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Research Article

PHARMACEUTICO ANALYTICAL STUDY OF SWALPA MASHA TAILA

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ABSTRACT

Introduction: Rasashastra and Bhaishajya Kalpana mainly focuses on various aspects of preparations of medicines. Sneha prakarana includes taila kalpana and ghritha kalpana Maha masha taila having brumhana and vatadosha hara properties indicated in many conditions of vatavyadhi. Swalpa masha taila told by Chakrapanidatta in Vatavyadhi chikitsaadhyaya. Methodology: It comprises of less and easily available ingredients compared to maha masha taila. Saindhava kalka, tilataila, masha Kashaya in 1:4:16 ratio prepared according to General method of preparation of taila. Results: from 1440ml of murchita tila taila 1330ml of swalpamasha taila was prepared. It was subjected to analytical parameters obtained results were tabulated. Discussion: Obtained pharmaceutical and Analytical results were discussed with the probable valid reasons. Conclusion: SMT which has been proved through different research works carried out on vata vyadhi. Hence it can be prepared and used for clinical practice.

Keywords: Masha**,** taila, saindhava lavana, vatavyadhi

INTRODUCTION

Rasashastra and Bhaishajya kalpana is the branch of Ayurveda that mainly focuses on various aspects of preparations of medicines[1]. The dosage forms like Sneha kalpana, sandhana kalpana, avalehya kalpana etc are unique in its pharmaceutics as well as therapeutics[2]. Sneha prakarana is secondary preparation which includes taila kalpana and ghritha kalpana[3]. Both used internally as well as externally[4]. Acharya Sharangadhara has given a detailed description regarding sneha kalpana in madhyama khanda of Sharangadhara samhitha. The drugs which are lipid soluble are used for sneha kalpana, it helps to extract the lipid soluble active principles from the drug[5].

Maha masha taila is a formulation includes masha as main ingredient along with 35 other ingredients and having brumhana and vatadosha hara properties[6] which is indicated in many conditions told under vatavyadhi. Swalpa masha taila (SMT) is such a formulation told by Chakrapani datta in Vatavyadhi chikitsaadhyaya for both internal and external usage. It is easy to prepare as the ingredients are less and easily available compared to maha masha taila. It comprises of saindhava lavana kalka (rock salt), tila taila as Sneha dravya and masha kashaya as drava dravya (liquid media)[7]. Saindhava lavana is deepaka, (appetizer), vrushya (aphrodisiac), Madhura (sweet), chakshushya (good for eyes), tridoshahara (pacify three doshas), it is considered as the best among pancha lavana (five types of salts)[8]. Tila taila is teekshna (sharp in action), vyavayi (can penetrate deep tissue), vataghna (can pacify vata dosha) ushna (hot in potency), can cure intestinal worms, can cure all the diseases if properly processed and used.[9] Masha is having the properties like guru (heavy for digestion), ushna (hot potency), madhura (sweet taste), vatahara (pacifies vata)[10].

The study was carried out with objectives to prepare the swalpa masha taila and analyse with the parameters given in laboratory guide for the analysis of Ayurveda and siddha formulations.

METHODOLOGY

Drugs were collected, authenticated and pharmaceutical procedure was carried on at teaching pharmacy Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital Hassan, Karnataka, India.

Pharmaceutical Methodology

Tila taila murchana (processing of sesame oil): It was done according to Bhaishajya ratnavali in order to remove the amadosha of raw oil and to increase the potency. When taila attained sneha siddhi lakshana fire was put off murchita tila taila was filtered, measured and stored. [11]

Preparation of Masha kashaya (black gram decoction): Kashaya was prepared according to general method of kwatha preparation[12]. Whole black gram (*Vigna munga*) with husk was taken in the mentioned quantity added with 8 parts of potable water. It was soaked for 2 hours and kept for boiling in mild flame. When it reduced to 1/4th part, it was filtered with cora cloth and the same was used as drava dravya for swalpa masha taila.

Preparation of swalpa masha taila: Obtained murchita tila taila was heated in a wide mouthed pan. Saindhava lavana (rock salt) taken as kalka was added to the oil. Mentioned quantity of masha kashaya was added to the taila. It was boiled with frequent stirring till sneha sidddhi lakshana appeared and paka was carried out for three days. Later it was filtered, measured and stored in glass bottle, further used for analytical study.

Table 1: Ingredients for tila taila murchana

Ingredients	Botanical name	Part used	Quantity
Tila taila	Sesame oil	-	1500ml
Manjishta	*Rubia cordifolia*	Roots	93.75gm
Haridra	*Curcuma longa*	Rhizome	23.43gm
Lodhra	*Symplocos racemosa*	Roots	23.43gm
Musta	*Cyperus rotundus*	Rhizome	23.43gm
Nalika	*Pergularia daemia*	Whole plant	23.43gm
Haritaki	*Terminalia chebula*	Fruits	23.43gm
Vibhitaki	*Terminalia bellirica*	Fruits	23.43gm
Amalaki	*Emblica Officinalis*	Fruits	23.43gm
Suchipushpa mula rasa	*Pandanus odoratissimus*	Flower	23.43ml
Water as drava dravya	-	-	3000ml

Table 2: Ingredients for SMT

Ingredient	Drug	Part used	Quantity
Kalka dravya	Saindhava lavana	Rock salt	360gm
Sneha dravya	Murchita tila taila	Processed sesame oil	1440ml
Drava dravya	Masha Kashaya	Black gram decoction	5760ml

Analytical Methodology

The prepared sample was assessed by Ayurveda parameters, organoleptic characters, physico- chemical analysis.

Ayurveda parameters were assessed by sneha siddhi lakshana in which kalka attained perfect wick shape when rolled between thumb and index fingers, when small amount of sneha kalka was put into the fire no sound produced, enormous foams were appeared in the end part of the process, colour, odour, taste of ingredients can be appreciated.[13] also, kalka gets separated from sneha.

Physico-chemical parameters pH, relative viscosity, specific gravity, refractive index, total suspended solids were assessed according to the guidelines given in laboratory guide for the analysis of Ayurveda and Siddha formulations.

pH[14] of SMT was recorded using pH meter. pH meter was standardized by dissolving tablets of different pH in 100ml of distilled water to prepare solutions of different pH 4, 7 & 9 respectively. Switched-on the instrument left it for some time. Buffer solution was taken in a beaker and electrode was dipped in it. Same procedure was Carried-out for another buffer solution also, after washing the electrode with distilled water. SMT was taken in another beaker and dipped the electrode in it noted the value of pH.

To assess the Relative Viscosity[15] Ostwald method was adopted, a definite volume (25ml) of SMT was poured into the larger bulb of viscometer. SMT was sucked up near the top of the smaller bulb till the upper mark. Then it was released to flow back into the larger bulb, the time taken to flow from upper mark to lower mark was noted as t_1 with stopwatch. The procedure was repeated with same volume of distilled water after cleaning the apparatus and the time noted as t_2. The density of the SMT (d_1) and water (d_2) was determined with the help of pycnometer. The relative viscosity co-efficient calculation was done by using.

$$n_1 = (d_1t_1/d_2t_2) \times n_2.$$ (n_2= viscosity of water 0.0101).

Weight of the empty pycnometer was noted as W_1. Filled the pycnometer with distilled water recorded the weight as W_2. Again, the pycnometer filled with SMT and recorded the weight as W_3. Specific gravity[16] was Calculated with the formula $SG = (W_2-W_1/W_3-W_1)$.

Refractive index[17] was analysed by placing a drop of SMT on the lower part of the prism of Abbe's refractometer and closed the refractometer. Observation done through eyepiece and dispersion correction compensator knob was turned until the coloured indistinct boundary between the light and dark field becomes a sharp line. Adjust the knurled knob until the sharp line exactly intersect the midpoint of the cross wires in the image. Read the refractive index from the magnifier in the pointer and record the reading. Adjustment was done with artificial light to get the refractive index of the swalpa masha taila.

T.S.S[18] was analysed using hand refractometer. Few drops of distilled water were placed over prism surface, cover was closed, pressed gently that removed the bubbles and disperse the distilled water over the entire surface. The refractometer was held up to natural light to see the contrast line through eyepiece (a distinct separation between blue and white section). Contrast line was adjusted to zero by turning the screw on the top of the refractometer. So that refractometer was calibrated to zero with distilled water. It was then dried with cotton, few drops of SMT were placed on the prism and cover was closed the entire surface filled and void of bubbles. Through eyepiece the reading was recorded.

Precautions taken

Mild fire was maintained throughout the procedure, frequently it was stirring, while doing refractive index, TSS analysis proper light has been maintained.

The organoleptic test is a technique of qualitative evaluation based on the study of sensory profiles of the drug[19]. Tila taila, murchita tila taila and SMT shows the following results.

Table 3: Observations & Results

Objectives	Observations
Water used to prepare kalka for taila murchana	112ml
Temperature maintained during taila murchana	152℃
Obtained murchita tila taila	1440ml
Water used to prepare kalka of saindhava lavana	125ml
Masha soaked for two hours	Became Soft and easy to prepare kwatha
Water used to prepare masha Kashaya	23,040ml
Temperature maintained during masha Kashaya	99.5℃
Temperature maintained during SMT	172.4℃
Obtained swalpa masha taila	1430ml

Table 4: Organoleptic characters of Tila taila, murchita tila taila and SMT

Tests	Tila taila	Murchita tila taila	SMT
Colour	Yellowish brown	Dark brown	Dark brown
Odour	Characteristic odour of tila taila	Aromatic odour	Aromatic odour
Consistency	Liquid	Liquid	Liquid
Taste	Characteristic taste	Astringent	Salt
Touch	Slimy	Slimy	Slimy

Table 5: Analytical parameters of Tila taila, murchita tila taila and SMT

Tests	Tila taila	Murchita tila taila	SMT
pH	5.45	5.87	5.95
Relative Viscosity (29℃)	83.16	83.68	83.94
Specific gravity (25℃)	0.914	0.927	0.944
Refractive index	1.475	1.476	1.475
TSS	72%	74.5%	78%

Pictures of Ingredients

Figure 1: Tila taila

Figure 2: Masha Kashaya

Pictures of prepared sample

Figure 3: Saindhava Lavana kalka

Figure 4: Swalpa masha taila

Pictures of analysis

Figure 5: pH analysis

Figure 6: pH analysis

Figure 7: Relative Viscosity

Figure 8: Specific gravity

Figure 9: Refractive index

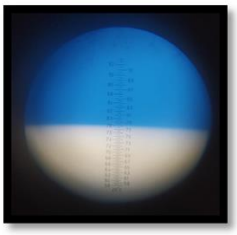

Figure 10: Total Suspended solids

DISCUSSION

The concept of murchana was first introduced by the author of Bhaisajya ratnavali before processing any taila or ghrita in order to remove the amadosha and bad odour[20]. Ama dosha may be considered as unwanted components among the raw ghrita/taila like intermediate chemical constituents, dissolved gases, adulterants, plant toxins and moistures present or developed due to the long-time storage[21]. The frothing and the cracking sounds produced when kalka was added to oil was probably due to the presence of moisture content in the kalka. Yield of taila after murchana procedure is reduced because the fibrous natured drugs present in kalka dravya may be absorbed the taila. In SMT, the saindhava lavana having hygroscopic nature[22] dissolved by adding even little water. Paka was done for three days in which contact period between kalka and kashaya dravya was more it helps to release the active constituents from kalka and kashaya into the taila. As saindhava lavana is only the kalka dravya in SMT, the suspended solid particles in masha kwatha aggregates to make kalka consistency. Mild fire and frequent stirring were maintained throughout the procedure to avoid the charring of kalka dravya also to maintain the contact between kashaya and kalka dravya with taila. In organoleptic characters, after murchana procedure the colour become dark brown, it is due to the presence of manjishta in kalka dravya. The taste of swalpa masha taila was salty due to the presence of saindhava lavana. The pH analysis indicates the acidic/ alkaline nature, in this study pH of SMT indicates it is a week acid. viscosity of taila is due to resistance to flow. Increased specific gravity and TSS is due to incorporation of bio constituents into the oil. There is no change in the refractive index was seen in this study.

CONCLUSION

Swalpa masha taila is named as it contains masha as main ingredient, it comprises of less and easily available ingredients compared to maha masha taila. By analysing the Rasapanchaka of ingredients it can be used in the conditions of vitiation of vata which has been proved through different research works carried out on vata vyadhi. Hence it can be prepared and used for clinical practice.

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