 per 2gm
3	Hinguvastaka churna	12	0.24 per 2gm
4	Avipatti churna	6	0.12 per 2gm
5	Nimbadi churna	23.47	0.469 per 2gm
6	Siva nili churna	3.2	0.064 per 2gm
7	Pushyanuga churna	3.5	0.07 per 2gm
8	Bhaskara lavana churna	14.4	0.432 per 3gm

Hinguvastaka churna

The extractive value of Hinguvastaka churna was 12 %. The recommended dosage of Hinguvastaka churna is 2gm. In every 2grams of Hinguvastaka churna will contain 240mg of the extractable matter. To the tablet base of 250 or 500mg, 240mg of the extractable matter of Hinguvastaka churna was incorporated and accordingly the tablet was made.

Avipatti churna

The extractive value of Avipatti churna was 6%. The recommended dosage of Avipatti churna is 2gm. In every 2grams of Avipatti churna will contain 120mg of the extractable matter. To the tablet base of 250 or 500mg, 120mg of the extractable matter of Avipatti churna was incorporated and accordingly the tablet was made.

Nimbadi churna

The extractive value of Nimbadi churna was 23.47%. The recommended dosage of Nimbadi churna is 2gm. In every 2grams of Nimbadi churna will contain 469mg of the extractable matter. To the tablet base of 250 or 500mg, 469mg of the extractable matter of Nimbadi churna was incorporated and accordingly the tablet was made.

Siva nili churna

The extractive value of Siva nili churna was 3.2%. The recommended dosage of Siva nili churna is 2gm. In every 2 grams of Siva nili churna will contain 64 mg of the extractable matter. To the tablet base of 250 or 500mg, 64mg of the extractable matter of Siva nili churna was incorporated and accordingly the tablet was made.

Pushyanuga churna

The extractive value of Pushyanuga churna was 3.5%. The recommended dosage of Pushyanuga churna is 2gm. In every 2 grams of Pushyanuga churna will contain 70mg of the extractable matter. To the tablet base of 250 or 500mg, 70mg of the extractable matter of Pushyanuga churna was incorporated and accordingly the tablet was made.

Bhaskara lavana churna

The extractive value of Bhaskara lavana churna was 14.4%. The recommended dosage of Bhaskara lavana churna is 3gm. In every 3 grams of Bhaskara lavana churna will contain 432mg of the extractable matter. To the tablet base of 250 or 500mg, 432mg of the extractable matter of Bhaskara lavana churna was incorporated and accordingly the tablet was made.

Discussion

We have explored a great scientific possibility to revive, rejuvenate and revitalize the Ayurveda system with the help of modern science and technology. We took utmost care to preserve the 'native-ness' of Ayurveda system while presenting the system to the modern world in modern format so that the ancient tradition and modern science dangle together harmoniously and thus Ayurveda system gains greater acceptance. Aswagandhadi churna, Sitopaladi churna, Hinguvastaka churna, Avipatti churna, Nimbadi churna, Siva nili churna, Pushyanuga churna and Bhaskara lavana churna are considered to be sacred Ayurveda drugs and are known to possess multipolar therapeutic benefits. Starting from providing health through improving digestion, appetite and assimilation to boost the immunity to cure certain

diseases are the attributes of the above Ayurveda drugs. However, the acceptance of the above recipes is highly limited to geriatric age group and those who suffer from various non-communicable diseases. Popular acceptance to all the above Siddha recipes is relatively poor.

All the above Ayurveda drugs are formulated in churna form where the different herbs are pulverized and then mixed together and then is prescribed to the patient. Consumption of 2gm of the crude herbal powder (the above recipes) is quite difficult and hence most patients seldom use these products. The issue of non-compliance due to the method of presentation i.e., crude mix greatly limit the acceptance of Ayurveda system and thereby Ayurveda system failed to gain appreciation from humanity and also the benefits of Ayurveda system to the humanity could not fully blossom. The Ayurveda drugs unless and until prepared, packed and presented in the most acceptable form, the Ayurveda system cannot be made glorious, nor the humanity would benefit from the Ayurveda system. A real tribute to the Ayurveda system lies in revitalizing the ancient concepts and recipes and presenting them in the modern format without losing the sanctity and sacredness Ayurveda system that was gifted to mankind by the Dhanvantari. We have used the extractive value to convert the above Ayurveda drugs to tablet dosage form. A careful analysis of different Ayurveda drugs has given us two dimensions of understanding viz., extractable constituents that was present and the residual base or vehicle. In the case of Aswagandhadi choornam, it contains 11 % of extractable matter. The balance 96% was herbal fiber and may not have any therapeutic value except acting as vehicle or base. So the real therapeutic benefit of Aswagandhadi choornam was achieved only from the 11 % of the extractable matter that is present. We have extracted the extractable matter and separated it from the herbal base. The extractable matter was reconstituted with the conventional tablet base at 11 % and thereby we ensured that every 250 or 500mg tablet of Aswagandhadi choornam is equivalent to 2gm of Aswagandhadi choornam in churnam form. The same method we followed for formulating all other sastric siddha recipes such as Sitopaladi churna, Hinguvastaka churna, Avipatti churna, Nimbadi churna, Siva nili churna, Pushyanuga churna and Bhaskara lavana churna but the extractive value of the respective recipe was used for the tablet formulation. Tablet dosage form is one of the most accepted drug dosage forms followed worldwide. The tablet base is composed of Microcrystalline cellulose which can be equated to the herbal fibers present in most of the siddha churna. However, Microcrystalline cellulose has got great compressibility which the herbal fibers lack greatly. Another advantage of Microcrystalline cellulose is that when the extractable matter is incorporated in the above base it would get released instantaneously whereas such spontaneous release of

extractable matter from the respective herbal sources is not that easy. Therefore, the tablet dosage form of all the sastric drugs are likely to offer faster therapeutic delight than when they are prescribed in the native form i.e., churna. We have attempted not only to present the sastric Ayurveda drugs in modern format but also worked hard to enhance the therapeutic benefit.

Patients must find the therapeutic benefit as quickly as possible and only then such recipes will be accepted by modern world and not just when they are presented in modern format alone. The licensing authorities must encourage, support and promote the modern methodologies and technologies to reformulate and present the siddha recipes to galvanize its acceptance and to gain siddha system a 'leader in health care' stature at global level. The native thoughts, concepts, ethos, beliefs, practices and drugs must be preserved while modernizing and only then Ayurveda system shall remain as Ayurveda system that was gifted to mankind by Dhanvantari and at the same time and the system also would look modern, scientific and acceptable. Dr. JRK's Research and Pharmaceuticals is a forerunner in popularizing the sastric system of the medicine, through advanced science and alleviating wide spectrum of agony and sufferings of humanity through Ayurveda and siddha treatment. The transformation of Ayurveda sastric churna to tablet dosage form would certainly enhance the scientific credence of the immortal, time tested healing practice – Ayurveda system of medicine.

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DOI: [10.19080/JCMAH.2019.09.555758](https://doi.org/10.19080/JCMAH.2019.09.555758)

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