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A COMPARATIVE PHARMACEUTICO ANALYTICAL STUDY OF *TILA TAILA MURCHANA* W.S.R. TO *PARINATAKERIKSHEERADITAILA*-AN AYURVEDIC FORMULATION

K.S.Manjunatha[1] Gowda Shankar [2]

[1]PG Scholar, T.G.A.M.C Ballari, Karnataka

[2]Professor and Head of Dept of RS & BK Taranath Government Ayurvedic Medical College, Ballari, Karnataka.

ABSTRACT

Tailakalpana is one of the important *kalpana* of *Bhiashajyakalpana* which are used in preserving of lipid soluble constituents of raw drugs for a longer duration,*Taila kalpana* finds a very important place in the *Ayurvedic* therapeutic procedures ranging from clinical dispensing to IPD procedures, *taila's* have become one of the important part of prescription in curing various diseases. *Parinatakeri ksheeradi Taila* is a *taila kalpana* explained in *Sahasrayoga* is a unique *taila* preparation prepared out of *Narikela ksheera, jambeera phalodaka, murchitatila taila, haridra kalka* and *sarja rasa*. Mainly indicated in *Avabahuka roga* as *bahiparimarjana chikitsa*. Here an attempt has been made to prepare *Parinatakeriksheeraditaila* in pharmacy after performing *Tilataila murchana* and later subjected both MT *taila* and PKK *Taila* to analytical study to know the physical and changes.

Key words-*Tailakalpana, Murchitatilataila, Parinatakeriksheeraditaila*.

INTRODUCTION: The main aims and objectives of Ayurveda are maintaining the positive health and curing the disease. The success of any *Bhishak* finally lies upon the quality of the medicine *(Bheshaja*) .This concept gave rise to a new branch – *Bhaishajya kalpana*-an Ayurvedic pharmaceutical science. In *Ashtangas* of *Ayurveda* , *Bhaishajya kalpana* was not mentioned as an independent branch. But it holds an important place in all the spheres of this science. No branch of *Ayurveda* can exist independently without the aid of *Oushadhas* or *Bheshaja*. *Pancha vidha kashaya kalpanas* are considered as the base of all these formulations. They are *Swarasa, Kalka, Kashaya, Hima & Phanta*. In addition to these other preparations like *Avaleha kalpana, Vati kalpana, Snehakalpana, Sandhana kalpana* etc are also mentioned in *Ayurvedic* classics. *Sneha kalpana* play an important role in the treatment aspects of *Ayurvedic* science. It is the process where the active principles of the drugs are transferred in to *sneha. Ghrita, Taila* or such other fatty substances are used here as base. This *kalpana* helps to obtain the extra benefits of the *Ghrita* or *Taila* used, helps to preserve the drugs for the longer time. It also enhances the absorption of the drugs. Various *Ghritas* and *tailas* have been mentioned as medicine in many diseased conditions.

Taila murchana is one such procedure which removes *Ama* and *Dourgandhyata* from *Taila*. Even though the *Moorchana* procedure is not mentioned in *Samhita Granthas*. Later *granthas* like *Bhaishajya Ratnavali* have specific information on the *Moorchana* procedure.

Parinatakeri ksheeradi taila is a unique formulation explained in *Taila prakarana* of *Sahasrayoga* containing *Haidra kalka, Sarja rasa, Murchita tila taila, Narikela*

ksheera, Jambira phalodaka. Mainly indicated in *Avabhuka*.

AIM AND OBJECTIVE

AIM: Pharmaceutico-Analytical study of *Parinatakeriksheeradi Taila*

OBJECTIVES:

- *Tilataila murchana* according to classics.
- Preparation of *ParinatakeriksheeradiTaila* according to the classical reference.
- To carryout Physico-chemical analysis of *Murchita tila taila* and *Parinatakeri ksheeradi Taila*.

MATERIALS AND METHODS

MATERIALS

1) Raw drugs – major and and associated raw drugs

***Table No 1* Raw drugs for *tila taila murchana*[1]**

Ingredient	Botanical name	Useful part	Quantity
Tilataila			6000 ml
Jala			24000 ml
Manjishta	*Rubia cordifolia*	Root	375 gm
Haridra	*Curcuma longa*	Rhizome	93.75 gm
Lodhra	*Symplocos racemosa*	Stem bark	93.75 gm
Bala	*Sida cordifolia*	Root	93.75 gm
Nalika	*Cinnamomum tamala*	Stem bark	93.75 gm
Amalaki	*Emblica officinal*	Pericarp	93.75 gm
Haritaki	*Terminalia chebula*	Pericarp	93.75 gm
Vibhitaki	*Terminalia bellirica*	Pericarp	93.75 gm
Ketaki	*Pandanus odoratissimus*	Root	93.75 gm
Vataankura	*Ficus bengalensis*	Leaf bud	93.75 gm
Musta	*Cyperus rotundus*	Rhizome	93.75 gm

Raw drugs for preparartion of *Parinatakeriksheeraditaila*[2,3] **Table No 2**

Ingredient	Botanical name	Useful psrt	Quantity
Haridra	*Curcuma longa*	Rhizome	500 gm
Sarja rasa	*Vateria indica*	Exudate	500 gm
Murchitatilataila			4,000 ml
Narikelaksheera	*Cocos nuciera*	ksheera	8,000 ml
Jambeeraphalodaka	*Citros lemon*	Fruit	8,000 ml

2) Equipments – major and associated equipments Stainless steel vessel, Long ladle, stove, mixer, seiver, cloth.

Selection of genuine raw drugs : In this Raw material *Sarja rasa* is subjected to analysis according to Standard reference by following methods.

1) **Macroscopic**

Table :3 Tests for selection of genuine Sarja rasa.

Sl.No	Qulaities	Sample-1	Sample-2	Sample-3
01.	Rough	+ + +	Smooth	+
02.	Solid	+ +	Slightly granular	+ +
03.	Brittle masses	+ +	+	+

04.	Colour-Light yellow to pale yellow in colour	Light yellow	Light yellow	Light yellow
05.	Odour – Fragrant	+ +	+ + +	+
06.	Taste – Tastless	Tastless	Tastless	Tastless

1) Chemical test to identify genuine *Sarja rasa* Solubility[4] :Dissolves entirely and gives a dense red colour with concentrated Sulphuric acid.

Table :4 Chemical Tests for selection of genuine *Sarja rasa*[5]

	Sample No.1	Sample No.2	Sample No.3
Sarja rasa+H_2so_4	Light red colour	Dissolved completely and dense red colour	Light red and did not dissolve completely

Sample 2 was selected as genuine raw drug depending upon the basic tests performed in Analytical laboratory of Taranath Government Ayurvedic Medical College, Ballari.

Method :

1) Tilatailamurchana

Procedure[6] : Quantity mentioned *tilataila* was taken in wide mouthed stainless steel vessel, it was kept over gas stove and fire was ignited and allowed to heat over *mandagni*, it was allowed to heat till appearance of foam and later fire was put off. After cooling of *tilataila*, *kalkadravya's* were added one by one and continuous stirring was done, it was followed by adding of mentioned quantity of *dravadravya (jala).*

Frequent stirring was done to allow proper mixing of *kalkadravya* and *taila*, Procedure was carried out for span of 3 days till obtaining *siddhi lakshana*'s and *Taila* was squeezed out of *kalkadravya* when it was luke warm with the help of cloth to avoid much loss.

Total duration – 17 hours 25 mimutes

Table 5 Showing result of *Tilataila murchana*

Taila taken	6000 ml
Taila obtained	5240 ml
Loss	760 ml
Yield %	87.33%

Precaution :

- *Kalka dravya* should be fine in form.
- *Kalka dravya* should be added after taking vessel out of fire.
- *Mandagni* should be maintained throughout the procedure to avoid carbonization of the *kalkadravya*.
- Frequent stirring should be done.

2) Preparation of *Parinatakeri ksheeradi taila*[7]

Procedure :

Murchita tila taila was taken in stainless steel vessel and allowed to heat over *mandagni* till appearance of foam and later fire was put off.After cooling of *tila taila*, *kalkadravya(haridra)* was added and continuous stirring was done. Followed by mentioned quantity of *drava dravya (jambira phalodaka and narikela ksheera)* was added and Frequent stirring was done to allow proper mixing of *kalka dravya* and *taila*.Procedure was carried out for span of 3 days till obtaining siddhi lakshana's

Taila was squeezed out of *kalka dravya* when it was luke warm with the help of cloth to avoid much loss. *Sarja rasa* which was in fine powder form was added when *taila* was in luke warm state with continuous stirring and later it was kept undisturbed[4].

Observation :

1st day :

- *Taila* was dark red in colour before adding *kalka dravya*.
- After adding of *kalka dravya* and *drava dravya*, colour of the *taila* changed to dark yellow colour.
- It took about 40 minutes to *taila* to start boil.
- Citrus smell was felt because of presence of *jambira* in it.
- Total hours of heat given on 1st day – 4 hours.

2nd day :

- Colour of the *taila* started to change to light brown colour.
- Bubbles started to appear after 1 hour of boiling.
- Bubbles were continued for about 40 mins.
- Colour of *taila* turned to brown colour.
- Characteristic citrus smell was observed during boiling.
- Total hours of heat given on 2nd day – 4 hours.

3rd day :

- Colour of the *taila* was golden brown in colour.
- After 1 hour 20 mins *phena* started appearing.
- *Phena* was present for about 50 mins.
- Colour of the *taila* was leaf brown colour at this stage.
- *Phena* was completely absent by 3 hours of boiling.
- Colour of the *taila* was brown in colour.
- More moister was felt when *varti* was tried to make in between fingers at 4 hrs 30 mins and proper *varti* consistency was not possible.
- *Varti* consistency was possible when tried to make at 5 hrs 10 mins and little moister was present.
- Fire was put off at this stage to get *madhyama paka*.
- It took about 1 hour to *taila* to get Luke warm stage.

Table 6 Result showing preparation of PKKT

Murchita tila taila	4,000 ml
PKKT obtained	7,600 ml
Gain	3,600 ml
Yield %	190%

Analytical study :

Aims and Objectives:

- To know the Physico – chemical Properties of MT and PKKT.
- To know the HPTLC analysis of MT and PKKT.

Materials and Methods

Physico-chemical analysis was carried out with classical and modern scientific parameters

Physical Tests:

- This part of study was carried out at P.G. Department of Rasashastra, T.G.A.M.C. Bellary and Quality control lab A.L.N. Rao. Ayurvedic Medical College, Koppa.

Chemical Tests:

- Analysis related to the standardization of MT and PKKT was done at Quality control lab A.L.N. Rao. Ayurvedic Medical College, Koppa.
- HPTLC for MT and PKKT samples was done at S.D.M. Centre For Research In Ayurveda And Allied Sciences, Udupi.

The ancient Parameters were carried out for MT and PKKT at Rasa Shastra and

Bhaishajyakalpana PG Dept. TGAMC, Ballari.

Results :

1. Classical parameters for Analysis of MT and PKKT

Table 7 Showing classical Parameters for Analysis of MT and PKKT

TEST	OBSERVATION	
	MT	**PKKT**
Varna	Reddish Yellow	Madhuvarna
Gandha	Characteristic odour	Characteristic odour
Kalka vartivatlakshana	+++	+++
Shabdahina when put on agni	+++	+++
Phenodgama	+++	+++

2. Organoleptic characters of MT and PKKT

Table 8 Showing organoleptic characters of MT and PKKT

Physical test	MT	PKKT
Colour	Reddish Yellow	Honey coloured
Odour	Characteristic	Characteristic
Taste	---------	---------
Appearance	Liquid	Liquid

3. Chemical tests of MT and PKKT

Table 9 Showing chemical tests of MT and PKKT

	MT	PKKT
Saponification value	167.45	169.40
Iodine value	85.70	86.55
Acid value	4.13	3.25
Peroxide value	4.11	3.50
Ester value	163.32	166.15
Refractive index at 30°C	1.4628	1.4657
Specific gravity	0.9314	0.9256
Weight (gm) per ml	0.929	0.915
Viscosity at 30°C	35.75 cP	32.75 cP
Rancidity test (Kreis test)	Negative	Negative

4. HPTLC

Table : 10 Rf values of sample of MT and PKKT

Short UV		Long UV		Post derivatisation	
MT	**PKKT**	**MT**	**PKKT**	**MT**	**PKKT**
-	0.06 (Green)	0.07 (F. yellow)	-	0.06 (Purple)	0.06 (Purple)
0.10 (Green)	-	-	-	-	-
-	0.12 (Green)	-	-	-	-
-	-	0.14 (F. yellow)	-	-	-
0.23 (Green)	-	0.22 (F. yellow)	-	-	-
-	0.25 (Green)	-	-	-	-

-	-	0.27 (F. yellow)	-	-	-
-	-	0.35 (F. blue)	0.35 (FL. blue)	-	-
0.37 (Green)	-	-	-	-	-
-	-	0.43 (F. blue)	0.43 (FL. blue)	-	-
-	-	-	-	0.49 (Purple)	0.49 (Purple)
-	-	0.58 (F. green)	0.58 (F. green)	0.59 (Purple)	0.59 (Purple)
0.61 (Green)	-	-	-	-	-
-	-	0.64 (F. blue)	0.64 (F. blue)	-	-
0.69 (Green)	-	0.70 (F. blue)	0.70 (F. blue)	0.71 (Purple)	0.71 (Purple)
-	-	-	0.78	0.79 (Purple)	0.79 (Purple)
0.89 (Green)	-	-	-	-	-
-	-	-	-	0.92 (Purple)	0.92 (Purple)

5. * D – dark; F - fluorescent

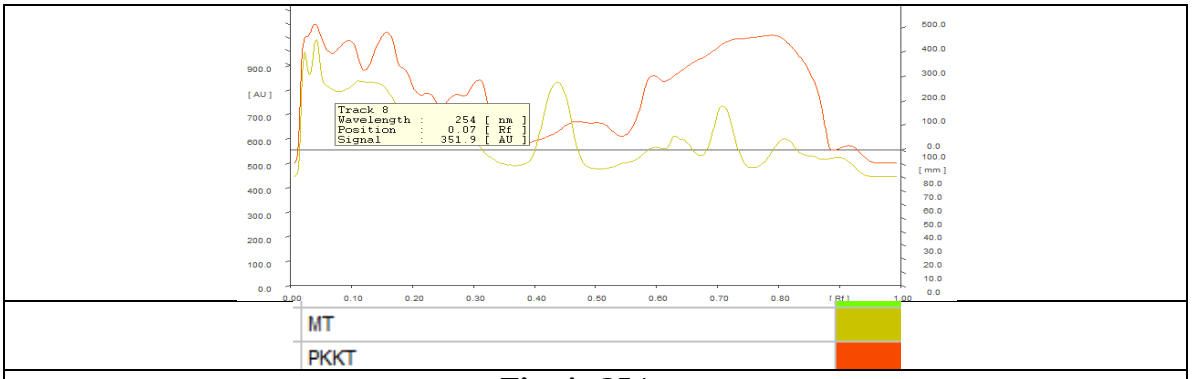


Fig . At 254nm

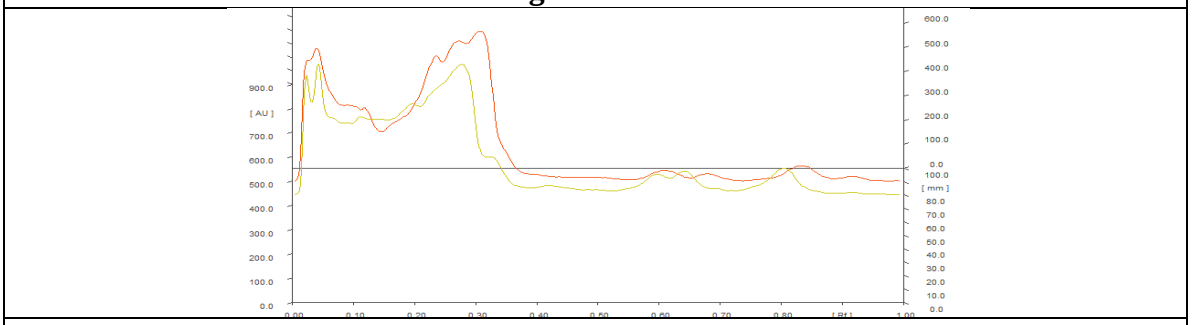


Fig . At 366nm

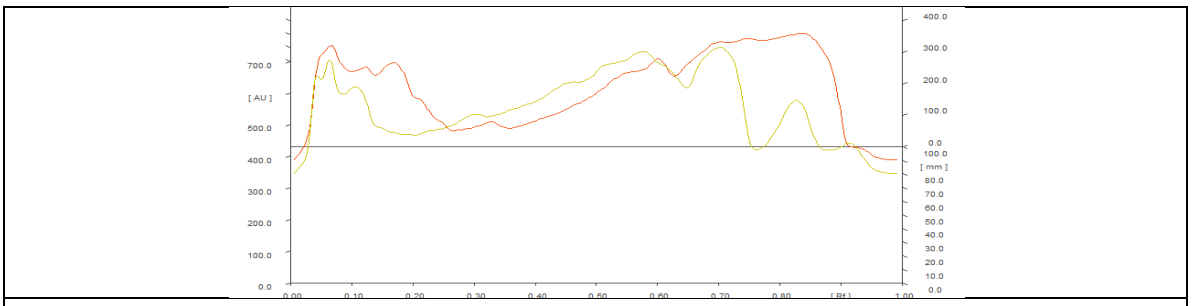


Fig . At 620nm

6. Microbial load

Totalaerobiccount – Nil

Total fungal count – Nil

DISCUSSION :

a) Discussion on *taila murchana*:

- *Ama dosha* may be considered as unwanted component among the raw *taila*, like intermediate chemical constituents, dissolved gases, adulterants, plant toxins and moisture present in raw *taila* or developed due to long time storage.
- By removing its *Ama Lakshana* which inhibit lipid per oxidation and incorporated antioxidant property for augmentation of medicinal properties of the medicated *taila*.
- *Dourgandha* may be caused due to the long term storage of the *taila*., before the preparation we are ensuring that only pure and potent *taila* is taken for *siddha taila* preparation.
- Hence pre preparatory *Moorchana* procedure is important to increase the potency of the *siddha taila*.

b) Discussion on PKKT

- There was no specified method of preparation of PKKT was mentioned , so general method of preparation as explained by *Acharya Sharangadhara* was followed.
- *Siddhi lakshanas*:
- *Shabda heeno agni nikshipta*- suggests reduction of water i.e. extent of moisture content. When water remains in the *taila* it produces the cracking sound and this sound disappears gradually after reduction of water. When *kalka dravya* of *Sneha* was put on fire it does not produce any sound that indicate *kalka dravya* was devoid of moisture.
- *Phenodgama*- specifically for *Taila*, froath can be seen. Suggests completion of the process of *sneha paka*.

Probable reason: *Tila taila* is unsaturated fatty acids with double bond structure. On heating, continuous oxidation takes place in oils. As a result of formation of lower fatty acids, bubbling appears on the surface of oil.

- *Vartivatlakshana*-

When *kalka dravya* was rolled between two fingers, 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 *taila*.

- *Gandhavarnarasodbhava*- suggest that production of desired specific characteristics of odour, colour and taste because of active constituents are transferred into the *taila* media.
- Pharmaceutical study
- 4000 ml of *murchita tila taila* is taken for preparing PKKT in this study.
- 500gm each of *Haridra* and *Sarja rasa* is taken as *kalka dravya* in the present study
- *Haridra* was added initially, whereas *sarja rasa* added after *snehapaka* to preserve its volatile principles in the *taila*.

- *Jambeera swarasa* and narikela ksheera of 8 liters each is used as *dravadravya*
- *Sneha paka* was carried out according to classics for 3 days till attaining *siddhi lakshanas*.
- The yield of PKKT was 7600 ml, may be because of presence of *Narikela ksheera* contributed in its gain.
- It took 13 hours 10 minutes to get *siddhi lakshana* of PKKT preparation.

CONCLUSION :

PKKT is unique *taila kalpana* having combination of *haridra,sarja rasa, jambeeraswarasa* and *narikela ksheera* as raw drugs and indicated extensively in *Avabahuka roga*, pharmaceutical study conducted indicating the ease of preparation of the *yoga* and increase in the yield at last is economical to the clinician. As the reduction is observed in case of Acid value and peroxide value of PKKT, shelf life of it is more. Decrease in the viscosity value indicates its high absorption rate.

Photos

Taila murchana drugs

Taila murchana vidhi

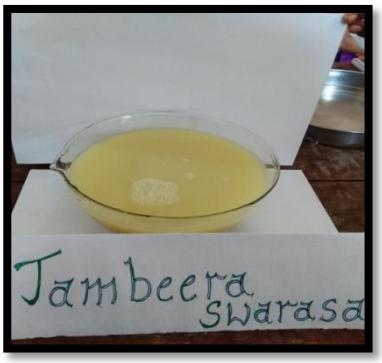
Shabdha pareeksha

Murchita tila taila

Sarja rasa

Haridra kalka

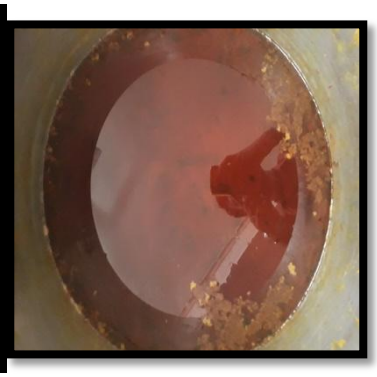
Narikela ksheera



Jambeera swarasa

1st day *paka*

2nd day paka(after7hr



2nd day paka (after 8hrs)

3rd day (after 10:15hrs)

3rd day (after 12:50hrs)

After *paak*

Shabdha pareeksha

Varti lakshana

Adding *sarja rasa*

Parinatakeri ksheeradi taila

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Corresponding Author:
Dr.K.S.Manjunatha,PG Scholar, T.G.A.M.C Ballari, Karnataka
Email: drksmanjunath14@gmail.com

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