Published online in http://ijam.co.in
ISSN: 0976-5921
International Journal of Ayurvedic Medicine, 2012, 3(1), 16-21

Standardization of Brahmi Ghrita with Special reference to Its Pharmaceutical Study

Research article

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Abstract

Brahmi Ghrita is a preparation of *Brahmi (Bacopa monneri), Vacha (Acorus calamus), Kushtha (Sassurea lappa), Shankhapushpi (Convolvulos pluricalis) and Purana Ghrita*. This preparation is used for the treatment of *Apasmara* and prepared by *Sneha Paka* process as mentioned in classical text books of *Ayurveda*. Three samples of this *Ghrita* were prepared and each sample of *Brahmi Ghrita,* containes *Brahmi* in *Swarasa* form as a *drava dravya*. *Kalka* was prepared with fine powder of *Vacha, Kushtha, Shankhapushpi* and *Brahmi* by triturating with *Brahmi Swarasa*. *Murchhana* of *Ghrita* was done as per procedure before using the *Ghrita* as *Sneha dravya*. By using all drugs, *Brahmi Ghrita* was prepared on mild heat for three day and during the manufacturing process temperature as well as *Siddhi lakashana* mentioned in Ayurveda was recorded.

Key words: *Brahmi Ghrita, Sneha Paka, Murchhana*

Introduction

Ayurveda is a science of living being. It describes various diseases including *Sharirik vyadhi* (Somatic disorders), *Manshik vyadhi* (Psychological disorders) and *Manshik- Sharirikvyadhi* (Psycho-Somatic disorders). Both types of disorders are also interchangeable and affect each other. In *Ayurveda, Manshika vyadhi* is described in the form of *Unmada* and *Apasmara. Unmada* is the disorder which occurs due to *Budhhi Vibhram [1]* and *Apasmara* is a type of disorder which occurs due to *Smriti parivarsan [2]*.Various single as well as compound formulations were described for the treatment of *Apasmara*. *Brahmi Ghrita* is an important formulation for the treatment of *Apasmara.* Different classical text books of *Ayurveda* mentioned different compositions of *Brahmi Ghrita. Hence in present thesis work a step is made to evaluate best formula of Brahmi Ghrita, which can be prepared in large scale manufacturing.* For present Pharmaceutical Study of *Brahmi Ghrita* we followed reference of *Charaka Samhita. Brahmi ghrita is* prepared with *Brahmi, Vacha, Kushtha, Shankhapushpi* and *Purana Ghrita [3*] (Old ghee) which is indicated for the treatment of *Apasmara* and *Graha* disorders.

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Materials and Methods

Fresh *Brahmi* plants were collected from *Ramanagar,Varanasi Distt (U.P). Vacha, Kushtha, Shankhapushpi* collected from local market of Varanasi and *Go-Ghrita* was procured from Jalan shop (A Local Market of Varanasi). All procedures were done in the Department of *Rasa*

Shastra, except preparation of *Brahmi swarasa* which was prepared in *Ayurvedic* Pharmacy, Institute of Medical Sciences, Banaras Hindu University, Varanasi. Then *Brahmi Ghrita* was prepared by *Sneha paka* process.

Murchhana of *Ghrita*

The purpose of *Murchhna* is remove its *Daurgandh, Ama Dosh* from the crude form of *go Ghrita***.** *Murchhana* of *Ghrita* was done with *Amalaki (Emblica officinalis), Vibhitaki (Terminalia bellirica), Haritaki (Terminalia chebula), Haridra (Curcuma longa), Musta (Cyperus rotundus)* and *Matulunga Swarasa* [4]*(*Detailes about quantity of each ingredient is mentioned in table1*). Amalaki, Vibhitaki, Haritaki, Haridra, Musta* are dried in sunlight till the material become moisture less form then this material was made in to fine powder form. After that, fine powder of above mentioned drugs were put in to *kharal (Mortar) and* appropriate quantity of *Matulunga swarasa (Fresh juice)* of *Matulung* was added. In order to start the process, the Ghrita is taken in to container and heated with mild temperature, then kalka and water were incorporated. Then the total mixture of material was processed over mild heat. During the heating process material is stirred continuously in order to avoid sticking of kalka to bottom of container and also avoid burning of kalka. Each day three hours heating process was done like this process was completed in three days. This *murchhita ghrita* was used in preparation of *Brahmi Ghrita.*

Preparation of Brahmi Swarasa

Brahmi Swarasa was prepared in Ayurvedic Pharmacy, IMS, Banaras Hindu University, Varanasi. First of all whole parts of fresh *Brahmi* plant were collected and washed with fresh water to remove clay and larger foreign material intact with plant material. Then with the help of sharp cutting instrument *Brahmi* plant material were cut in to small pieces. After cutting in to small pieces of *Brahmi* plant material, these small pieces of B*rahmi* were put in to End runner, plant material were crushed and made into *kalka* (paste). This *Kalka* was taken into new cotton cloth and compressed, to obtain the Brahmi *Swarasa* (juice).

Preparation of Kalka Dravya

Brahmi, Vacha, Kushtha and *Shankhapushpi were* dried in sunlight. When all plant material was dried, then fine powder of *Brahmi, Vacha, Kushtha* and *Shankhapushpi* is prepared separately with the help of mortar and pestle. After that, all ingredients were mixed with each other in *khalva yantra* and triturated with *Brahmi Swarasa.* In this way *Kalka (Paste)* was prepared.

Preparation of Brahmi Ghrita

Brahmi Ghrita was prepared with *Murchhita Ghrita*. First of all *Murchhita Ghrita* was heated on mild heat, when *Ghrita* was slightly warm then *Brahmi Swarasa* was added into it and mixed thoroughly, during mixing of *Swarasa* heating process was continued. Then *Kalka dravya* was added. After adding the *kalka dravya* continuous stirring of whole material was done.

In first day whole material was heated up to boiling for one hour, after that heating process was stopped on first day. In second day heating process was started again and heated for five hours after that, heating process was again stopped. In third day heating process again started and continued up to obtaining

Sneha siddhi lakashana like *varti-vat Sneha kalka (wick-like shape), sabdhino-agni nikshipto (does not produce crackling sound on fire)* etc. When *Sneha siddhi lakashana*[5] was obtained, then *Ghrita* was filtered with the help of cotton cloth. This filtered *Ghrita* was known as *Brahmi Ghrita*. Thus Brahmi *Ghrita* was prepared in three days of discontinuous heating [6]. In

Published online in http://ijam.co.in
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this way three samples of *Brahmi Ghrita* was prepared. (Details about quantity and temperature during pharmaceutical process mentioned in to table 3 and 4).

Observations

Initially 2.400 kg of Go- *Ghrita (Cows Ghee)* was taken for *Murchhana* process. After *Murchhana process* 2.250 kg of *murchhita Ghrita* was obtained. This 2.250 kg of *Murchhita Ghrita* was used for preparation of *Brahmi Ghrita. Brahmi Ghrita,* was prepared in to three batches, so that 2.250 kg of M*urchhita Ghrita was* divided in to three equal parts.0.750 kg of *murchhita Ghrita* was used for each batch of *Brahmi Ghrita* and 0.420 Kg, 0.520 Kg and 0.44 kg of *Brahmi Ghrita* was obtained respectively. Total duration of heating process required for preparation of *Brahmi ghrita* was 9.5, 10, 9.5 hours respectively. Total quantity of raw materials used in *Brahmi Ghrita* was 3 liters of *Brahmi swarasa,* 0.750 kg of *Murchhita Ghrita* and 120 mg of *kalka dravya* of *Brahmi, Vacha, Kushtha and Shankhapushpi*. Total quantity 1.385 kg of *Brahmi Ghrita* was obtained in all three batches (details are mentioned in table 3).

Table 1: Showing drugs used in *Murchhana* of Ghrita

	Ghrita	***Amla***	***Vibhitaki***	***Haritaki***	***Nagkesar***	***Haridra***	***Matulung Swarasa***	***Water***
Quantity	2.400 kg	100 gm	100 gm	100 gm	100 gm	100 gm	100 gm	-----
Quantity after drying/Squeezing	-----	90 gm (drying)	83 gm (drying)	78gm (drying)	87 gm (drying)	84 gm (drying)	60 ml Swarasa (Squeezing)	------
Quantity of powder	-------	85 gm	80 gm	70 gm	80 gm	78 gm	-----	-----
Quantity used	2.400 kg	38 gm	38 gm	38 gm	38 gm	38 gm	38 gm	9.12 liter

Table 2: Showing drugs used in Preparation of *Brahmi Ghrita*

	Ghrita	***Brahmi***	***Vacha***	***Kushtha***	***Shankhapushpi***
Quantity	2.250 kg	25 kg	100gm	100gm	100gm
Quantity after Squeezing and drying	--------	Swarasa 9 liter	89 gm	91 gm	86 gm
Quantity of powder	--------	--------	84 gm	82 gm	78 gm
Quantity used/Sample	0.750 kg	3liter *Swarasa,* 48 gm *(Kalka)*	24 gm	24 gm	24gm

Table 3: Showing details about pharmaceutical process of *Brahmi Ghrita*

Parameter	**Sample A**	**Sample B**	**Sample C**
Total weight of Raw Material	3 liter *(Swarasa)* + 0.870 gm (*Ghrita +Kalka*)	3 liter *(Swarasa)* + 0.870 gm (*Ghrita +Kalka*)	3 liter *(Swarasa)* + 0.870 gm (*Ghrita +Kalka*)

Temperature Outside the container	225 ^{0}C	230 ^{0}C	245 ^{0}C
Temperature inside the container	105 ^{0}C	107 ^{0}C	103^{0}C
Temperature of *Kalka* on 3rd day	93 ^{0}C	94^{0}C	93^{0}C
Weight of *Brahmi Ghrita*	420 gm	520 gm	445 gm
Weight of *Kalka dravya*	600 gm	510 gm	580 gm
Total duration of *Agni*	9.5 hrs	10 hrs	9.5 hrs

Table 4: Showing Break up of temperature given for three samples in three days

Days	Sample A	Sample B	Sample C
1st day	1.2 hrs	1.2 hrs	1.2 hrs
2nd day	3.6 hrs	3.6 hrs	3.6 hrs
3rd day	4.7 hrs	4.7 hrs	4.7 hrs

Discussion

Murchhana of the *Ghrita was done* for the removal of *Ama dosha* whichinhibit lipid per oxidation and incorporated antioxidant property for augmentation of medicinal properties of the medicated *Taila/Ghrita*[7,8]. *Ama* dosha may be considered as unwanted component among the raw *Ghrita*, like intermediate chemical constituents, dissolved gases, adulterants, plant toxins and moisture present in raw *ghrita* or developed due to long time storage. Murchhana helps in maintaining the necessary ratio of unsaturated and saturated fats suitable for human physiology. *Kalka dravya* was added after adding of *Swarasa* so that burning of *kalka dravya* will not takes place and active constituents of drugs will be protected destroyed.

Kalka dravya used for preparation was made in to fine powder so that maximum percentage of active constituents goes in to preparation. The weight of *kalka dravya* after preparation was increased and found 1690 gm. This increase the amount of *kalka dravya* due to absorption of *Ghrita* and *dravya dravya* used in preparation. Weight of *Brahmi ghrita* was decreased that of Puran Ghrita. From above it is clear that there was loss of *Ghrita* due to absorption of *Ghrita* by the *kalka dravya*. Preparation of Brahmi *Ghrita was done on madhyam agni* (Medium temperature) at high temperature *kalka dravya* will get burned because all liquid constituents will be evaporated early and no *drava dravya* was available for preparation. Due to these ayurvedic doctrines always advices to prepare *ghrita* preparation over medium temperature in order to incorporate maximum therapeutic properties in Brahmi *Ghrita.* The *Mridu paka* is indicates presence of moisture [10] in the *Kalka* (paste) of herbal drugs and is diagnosed physically by touch and molding into spindle shape (*Varti*) [11], it seems to be sticky in nature. In the

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ISSN: 0976-5921
International Journal of Ayurvedic Medicine, 2012, 3(1), 16-21

Madhyam paka, no moisture [12] remained in *Kalka* and can be easily molded into spindle shape, but in *Khara paka*, *Esat-kathin* appeared in the *Kalka [*13]. *Sneha Siddhi Lakshana* like *"Shabdasya uparame prapte"[14]* suggests reduction of water i.e. extent of moisture content. When water remains in the *ghrita* it produces the cracking sound and this sound disappears gradually after reduction of water. "*Gandhavarna rasadinam sampatau"* suggest that production of desired specific characteristics of odor, colour, and taste because of active constituents are transferred into the *ghrita* media. '*Phenashanti'[15]* and *'Viphena parichapalagata'*, specifically for *Ghrita* suggest that there is no production of any gases resultant into absence of frothing. When *kalka dravya* of *Sneha* was put on fire it does not produces any sound that indicate *kalka dravya* was devoid of moisture. If *kalka* produces any sound, when it is put on fire that indicates that, *kalka* is still having some quantity of moisture. When *kalka dravya* was put between two fingers and roll it, then it attains *varti* like shape that indicate proper sign of *Sneha paka*. During this stage the active component of *kalka* will properly assimilate in the *Ghee (Ghrita).*

Conclusion

In present research the formula of *Brahmi Ghrita* selected from the reference of *Charaka Samhita.* By following this formula three samples of *Brahmi Ghrita* were prepared. The quantity of *Ghee* and others raw materials were taken equally in all three samples (Sample-A, Sample-B, Sample-C) but the final yield of the *Brahmi Ghrita* was more in Sample-B. The total duration of the Temperature given to the container is more i.e. 10 hrs in Sample-B resulting in to low quantity of *kalka* with comparing to other two samples. The temperature observed within the *kalka* during the stage of *Siddhi lakshana* among all the three samples the Sample-B contains slight enhancement of Temperature i.e. 94 ^{0}C. Since all the observations of three samples (A, B, C) during the manufacturing process of *Brahmi ghrita* contains without much significant variation. Hence the average values of three samples are to be considered as a Pharmaceutical Standard Parameters of *Brahmi Ghrita*. This is also supported by further investigation conducted for three samples (A, B, C) in experimental models for nootropic activity (Efficacy study), toxicity study and analytical study by showing equally results in all the three samples.

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