



STANDARD MANUFACTURING PROCEDURE OF AJA PANCHAKA GHRITA

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ABSTRACT

There are many dosage forms described in Ayurveda by different Acharyas, *Sneha Kalpana* is one among them. *Sneha Kalpana* is widely described dosage form in Ayurvedic pharmaceuticals under which *Taila* and *Ghrita* are prepared. *Ghrita* alleviates *Pitta* and *Vata*, is beneficial for *Rasa*, semen and *Ojas*, cooling, softening and improves voice and complexion. *Aja Panchaka Ghrita* is prepared with five products of goat that are *Aja Ksheera*, *Aja Dadhi*, *Aja Ghrita*, *Aja Mutra* and *Aja Shakrita Rasa*. Ayurveda is expanding globally and scientists all over the world attracting towards Ayurveda. It is our prime duty to develop basic standards at every step of drug preparation. Some Ayurvedic practitioners are using *Ajapanchaka Ghrita* for the treatment of Tuberculosis. But there is no any scientific data regarding its SMP (Standard Manufacturing Procedure) and anti-tuberculosis effect. Treatment of any disease is depends upon quality and purity of the medicine. So in consideration of above all facts here *Aja Panchaka Ghrita* is to be taken to develop its SMP (Standard Manufacturing Procedure).

Keywords: SMP, *Sneha Kalpana*, *Ghrita Kalpana*, *Aja Panchaka Ghrita*

INTRODUCTION: Ayurveda is one of the oldest scientific medical systems in the world. Its history of origin started almost from *Vedic* period¹. Acharya Charaka had stated that the main aim of Ayurveda is the maintenance of homeostasis in the functioning of the body tissues². To fulfill the aforesaid aim, many dosages forms are described in Ayurveda, *Sneha* is one among them. *Sneha Kalpana* is widely described dosage form in Ayurvedic pharmaceuticals under which *Taila* and *Ghrita* are prepared. *Ghrita* is obtained from the class mammalian of the animal

Kingdom especially cow, buffalo, goat, sheep etc. *Ghrita* alleviates *Pitta* and *Vata*, is beneficial for *Rasa*, semen and *Ojas*, cooling, softening and improves voice and complexion^{3,4}. *Ghrita* preparations manufactured in Ayurvedic pharmaceuticals are used broadly for medicinal purposes. It is one of the eye catching techniques in Ayurvedic drug industry to achieve both fat soluble and water soluble extractives into the *Ghrita* media. *Aja Panchaka Ghrita* is prepared with five products of goat that are *Aja Ksheera*, *Aja Dadhi*, *Aja Ghrita*, *Aja Mutra* and *Aja Shakrita Rasa*⁵.

Aja Panchaka Ghrita is directly mentioned in Bhaishajya Ratnavali - *Rajyakshma Rogadhikara*.

Ayurveda is expanding globally and scientists all over the world attracting towards *Ayurveda*. It is our prime duty to develop basic standards at every step of drug preparation. Some *Ayurvedic* practitioners are using *Ajapanchaka Ghrita* for the treatment of Tuberculosis. But there is no any scientific data regarding its SMP (Standard Manufacturing Procedure) and anti-tuberculosis effect. Treatment of any disease is depends upon quality and purity of the medicine. So in consideration

of above all facts here *Aja Panchaka Ghrita* is to be taken to develop its SMP.

MATERIALS AND METHODS:

EQUIPMENTS:

1. Weighing machine:
2. S.S vessel:
3. Heating device:
4. Ladle:
5. Thermometer:
6. Pyrometer:
7. Cotton cloth:
8. Measure glass:
9. *Sandansh Yantra*:

Ingredients:

Table 1: Ingredients of Aja Panchaka Ghrita

Sr. No.	Name of the Ingredient	English name	Quantity ⁶
1	<i>Aja Ksheera</i>	Goat milk	1.0 L
2	<i>Aja Dadhi</i>	Goat curd	1.0 kg
3	<i>Aja Ghrita</i>	Goat ghee	250 g
4	<i>Aja Mutra</i>	Goat urine	1.0 L
5	<i>Aja Shakrit Rasa</i>	Goat feces	1.0 L

Aja Ksheera, *Aja Mutra* and *Aja Shakrit* were collected from goat nearby Bhavnagar Gujarat.

Aja Dadhi and *Aja Ghrita* were prepared from collected *Aja Ksheera*.

Aja Ksheera is having *Kashaya* and *Madhura Rasa*, *Grahi* and *Laghu Guna*, *Shita virya* and used as *Stanya*, *Satmya*, *Tridoshaghna*, *Shvasa*, *Kshaya*, *Kasa*, *Jvara*, *Raktapitta*, *Atisara*^{7,8}.

Aja Dadhi is having *Laghu Guna*, *Deepana Karma*, *Ushna Virya*, *Madhura Vipaka* and used in *Durnama*, *Kshaya*, *Shvasa*, *Kasa*, *Raktapitta* and *Tridoshaghna*⁹.

Aja Ghrita is having *Deepana*, *Balya*, *Chakshushaya Karma*, *Katu Vipaka* and used in *Kshaya*, *Shvasa*, *Kasa*, *Rajyakshma*, *Parikartika*, *Kapharsha* and *Kaphahara*¹⁰.

Aja Mutra is having *Kashaya Rasa*, *Tikshana Guna*, *Ushna Virya* and used in *Kasa*, *Shvasa*, *Kamala*, *Pandu*, *Gulma* and *Arsha*¹¹.

METHOD: Take *Aja Ghrita* in steel vessel and heat on fire to make it slightly warm. Add all the ingredients to it and start to heat on *Mandagni*. Continue the heating process approximately one hour for three days. On third day *Ghrita Paka* is done till *Sneha Siddhi Lakshanas* are achieved. As Par the reference of Sharangadhara Samhita *Madhyama Khanda ch1/9 Ghrita paka* should not be completed in one day done in three Days.

OBSERVATIONS:

- The colour of *Aja Ghrita* turned to dark green.

- *Vartivat Sneha Kalka Syad* and *Shabdahino Agni Nikshipta*
Angulyena Vimardita, Fenashanti were found present.

Table 2: Showing temperature pattern of flame and liquid media

Day	Time (min)	Temperature (⁰ C)					
		flame			Liquid media		
		Batch1	Batch2	Batch3	Batch1	Batch2	Batch3
1 st	0	45	46	41	29	31	31
	30	578	592	575	76	83	95
	60	564	567	579	78	77	76
2 nd	0	52	37	47	25	27	27
	30	574	584	579	78	75	81
	60	582	577	582	94	79	76
3 rd	0	41	53	47	25	27	23
	30	564	567	572	76	91	79
	47	435	-	-	64	-	-
	69	-	441	-	-	67	-
	58	-	-	425	-	-	71

Analysis:

Table 3: Showing details of Organoleptic Characters of Aja Panchaka Ghrita

Sr. No.	Parameters	Batch1	Batch2	Batch3
1	Colour	Dark Green	Dark Green	Dark Green
2	Appearance	Semi liquid	Semi liquid	Semi liquid
3	Touch	Smooth	Smooth	Smooth
4	Taste	Astringent	Astringent	Astringent
5	Odor	Characteristic	Characteristic	Characteristic

Table 4: Showing details of Physico-chemical analysis of Aja Panchaka Ghrita

Sr. No.	Parameters	Batch1	Batch2	Batch3	Average
1	pH	5	5	5.5	5.17
2	Specific gravity	0.921	0.925	0.918	0.921
3	Viscosity	1.042	1.030	1.060	1.044
4	Refractive index	1.346	1.378	1.456	1.393
5	Iodine value	20.153	21.589	19.563	20.435
6	Peroxide value	-	-	-	-
7	Acid value	59.489	59.205	61.293	58.329

Table 5: Showing details of Qualitative Phyto-chemical analysis of Aja Panchaka Ghrita

Sr. No.	Parameters	Batch 1	Batch 2	Batch 3
1	Starch	-	-	-
2	Fat and fixed oils	-	-	-
3	Alkaloids	+	+	+
4	Amino acids	-	-	-
5	Proteins	-	-	-

6	Saponin	-	-	-
7	Carbohydrates	-	-	-
8	Glycosides	-	-	-
9	Flavonoids	-	-	-
10	Tannins	-	-	-
11	Steroids	-	-	-
12	Triterpenoids	-	-	-

+ = Present and - = Absent

RESULTS: Table 6: Showing results of Aja Panchaka Ghrita

Sr. No.	Parameters	Batch1	Batch2	Batch3	Average
1	Heating duration (day)	03	03	03	03
2	Total duration (min)	167	189	178	178
3	Maximum temperature (⁰ C)	94	91	95	93
4	Average temperature (⁰ C)	77	78	80	78
5	Initial Quantity (g)	250	250	250	250
6	Yield/Final Quantity (g)	224	215	222	220
7	Loss (g)	26	35	28	30
8	Loss in (%)	10.4	14	11.2	12%

DISCUSSION: Here in preparation of Aja Panchaka Ghrita Aja Shakrita Rasa was taken as per the reference of Panchagavya Ghrita mentioned in AFI. Aja Shakrita Rasa is prepared by taking Aja Shakrita and Jala in ratio of 1:4 and grind it in khalva yantra. The kalka form is then squeezed in cotton cloth and the liquid portion is taken as Aja Shakrita Rasa.

Temperature pattern of heating flame and liquid media were recorded while the preparation of Aja Panchaka Ghrita at Starting and on every 30 minutes of time duration till Sneha Siddhi Lakshana on last day (Table 2).

Aja Panchaka Ghrita - It is having dark green in colour, semi liquid appearance, smooth touch, astringent taste and characteristic odour (Table 3).

Average pH of is 5.17, which shows that final product is having pH within the normal range. Average specific gravity of sample A is 0.921. Average viscosity of Sample A is 1.044. Average refractive index of sample A is 1.393.

Iodine value indicates the degree of unsaturation of ghee. Greater the degree of unsaturation greater will the possibility of the ghee become rancid due to atmospheric oxidation and lesser iodine value will the less possibility of rancid due to atmospheric oxidation. Average iodine value of sample A is 20.435. In Peroxide value the result were not found may be due to its very minute value which is beyond limit. Acid value indicates the amount of free fatty acids present in any substance Average acid value of sample A is 58.329 (Table 4).

Only alkaloids were found to be present in all the batches of Aja Panchaka Ghrita (Table 5).

The heating duration for preparation of each of these 3 batches was 3 days. Average total duration for all 3 batches was 178 minutes. Average of maximum temperature of liquid media was 93⁰C. The average temperature of liquid media found was 78⁰C. Average yield of Aja Panchaka Ghrita - Sample A was found 220 g from

250 g. Average loss was 30 g that is 12% of total Ghrita taken (Table 6).

CONCLUSION: Aja Panchaka Ghrita contains 5 products obtained from Aja and it is mentioned in Rajyakshma Rogadhikara in Bhaishajya Ratnavalli. In present study three batches of Aja Panchaka Ghrita were prepared to develop its SMP. Average yield obtained was 220g. This study can be used for manufacturing of Aja Panchaka Ghrita on large scale.

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Fig: 1- Preparation of Ajapanchaka Ghrita As par the reference of AFI



Boiling of Aja Ghrita



Addition of other ingredients



Filtration of Ajapanchaka Ghrita



**Mild heating till Sneha
Siddhi Lakshana achieved**