

STANDARDISATION OF KSHEERABALA TAILA

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ABSTRACT: Nowadays many drug industries are manufacturing a number of oil formulations and which are not assessable to know the specific Pakas (stage) of oil preparation. In Ayurveda five stages have been mentioned for medicated oils, these Ama, Mridu, Madhya Khara and Dadgha Paka, Medicated oils obtained by Mridu, Madhya Khara and Dadgha Paka, are considered to be of therapeutic value and are advocated for clinical usage but those obtained by Ama and Dadgha pakas are not recommended. Most of the pharmacies are marketing the oils only by name but are not mentioning the Paka. In order to standardize these pakas with scientific explanation a oil preparation called ksheerabala taila is selected for the study.

INTRODUCTION

Ksheerabala taila is one of the most popular oil preparations in Ayurveda and recognized as a very effective remedy for neurological disorders like facial paralysis, sciatica, hemiplegia, paraplegia, poliomyelitis and other such conditions. The name *Ksheerabala taila* was first mentioned in sahasra Yoga, an authentic Ayurvedic formulary of kerala. The similar preparation has been mentioned by almost all ancient Ayurvedic texts but with different names. Charaka mentioned as *Shatasahasra Pakabala Taila*¹, Sushruta mentioned as *Shata pakabala taila*² and Ashtanga hridaya mentioned as *Shatapaka- sahasrapakabala Taila*³ the ingredients of this preparation are *Ksheera* (Cow's milk), *Bala* (*sida cordifolia* Linn) and *Tila taila* (Sesame oil).

Cow milk contains all the elements necessary for the growth and nutrition of bones, nerves, muscle and other tissues of the human body. It is found that *S. cordifolia* contains alkaloids to extent of

0.085 per cent. The main portion of the alkaloid is identified to be ephedrine. Sesame oil contains a crystalline substance sesamin and phenol compound sesamol. Sesame oil is used as a base for oil preparation.

MATERIALS AND METHODS

Ksheerabala Taila was prepared as per reference from *Sahasra Yoga (Taila Adhikara, page 75)*. During the pharmaceutical process at different stages viz *Ama Paka, Mridu Paka, Madhya Paka, Khara Paka* and *Dagda Paka* different samples were collected and named as sample 2, sample 3, sample 4, sample 5 and sample 6 respectively. And the temperatures at these different stages were recorded (Table I) We also collected untreated base oil (Sample I) for the comparative study. Physical characteristics like specific gravity, refractive index of all samples (I-VI) were determined as described in Indian

pharmacopoeia⁴. Chemical characteristics like acid value, saponification value, iodine value and unsaponifiable matter of all samples (I-VI) were determined according to standard methods⁵. The results of the all above findings are furnished in Table I.

T.L.C of unsaponifiable matter of Sesame oil and *Ksheerabala Taila*

In order to ascertain whether any plant constituent other than fats has been transferred to the medicated oil from the drugs during processing the unsaponifiable matter of sesame oil as well as of medicated oil (*Madhya paka*) were chromatographed over TLC plates, the plates were developed with benzene ethylacetate (2:8) and both the chromatograms were sprayed with Liberman-buchardt reagent for visualisation of the spots, the chromatograms were developed by benzene ethylacetate (2:8) was

better resolved and the spots of the medicated oil were found to be identical with those of sesame oil. It was thus not possible to detect the presence of any additional constituent in the unsaponifiable matter, It was inferred that active constituent if any transferred to the medicated oil is present only in traces, and not detectable by TLC analysis without prior fractionation with large quantities of materials.

Detection of presence of Sesame oil in *Ksheerabala Taila*

2.ml. of the oil was shaken with 1 ml of hydrochloric acid containing 1 per cent W/W of sucrose, and allowed to stand for five minutes when the acid layer acquired a pink colour. The test is characteristic of sesame oil and confirms its presence is *Ksheerabala taila*.

Table 1
PHYSICO-CHEMICAL SHARACTERS OFDIFFERENT STAGES OF OIL PREPARATIONS

Sl No	Parameters	Sample _I (Base oil)	Sample _II (<i>Ama paka</i>)	Sample _III (<i>Mridu paka</i>)	Sample _IV (<i>Madhya paka</i>)	Sample _V (<i>Khara paka</i>)	Sample _VI (<i>Dagdha paka</i>)
1	Temp (°C)	-	60-62	97-98	98-99	105-106	180-190
2	Colour	Pale Yellow	Oily milk	Yellow	Deep Yellow	Deep Yellow	Deep Yellow
3	Appearance	Viscous	Bit Viscous	Viscous	Viscous	Viscous	Less Viscous
4	Touch	Oily	Oily water	Oily	Oily	Oily	Oily
5	Clarity	Clear	Tubidity	Clear	Clear	Clear	Clear
6	Teste	Slight bitter	Bitter	Bitter	Bitter	Bitter	Bitter
7	Opalescence	Translucent	-	Translucent	Translucent	Translucent	Translucent
8	Sp. Gravity	0.83	0.95	0.84	0.83	0.83	0.83
9	Refractive Ind at 40OC	1.4719	1.4695	1.4700	1.4725	1.4710	1.4705
10	Acid value Mg/gm	4.85	17.17	8.69	9.36	9.62	9.08
11	Sap value	168.56	108.01	171.44	174.48	187.34	194.06

	Mg/gm						
12	Iodine value	76.70	25.98	79.65	75.61	73.44	73.60
13	Unsap matter % W/W	1.44	1.69	1.49	1.51	1.59	1.45

Spectrophotometric Analysis

The absorption characters of the oils in the visible and ultraviolet region of spectrum were studied. A 10% solution of the oils in cyclohexane were nearly transparent in the visible region of the spectrum. A weak absorption maximum was discernible around 675 nm. In almost all the samples including the non- medicated oil. In *Dagdha paka* oil, this peak was very weak.

In the ultraviolet region, however all the samples showed two distinct absorption maxima at 287 and 233 nm. This spectrum resembles that of sesamin and sesamol, the lignans known to be present in sesame oil. In *dagdhapaka* oil the high wavelength peak is rather flat indicating partial decomposition of this lignans.

RESULTS AND DISCUSSION

In the present study *Ksheerabala Taila* was prepared according to reference mentioned in sahasra Yoga. During pharmaceutical process at different stages viz., *Ama paka*, *Mridu paka*, *Madhya paka*, *Khara paka*, *Dagdha paka* different samples were collected and physico-chemical characteristic were determined. The sample of untreated oil (sesame oil) was also collected for comparative study. The specific ability of the oil remains virtually unaltered on medication. A rise in the value in sample 2 is obviously due to presence of moisture, incorporated by addition of a large quantity of milk. As the moisture escapes by heating, the value drops down in sample 3 and becomes the same as the untreated oil in

samples 4-5 (table 1). The refractive indices of medicated oils (Samples 2-6) fairly close with that of untreated oil (sample 1). The value is highest *Madhya paka* oil (Sample 2) (Table 1). The acid value was found to be between 8.5-9.6 in the finished products other than *Ama paka* preparation, in which the value was rather high presumably due to the presence of acidic constituents from the milk and or from the drug. The value drops down on further heating either due to removal of volatile fatty acids incorporated from milk or due to the decomposition of other acidic constituents (Table 1). The higher saponification value of medicated oils other than sample 2 is probably due to the incorporation of milk fat in the oil and progressive rise of this value with prolonged heating is due to removal of moisture and other non-fatty volatile compounds. Low value of sample 2 is due to the presence of milk (Table 1). The iodine value of finished products other than *Ama Paka* preparation are very close to that of the base oil and the value progressively decreases with increased heating process obviously due to breakdown or oxidation across the double bonds of unsaturated fat. The low value in sample 2 is also due to the presence of milk (Table 1). The percentage of unsaponifiable matter is different oils are also shown table I.

From this study it was observed that the degree of heat effects physical and chemical constants of *Ksheerabala taila* such as specific gravity refractive index acid value, saponification value, iodine value etc. These values differ widely in the preparation

of different stages (Table I). the results of thin layer chromatography of different samples of oil, did not give any difference. The visible and ultraviolet spectral studies

reveal that there is no particular finding found in the different stages of *Ksheerabala taila*.

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