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EFFECT OF MURCHANA ON KAMPILLAKADI TAILA: A COMPARATIVE STUDY

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ABSTRACT

Sneha kalpana is one among the upakalpana of Bhaishajya Kalpana that deals with the preparation of medicated ghrita and taila. Murchana is a procedure explained in Bhaishajya Ratnavali as a pre-requisite of sneha paka. It helps in the enhancement of appetite of drug absorption of sneha which may help in the extraction of more active principle. Kampillakadi taila is a formulation mentioned for the treatment of vrana. The amount of ingredients were taken according to samanyaniyama of snehapaka and pakalakshanas were accessed. The present study was an attempt to compare the properties of murchita and amurchita kampillakadi taila. Physico-chemical evaluation and HPTLC analysis of the formulation was also carried out. Specific gravity revealed addition of active constituents in taila, which was greater in murchita sample. Refractive index of both samples remained same. LOD showed more moisture content in murchita sample. Result of acid value, iodine value and saponification value show increase in unsaturation in the amurchita sample. Peroxide value was found higher in amurchita sample. HPTLC analysis showed the presence of same peaks in all the samples. Some additional peaks were also found in the sample prepared with murchita taila. From this study we may conclude that Murchana samskara of sneha has high significance in establishing stability of product for better therapeutic efficacy.

Keywords: Sneha kalpana, murchana, Kampillakadi taila

INTRODUCTION

Bhaishajya kalpana is an integral part of Ayurveda which deals with the preparation of various herbal and herbo-mineral formulations. Sneha kalpana is included as a secondary preparation. It gained importance owing to its longer shelf life, ability to enhance drug absorption and its mode of administration- both internally and externally. Sneha kalpana holds a unique position due to its ability to imbibe water soluble and fat soluble active principles¹. Different crude oils like tilataila (Sesame oil), Erandataila (Castor oil), Katutaila (Mustard oil) etc serve as a base. Murchana is a samskara explained in Bhaishajya Ratnavali for crude oils before the preparation of medicated oils². It is a process adopted to enhance the potency and for the removal of ama and gandha dosha³. Sneha Murchana increases the capability of oil to receive more active principle and thereby increasing its potency⁴. It also increases the stability of medicated oils.

In the present study, two samples of Kampillakadi taila are prepared – One with amurchita tila taila as a base and another with Murchita tila taila. Both the samples were subjected to various physico-chemical analysis for the purpose of understanding the efficacy of murchana.

MATERIAL AND METHODS

AIM

To compare pharmaceutico-analytically Murchita Kampillakadi taila and Amurchita Kampillakadi taila.

OBJECTIVES

- To carry out murchana of plain tila taila.
- To prepare Kampillakadi taila with Murchita tila taila and Amurchita tila taila.
- Analytical evaluation of Murchita and Amurchita Kampillakadi taila.

MATERIALS

All the ingredients were collected and authenticated by botanist for its genuinity.

METHODS

PHARMACEUTICAL STUDY

3 batches of Kampillakadi taila with Murchita tila taila and 3 batches with Amurchita tila taila were prepared for the study.

Murchitatilataila was prepared⁵. 6000ml of tila taila was taken, added with 1321.5g ingredients mentioned in table 1 and 24000ml of water. Heating was carried out in mandagni for 24 hours and 5200ml of Murchita tila taila was obtained. It was used as a base for the preparation of 3 batches (M1, M2 and M3) of Murchita Kampillakadi taila with 1500ml each.

Table 1: Showing ingredients of tilatailamurchana

Sl.no	INGREDIENT	LATIN NAME	AMOUNT	QUANTITY TAKEN
1	Manjishta	Rubiacordifolia	1/16 part	375g
2	Haridra	Curcuma longa	1/64 part	93.75g
3	Lodra	Symplocosrecemosa	1/64 part	93.75g
4	Musta	Cyperusrotundus	1/64 part	93.75g
5	Nalika	Nelumbonucifera	1/64 part	93.75g
6	Haritaki	Terminaliachebula	1/64 part	93.75g
7	Vibhitaki	Terminaliabellerica	1/64 part	93.75g
8	Amalaki	Emblicaofficinalis	1/64 part	93.75g
9	Ketaki	Pandanustectorus	1/64 part	93.75g
10	Hribera	Plectranthusvettiveroides	1/64 part	93.75g
11	Vatangura	Ficusbegalensis	1/64 part	93.75g

Each batch of Murchita Kampillakadi taila⁶ was added with 375gms (1/4th part) of Kalka dravya having ingredients mentioned in table 2 and 6000ml of water. (As the ratio of kalka, taila and dravadravya is not mentioned in the formulation, ingredients were taken

according to samanyaniyama of snehakalpana). Heating process was carried out in mandagni for around 20 hours. Heating was continued till the attainment of samyakpakalakshana of taila⁷. The prepared taila was then filtered through a clean cloth and stored in clean airtight glass containers. Sarja was added after filtration as patra paka⁸.

Similarly 3 batches (A1, A2 and A3) of Amurchita Kampillakadi taila was prepared with 1500ml each of plain tila taila using 375gms of the same ingredients mentioned in table 2 and 6000ml of water.

Table 2: Showing ingredients of Kampillakaditaila

Sl.no	INGREDIENT	LATIN NAME	AMOUNT	AMOUNT TAKEN
1.	Kampillaka	Mallotusphilippensis	1/4 th part	20.83g
2	Kutaja	Holarrhenaantidysentrica		20.83g
3	Haritaki	Terminaliachebula		20.83g
4	Vibhitaki	Terminaliabellerica		20.83g
5	Amalaki	Emblicaofficinalis		20.83g
6	Bala	Sidacordifolia		20.83g
7	Patola	Tricosanthesdioica		20.83g
8	Nimba	Azadirachtaindica		20.83g
9	Lodra	Symplocosrecemosa		20.83g
10	Musta	Cyperusrotundus		20.83g
11	Priyangu	Calicarpamacrophylla		20.83g
12	Khadira	Acacia Catechu		20.83g
13	Dhataki	Woodfordia floribunda		20.83g
14	Sarja	Shorearobusta		20.83g
15	Ela	Elettariacardamomum		20.83g
16	Vidanga	Embeliaribes		20.83g
17	Agaru	Aqualariaagollacha		20.83g
18	Chandana	Santalam album		20.83g



FIGURE1: Showing different stages of preparation of taila

ANALYTICAL STUDY

To study the effect of murchana samskara on taila, all the samples were analysed to obtain parameters such as specific gravity⁹, Refractive index¹⁰, Loss on drying¹¹, Acid value¹², Saponification value¹³ and Peroxide value¹⁴ were done as per the standard procedures of

API. HPTLC¹⁵ analysis of all the prepared samples, murchita tila taila and plain tila taila were also performed.

HPTLC ANALYSIS

HPTLC (High Performance Thin Layer Chromatography) of Plain tila taila, Murchita tila taila, three samples of Murchita Kampillakadi taila and three samples of Amurchita Kampillakadi taila were carried out. The specification of the procedure done is as mentioned below:

Spot	Plate
1st	A 1
2nd	A 2
3rd	A 3
4th	M 1
5th	M 2
6th	M 3
7th	PT
8th	MT

Stationary Phase:

Plate size: (X x Y) 15.0 x 10.0cm

Material: HPTLC Plates silica gel 60 F 254

Manufacturer: E.MERCK KGaA

Sample application-CAMAG Automatic TLC Sampler 4 (ATS4)

Sample solvent type: Methanol

Application volume: 5.0 µl

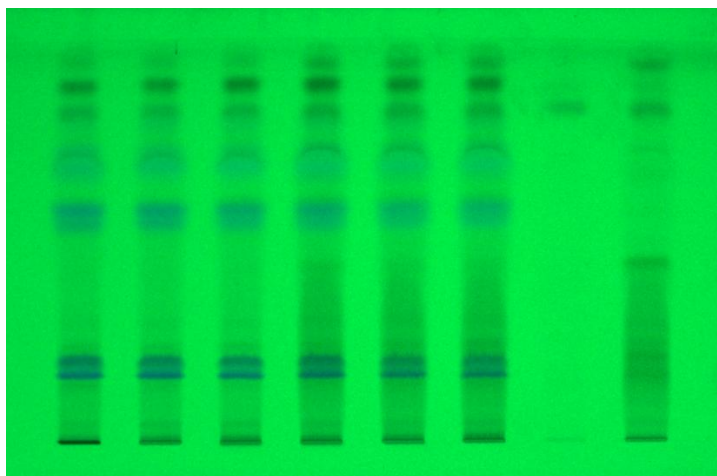


FIGURE 2: HPTLC at 254nm

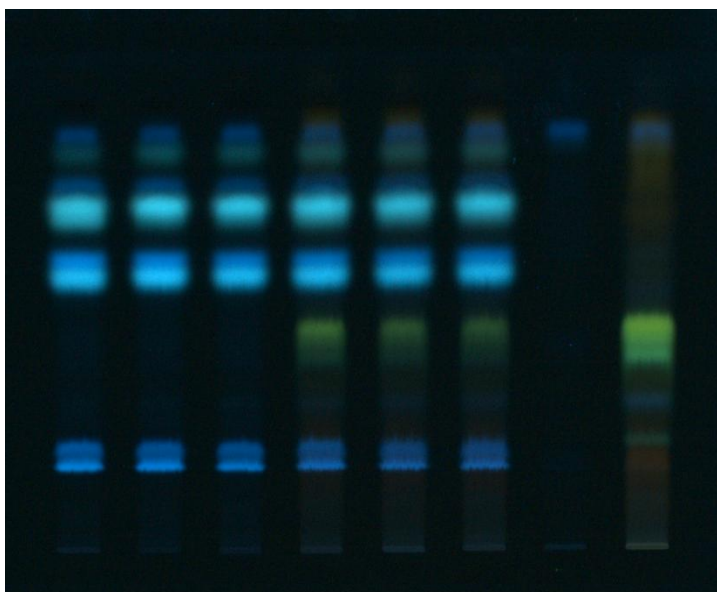


FIGURE 3: HPTLC at 366nm

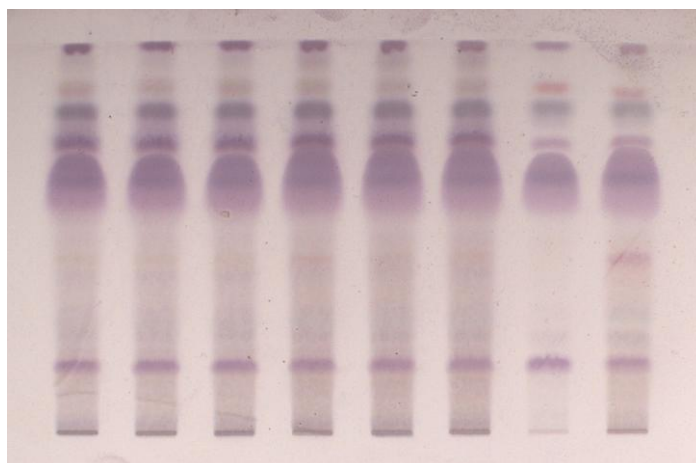


FIGURE 4: HPTLC Visible

Table 3: Showing organoleptic characters of all samples

Sl no.	Sample	Colour	Odour	Taste
1	PT	Golden yellow	Characteristic	Characteristic
2	MT	Reddish	Characteristic	Characteristic
3	M1	Dark reddish brown	Pleasant	Bitter(++)
4	M2	Dark reddish brown	Pleasant	Bitter(++)
5	M3	Dark reddish brown	Pleasant	Bitter(++)
6	A1	Golden brown	Pleasant	Bitter(+)
7	A2	Golden brown	Pleasant	Bitter(+)
8	A3	Golden brown	Pleasant	Bitter(+)

Table 4: Showing results of analytical study

Sample name	Refractive index	LOD	Specific gravity	Iodine value	Acid value	Sap value	Peroxide value
PT	1.462	0.1262	0.9142	85.78	4.11	187.24	4.18
MT	1.462	0.1272	0.9114	92.82	5.13	187.45	4.11
M1	1.472	0.2525	0.9214	104.34	2.51	200.29	0.8783
M2	1.472	0.2623	0.9200	104.59	2.52	200.16	0.8814
M3	1.472	0.2542	0.9204	104.56	2.51	200.17	0.8753
A1	1.472	0.2369	0.9149	133.91	11.64	238.83	1.0850
A2	1.472	0.2385	0.9179	133.92	11.64	239.41	1.0854
A3	1.472	0.2489	0.9184	134.30	11.65	239.27	1.0848

OBSERVATIONS AND RESULTS

The observations of organoleptic characters is shown in table 3 and the results of analytical study of all the samples, murchita tila taila and plain tila taila is shown in table 4

DISCUSSION

Pharmaceutical study:

Pharmaceutical study is inevitable as it covers a wide range of scientific disciplines that are important in the discovery and development of new drugs. Murchana was selected as to compare and evaluate the difference in properties of murchita taila and amurchita taila.

Analytical Study:

The specific gravity indicates the presence of solute in a solvent. The specific gravity was found to be maximum in Murchita Kampillakadi taila. This may be due to more number of drugs used for the preparation. Amurchita Kampillakadi taila samples showed lower values of Specific gravity. It may be due to less number of drugs used for the preparation. All the samples show same values of refractive index. It is slightly higher than Plain tila taila. This may be due to the presence of active ingredients in taila from the ingredients. Loss on drying indicates the amount of moisture content in a sample. Higher the value, higher is the chances of rancidity. Murchita Kampillakadi samples showed a little more LOD value as compared to Amurchita Kampillakadi taila. The acid value is the measure of free fatty acid groups in a chemical compound. The free fatty acids are responsible for rancidity of taila. The acid value is used to quantify the amount of acid present. This study shows the acid value of the sample prepared with Amurchita tila taila is more compared to the sample prepared with Murchita tila taila. Iodine value is useful in the determination of quantity of iodine number, which is a measure of degree of unsaturation of fat. The more iodine value, the more unsaturated fatty acid bonds present. The iodine value of samples of Amurchita Kampillakadi taila was found to be higher when compared to that of Murchita Kampillakadi taila. Saponification value: The amounts of alkali needed to saponify a given quantity of fat depend upon the number of COOH group present. The long chain fatty acids found in the fats have low saponification value because they have relatively fewer number of carboxylic

functional group per unit mass of the fat as compared to short chain fatty acids. Medicated oils with high saponification value will be absorbed easily. In this study, the Kampillakadi taila sample prepared with Amurchita tila taila shows higher saponification when compared to that prepared with Murchita tila taila. The peroxide value of an oil is used for the measurement of the extent to which rancidity reactions have occurred in a sample. The peroxide value of samples of Kampillakadi taila prepared with Amurchita tila taila showed a higher value when compared to that prepared with Murchita tila taila. HPTLC gives the knowledge regarding the components of the formulation. The prepared samples were subjected to HPTLC fingerprinting at different wavelengths. The samples of Murchita Kampillakadi taila and Amurchita Kampillakadi taila gave same peaks. Some additional peaks were found in Murchita Kampillakadi taila which had similar R_f values of Murchita tila taila.

CONCLUSION

Pharmaceutical study of all the samples does not show much difference. The yield obtained and the time taken for the preparation didn't show much variations.

Comparing the organo-leptic characters, the sample prepared with murchita tila taila appeared bitterer in taste and reddish in colour. Specific gravity of murchita Kampillakadi taila was more. This may be due to the addition of more active constituents to the taila. The sample prepared with murchita tila taila showed lower acid value which shows its more stability than the other sample. The saponification value of Amurchita sample is higher than sample prepared with Murchita tila taila. The result of peroxide value is higher in amurchita sample which suggest a greater chance of rancidity. HPTLC results shows some additional peaks suggestive of presence of more active compounds in the sample prepared with murchita tila taila. From this study we may conclude that Murchana samskara of sneha has high significance in establishing stability of product for better therapeutic efficacy.

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