ISSN 2456-3110
Vol 9 · Issue 7
July 2024

JAiMS
INTERNATIONAL

Journal of Ayurveda and Integrated Medical Sciences

www.jaims.in

JAIMS

An International Journal for Researches in Ayurveda and Allied Sciences

Maharshi Charaka
Ayurveda

Indexed

Journal of
Ayurveda and Integrated Medical Sciences
ISSN 2456-3110
REVIEW ARTICLE July 2024

A Critical Review on *Sneha Murchchhana* w.s.r. to Quality Control Assessment

Darshita Sanchaniya[1], Bharti Umretia[2]

[1]*Post Graduate Scholar, Dept. of Rasashastra and Bhaishajya Kalpana, Government Ayurved College, Vadodara, Gujarat, India.*

[2]*Reader and Head, Dept. of Rasashastra and Bhaishajya Kalpana, Government Ayurved College, Vadodara, Gujarat, India.*

ABSTRACT

Sneha Kalpana has been widely used dosage form in the treatment of various diseases since ancient times. Later on, the literature introduced the practice of the *Sneha Murchchhana* process before *Snehapaka*, which is intended to remove *Ama Dosha, Gandha Dosha* and also to acquire specific therapeutic properties in *Sneha*. The parameters such as pH, specific gravity, viscosity, refractive index, saponification values, acid value, iodine value, rancidity and peroxide value are used to evaluate the quality of *Sneha*. The present review is aimed to explore *Sneha Murchchhana* process, benefits and consequences on the quality control parameters of *Sneha*. For that, Ayurvedic literature, dissertation works and research articles available on websites related to *Sneha Murchchhana* have been reviewed. Based on the review it can be concluded that the physico-chemical characteristics of oil can be improved by using this process. Moreover, this process imparts good colour, odour, and antioxidant properties which are beneficial for heart health and also lower the risk of age-related muscular degeneration. In addition, it can be said that the decreased value of free fatty acid helps in increasing the stability of oil.

Key words: *Ancient oil refining process, Physico-chemical characteristics, Free fatty acid, Stability*

INTRODUCTION

Sneha Kalpana is a widely used dosage form that has been mentioned in the treatment of various diseases since ancient times. *Sneha* includes *Ghrita*, *Taila, Vasa* and *Majja.* Among that, mainly *Ghrita* and *Taila* are used in many formulations. The specific pharmaceutical process of *Sneha Kalpana* leads to the extraction of the active ingredients into oleaginous substances (*Sneha* like *Ghrita, Taila*, *Vasa* and *Majja*) from the liquid media (milk, curd, decoction and juice of herbal drugs) and *Kalka* (paste of medicated *Dravya*). Heating is to be provided to *Sneha* till the specific end point parameters are achieved.

Sneha Murchchhana is a procedure that is performed prior to *Sneha Paka*. First reference regarding *Sneha Murchchhana* was found as *Taila Shodhana* in *Gudhartha Deepika* commentary of Sharangdhara Samhita (16th Century). This is in context of *Tila Taila.* The references of *Tila Taila Murchchhana, Katu Taila Murchchhana* and *Eranda Taila Murchchhana* was found separately in *Bhaishajya Ratnavali* (19th Century). First reference of *Ghrita Murchchhana* was also found in *Bhaishajya Ratnavali*. The process is intended to remove *Gandhadosha* (unpleasant odour) from *Tila Taila* (sesame oil) and achieves good colour and odour.[1] It is carried out to remove *Amadosha* (Rancidity) from *Katu Taila* (mustard oil) and *Ghrita*. *Sneha* acquires certain therapeutic qualities as a result of this process. There were various references have been found regarding *Sneha Murchchhana* in Ayurvedic texts since 16th century. This is most likely due to the fact that in the past, Acharyas prepared medicine specifically for their patients. Subsequently,

Address for correspondence:
Dr. Darshita Sanchaniya
Post Graduate Scholar, Dept. of Rasashastra and Bhaishajya Kalpana, Government Ayurved College, Vadodara, Gujarat, India.
E-mail: d.sanchaniya8@gmail.com

Submission Date: 13/05/2024 Accepted Date: 27/06/2024

Access this article online

Quick Response Code

Website: www.jaims.in

DOI: 10.21760/jaims.9.7.29

ISSN: 2456-3110 REVIEW ARTICLE July 2024

large-scale pharmaceutical product manufacturing began and thus to increase the shelf life of medicament this concept came into practice.

Certain physico-chemical parameters like specific gravity, viscosity, refractive index, acid value, iodine value, saponification value, peroxide value and rancidity have been mentioned to evaluate the quality and purity of *Sneha*. Evaluations of these parameters are also necessary for its safety and efficacy on human health. The specific ingredients used for the *Murchchhana* process may lead to physico-chemical changes of *Sneha* (According to some contemporary authors, *Sneha Murchchhana* procedure raises the (Medicated oil or Ghee) fraction of high-density lipoproteins, improves therapeutic effectiveness, and decreases rancidity. As a result, Sneha *Murchchhana* is critically reviewed using the available scientific data as well as traditional sources within the parameters of quality control. In the end, the information gathered is utilized to create a discourse regarding the role of the *Murchchhana* process in *Snehapaka*.

Materials and Methods

Ayurvedic literatures were reviewed in order to obtain information about the references for the ingredients, proportion, and preparation method of *Ghrita* and *Taila Murchchhana*. The published research articles and dissertations pertaining to quality control parameters of *Sneha Murchchhana* have also been screened.

Result and Discussion

Review from classical texts

Total 21 classical texts have been referred for *Sneha Murchchhana*. On the basis of the reviewed texts, it can be conferred that the texts titled *Yogatarangini* (16th Century), *Gudhartha* Deepika commentary of *Sharangadhar Samhita* (16th Century), *Bhaishajya Ratnavali* (19th Century), Bharat *Bhaishajya Ratnakara* (19th Century), *Rasatantrasara Evam Siddhaprayoga Samgraha* (19th Century), *Ayurveda Sara Samgraha* (20th century), and Ayurvedic Formulary of India (20th century) contain references to *Ghrita* and *Taila Murchchhana*.

Ghrita Murchchhana

The first reference of *Ghrita Murchchhana* was found in *Bhaishajya Ratnavali* and later it is followed by 4 texts titled *Ayurveda Sara Samgraha*, *Bharat Bhaishajya Ratnakara*, *Rasatantrasara Evam Siddhaprayogasamgraha* and Ayurvedic Formulary of India. The details of ingredients for *Ghrita Murchchhana* according to different authors are tabulated in table 1.

Table 1: List of ingredients with their Latin name used for *Ghrita Murchchhana*

SN	Ingredients	Latin name/ English name	B.R.[2] A.F.I.,[3] A.S.S.[4] R.T.S.S.P. S[5]	B.B.R.[6]
1.	*Goghrita*	Ghee	+	+
2.	*Pathya*	*Terminalia chebula* Retz.	+	+
3.	*Dhatri*	*Emblica officinalis* Gaertn.	+	+
4.	*Bibhitaka*	*Terminalia belerica* Roxb.	+	+
5.	*Musta*	*Cyperus rotundus* Linn.	+	+
6.	*Rajani*	*Curcuma longa* Linn.	+	+
7.	*Matulunga Drava*	*Citrus medica* Linn.	+	+
8.	*Jala*	Water	+	-

B.R. - Bhaishajya Ratnavali, A.F.I. - Ayurvedic Formulary of India, A.S.S - Ayurveda Sara Sangraha, R.T.S.S.P.S - Rasatnatrasara evam Siddhaprayogasangraha, B.B.R. - Bharat Bheshaja Ratnakara

Taila Murchchhana

In classics, many oil seeds plants are used for the preparation of medicated oil. Among them most commonly used *Taila* for medicinal purposes is *Tila*,

ISSN: 2456-3110 REVIEW ARTICLE July 2024

Sarshapa and *Eranda*. For that reason, the *Murchchhana* process of these *Taila* is mentioned in classics. References regarding *Tila Taila Murchchhana* were found in *Gudhartha Deepika* commentary of *Sharangdhara Samhita* and after that it is described in *Bhaishajya Ratnavali* with slight modification in the process. In viewing the usage of *Katu Taila* and *Eranda Taila* in many formulations, *Acharya Govindadas Sen* mention the *Murchchhana* process for these two *Taila* which are referred by the subsequent author. The details of *Tila Taila*, *Eranda Taila* and *Katu Taila Murchchhana* are enumerated in table no. 2, 3 and 4 respectively.

Table 2: List of ingredients with their Latin name for *Tila Taila Murchchhana*

Ingredients	Latin name/ English name	Sha.Sa[7]	Yo.ta.[8]	B.R.[9] A.F.I.[10]	B.B.R[11]	A.S.S[12]	R.T.S. S.P.S[13]
Tila Taila	Oil of *Sesamum indicum* Linn.	-	+	+	+	+	+
Manjishtha	*Rubia Cordifolia* Linn.	-	+	+	+	+	+
Haridra	*Curcuma longa* Linn.	-	+	+	+	+	+
Lodhra	*Symplocos racemosa* Roxb.	-	+	+	+	+	+
Musta	*Cyperus rotundus* Linn.	-	+	+	+	+	+
Nalika	*Cinnamom tamala* Nees	-	+	+	+	+	
Amalaki	*Emblica officinalis* Gaertn.	-	+	+	-	+	+
Haritaki	*Terminalia chebula* Retz.	-	+	+	+	+	+
Bibhitaki	*Terminalia belerica* Roxb.	-	+	+	+	+	+
Suchi Pushpa	*Pandanus tectorius* Soland ex Parkinson	-	+	+	-	+	+
Vatankura	*Ficus bengalensis* Linn.	-	+	+	*VataJata*	*VataJata*	+
Panchapallava	-	+	+	-	-	-	-
Gheekumara	*Aloe barbadensis* Miller	-	-	-	+	-	-
Hribera	*Pavonia odorata* Willd.	-	-	-	+	+	-
Jala	Water	+	-	-	-	+	+

Sha. Sa. - *Sharangadhar Samhita*, Yo.ta - *Yoga Tarangini*

Table 3: List of ingredients with their Latin name for *Eranda Taila Murchchhana*

SN	Ingredients	Latin name/ English name	B.R[14] A.F.I[15]	B.B.R[16]	A.S.S[17]	R.T.S. S.P.S[18]
1.	*Eranda Taila*	Oil of *Ricinus*	+	+	+	+

ISSN: 2456-3110 REVIEW ARTICLE July 2024

		communis Linn.				
2.	*Manjishtha*	*Rubia cordifolia* Linn.	+	+	+	+
3.	*Musta*	*Cyperus rotundus* Linn.	+	+	+	+
4.	*Dhanyaka*	*Coriandrum sativum* Linn.	+	+	+	+
5.	*Amalaki*	*Emblica officinalis* Gaertn.	+	+	+	-
6.	*Haritaki*	*Terminalia chebula* Retz.	+	+	+	-
7.	*Bibhitaki*	*Terminalia belerica* Roxb.	+	+	+	-
8.	*Vaijayantika*	*Clerodendrum phlomidis* Linn.	+	+	+	-
9.	*Hribera*	*Pavonia odorata* Willd.	+	+	+	+
10.	*Vana Kharjura*	*Phoenix dactylifera* Linn.	+	+	+	+
11.	*Vata Shunga*	*Ficus bengalensis* Linn.	+	+	*Vataj ata*	*Vataja ta*
12.	*Haridra*	*Curcuma longa* Linn.	+	+	+	+
13.	*Daruharidra*	*Berberis aristate* DC.	+	+	+	*Jatipa tra*
14.	*Nalika*	*Cinnamomum tamala* Nees. Eberm	+	-	+	-
15.	*Shunthi*	*Zingiber officinale* Roxb.	+	+	+	+
16.	*Ketaki*	*Pandanus tectorius* Soland ex Parkinson	+	+	-	-
17.	*Krishna Jeeraka*	*Carum carvi* Linn.	+	+	+	+
18.	*Dadhi*	Curd	+	-	+	+
19.	*Kanji*	Sour gruel	+	+	+	+
20.	*Jala*	Water	+	+	+	+

Table 4: List of ingredients with their Latin name for *Katu Taila Murchchhana*

SN	Ingredients	Latin name/ English name	B.R,[19] A.F.I[20]	B.B.R[21]	A.S.S[22]	R.T.S. S.P.S[23]
1.	*Katu Taila*	Oil of *Brassica campestris* Linn.	+	+	+	+
2.	*Haritaki*	*Terminalia chebula* Retz.	+	-	-	-
3.	*Rajani*	*Curcuma longa* Linn.	+	+	+	+
4.	*Musta*	*Cyperus rotundus* Linn.	+	+	+	+
5.	*Bilva*	*Aegle marmelos* Corr.	+	+	+	+
6.	*Dadima*	*Punica granatum* Linn.	+	+	+	+
7.	*Keshara*	*Mesua ferrea* Linn.	+	+	+	+

ISSN: 2456-3110 REVIEW ARTICLE July 2024

8.	*Krishna Jeeraka*	*Carum carvi* Linn.	+	+	+	+
9.	*Hribera*	*Pavonia odorata* Willd.	+	+	+	+
10.	*Nalika*	*Cinnamomum tamala* Nees. Eberm	+	-	+	-
11.	*Manjishtha*	*Rubia cordifolia* Linn.	+	-	-	+
12.	*Bibhitaki*	*Terminalia belerica* Roxb.	+	+	+	+
13.	*Amalaki*	*Emblica officinalis* Gaertn.	-	+	+	+
14.	*Pippali*	*Piper longum* Linn.	-	+	-	-
15.	*Twak*	*Cinnamomum zeylanicum* Blume	-	-	+	+
16.	*Jala*	Water	+	-	+	+

Dissertation works

Total 6 Dissertation works related to *Sneha Murchchhana* have been cited for the quality control parameters such as pH, specific gravity, unsaponifiable matter, acid value, iodine value, peroxide value, and saponification value which conducted in the respective works and also its significances on clinical trials have been referred. The details of dissertation work related to *Sneha Murchchhana* with their findings are enlisted in table no. 5.

Table 5: Showing Dissertation works related to *Sneha Murchchhana*

SN	Name of Dissertation work	Year	Author	Conclusion
1.	A Comparative Pharmaco-Clinical Study of *Pancatikta Ghrita* Prepared by Different Methods in *Ekakustha* (Psoriasis)	2000	Dr. Raju Barvalia	The saponification value is less in group A in comparison to other groups and there was an increase in unsaponifiable matter in the same group but not much difference was found in other quality control parameters. *Panchatikta Ghrita* prepared in group A with *Ghrita Murchchhana* and *Triphala Kalka,* in group B *Panchatikta Ghrita* prepared from *Murchchhita Ghrita*, and in group C *Panchatikta Ghrita* made without *Ghrita Murchchhana*. therapeutic effectiveness of all three groups and discovered significant improvements in 55.5% of patients for group A, 35.93% in group B, and 29.31% in group C.[24]
2.	A comparative pharmaceutical-clinical study of different samples of *Pancha-Tikta Ghrita* with its effect on *Eka-Kushtha*	2004	Dr. Zala Upendra	In the quality control parameter, it is noted that there is a comparative increase in acid value, iodine value, and unsaponifiable matter but a decrease in saponification value. After *Murchchhana* process. *Panchatikta Ghrita* was prepared in

ISSN: 2456-3110 REVIEW ARTICLE July 2024

				Group A by *Ghrita Murchchhana* and *Triphala Kalka* and in Group B by *Ghrita Murchchhana*. Group C *Panchatikta Ghrita (*without *Triphala Kalka* and *Amurchchhita Ghrita)* group D only *Murchchhita Ghrita*. Group A was superior to the other groups in results. Significant improvements were observed in Group A at 55.05%, group B at 35.93%, and group C at 29.31%.[25]
3.	Pharmaceutical standardization of *Ksheerabala Taila* with special reference to the concept of *Taila Murchchhana* and its shelf-life study	2005	Arathi TS	An increase in specific gravity, pH, acid value, and free fatty acid but a decrease in unsaponifiable matter and peroxide value revealed that the process of *Sneha Murchchhana* will help in increasing the chemical stability of oil due to antioxidants present in the *Murchchhana Dravya*.[26]
4.	Scientific evaluation of *Sneha Kalpana* with special reference to *Pancha Tikta Ghrita* (Pharmaceutical, Analytical & Clinical)	2016	Namrata Shah	In this study difference was found between the analytical parameter of *Murchhita Ghrita* and *Goghrita* are as there is decrease in specific gravity, Iodine value, Unsaponifiable matter and increase in refractive index, Acid value, saponification value, peroxide value of *Murchhita Ghrita.*[27]
5.	A Pharmaceutico analytical and Experimental study of *Manjishtadyam Ghrita Murchchitha* and *Amurchchitha* W S R to Its wound Healing	2017	Indu V L	There is deduction of Acid value, Saponification value, iodine value, peroxide value and induction in Specific gravity and viscosity of *Murchhita Manjishtadyam Ghrita*. In wound healing activity *Murchhita* and *Amurchhita Manjishtadyam Ghrita* provided the same result.[28]
6.	Pharmacetico analytical study of *Gunjadya Taila* prepared by using *Murchchhita and Amurchchhita Tila Taila* and evaluation of its antimicrobial activity and sub-acute dermal toxicity study in albino rats	2024	Dr. Gunja Dahikar	Increase in Specific gravity, refractive index, and saponification value of *Murchchhita Gunjadya Taila* (MGT) while decreasing in acid value, peroxide value. Thus, it may be concluded that due to *Murchchhana* process the stability of oil can be increased. HPTLC analysis, MGT one extra peak was found from AGT (*Amurchchhita Gunjadya Taila*) which indicates that, may be some new compound get formed during the *Murchchhana* process. Microbial contamination was absent in both the sample. MGT and

ISSN: 2456-3110 REVIEW ARTICLE July 2024

				AGT shows significant antimicrobial activity against staphylococcus aureus. Against E. coli and Candida albicans, MGT shows higher zone of inhibition than AGT. *Gunjadya Taila* found safe in subacute dermal toxicity studies.[29]

Research articles

Total 20 Scientific research publishing in open access journal related to *Sneha Murchchhana* has been listed in table no. 6 with their results on quality control parameters and therapeutic efficacy.

Table 6: Showing the research articles related to *Sneha Murchchhana*

SN	Name of Research Article	Author	Name of Journal	Conclusion
1.	Effect of *Murchchhana Samskara* in the preparation of *Hingutriguna Taila*- An Analytical Study.	Hiremath *et al.*	Biomed & Pharmacol. J, Vol. 6, Issue:2, 2013	It was observed that specific gravity is increased in the medicated oil prepared with *Murchchhita Eranda Taila* where as other analytical values like refractive index, saponification values and acid values are decreased, in comparison to the medicated oil prepared by taking ordinary *Eranda Taila* from the market.[30]
2.	*Ghrita Murchchhana* with respect to comparative physico-chemical analysis of Plain *Ghrita* and *Murchchhita Ghrita*	Dr. Neelam Choudhary	IJAPR, Vol. 3, Issue: 4, April 2015	There was decrease in specific gravity, refractive index, total ash, acid value, ester value, and saponification value, unsaponifiable matter and an increase in loss on drying, and iodine value. When *Ghrita* is subjected to *Murchchhana*, it becomes a better medium for the drug's solubility and acquires all the special qualities that can be used to boost the drug's effectiveness.[31]
3.	Role of *Murchchhana* Samskara in the preparation of medicated *Ghrita* w.s.r. to *Panchtikta Ghrita*	Pankaj Rai	IAMJ, Vol.3, Issue: 8, August 2015	It was found that there are increases in specific gravity and alleviation in refractive index, saponification value, and acid value. It can be inferred that the *Murchchhana* process lessens the degree of saturation in *Ghrita* and improves the level of unsaturation which is good for human health.[32]
4.	A study on *Taila Murchana* with a comparative analysis of *Panchapallava Murchita Tila Taila, Manjishtaadi Yoga Murchita Tila Taila* and *Amurchita Tila Taila*	Dr. Ebin T U *et al.*	IJARIIE, Vol.2, Issue:1 2016	In this study, Specific gravity and refractive index of all three samples of *Tila Taila* i.e. *Panchapallava Murchita Tila Taila* (PMT), *Manjishtaadi Yoga Murchita Tila Taila* (MMT) and *Amurchita Tila Taila* (AMT) were almost similar. While Acid value of PMT and AMT was nearer and it is decrease in MMT. Very less moisture content is present in MMT in comparison to PMT and AMT. while

ISSN: 2456-3110 REVIEW ARTICLE July 2024

				iodine value was increased and saponification value was decreased after *Murchana* in PMT and MMT. Therefore, it may be established that *Murchana* with *Panchapallava* group of drugs is also effective in optimizing pharmacopeial standard parameters in concern with *Sneha Kalpana*.[33]
5.	Pharmaceutico - Analytical study of *Shrungatakadi Taila* using the concept of *Taila Murchchhana* (Oil Processing)	Juhi Ubale	Journal of research in traditional medicine, Vol. 3, Issue: 2, Mar-Apr 2017	Physicochemical parameters like specific gravity, refractive index, acid value, and saponification value were increased and Unsaponifiable matter, iodine value and peroxide value were decreased. It can be hypothesized that the *Murchchhana* procedure is highly significant in generating product stability for greater medicinal efficacy.[34]
6.	Assessment of significant role of *Murchana Samskara* of *Ghrita* by Physico-chemical analysis	Vinay R. Kadibagil *et. al.*	IJRAP, Vol.8 (Suppl 2), 2017	Analytical values show increase in the specific gravity, saponification value, iodine value and decrease in Acid value and Viscosity of *Murchhita Ghrita. Murchana* process increasing stability and facilitates better dissolution of bio constituents in *Ghrita*.[35]
7.	A conceptual review on *Taila Murchchhana*	Swamy Akshata *et al.*	IJRAPS, Vol.1, Issue:1, July 2017	The herbal drug used in the *Murchchhana* may act as an antioxidant, increasing the chemical stability of oils. Since the *Murchchhana Dravya* itself has high therapeutic significance, it can be said that this will ultimately contribute to better therapeutic efficacy of the medicated oil than oil prepared without *Murchchhana*.[36]
8.	Assessment of significance of *Samskara* in the preparation of *Sukumara Ghrita* by Physico-chemical analysis	Vinay R. Kadibagil *et. al.*	International research journal of pharmacy, Vol.9, Issue: 8, Aug. 2018	*Sukumara Ghrita* prepared with *Murchita Ghrita* has more refractive index, specific gravity, saponification value, Iodine value and less Acid value and viscosity. It can be ascertained that *Murchita Ghrita* attributes better quality of absorption, distribution, bio-availability, metabolism and therapeutic action.[37]
9.	Comparative physico – chemical analysis of *Amurchchhita* and *Murchchhita* samples of *Tila Taila*, *Katu Taila* and *Eranda Taila* w.s.r.	Dr. Shardul Chavan	Ayurpub, Vol.3, Issue: 5, Sep.-Oct. 2018	Quality control parameters indicate that there is significant decrease in viscosity, saponification value and acid value but not much difference in other parameters in *Murchchhita Tila Taila, Katu Taila,* and *Eranda Taila.* Also, it

ISSN: 2456-3110 REVIEW ARTICLE July 2024

	to *Bhaishajya Ratnavali*			can be observed that there was a decrease in specific gravity and density of the *Murchchhita Eranda* Taila sample in comparison to *Murchchhita Tila Taila* and *Murchchhita Katu Taila.*[38]
10.	*Bhallatakadi Ghrita*: Development and evaluation with reference to *Murchchhana* and *Shata-Dhauta* process	Sandesh R. Wayal	JAIM, Vol. 11, July 2020	It was mentioned that the *Murchchhana* of ghee modifies the solubility pattern and absorbability of the *Ghrita* formulation in addition to maintaining the ratio of saturated to unsaturated fats. The herbs utilized in the *Murchchhana* method, known for their strong antioxidant and anti-lipid peroxidation characteristics, play a key role in preventing oxidative damage to *Ghrita*. These plants were also known to improve the palatability of *Ghrita* formulation in terms of colour, odour, and medicinal effect.[39]
11.	Studies on *Ashwagandha Ghrita* with reference to *Murcchana* process and storage conditions	Nilambari S. Gurav *et. al.*	Journal of Ayurveda and Integrative Medicine, Vol.2, Issue:3	Acid value, refractive index and specific gravity increase while iodine value and saponification value decrease which indicates *Ashwagandha Ghrita* prepared with *Murcchana* process exhibited better antioxidant potential in all in vitro methods.[40]
12.	Hypolipidemic activity of *Panchatikta Ghrita* prepared by *Amurchita* and *Murchita Ghrita*	Vinay R. Kadibagil	International Journal of Pharmaceutical science and research, Vol. 12, Issue 8, Aug. 2021, p. 4302-4306	In this Animal study *Panchatikta Ghrita* prepared with *Murchita Ghrita* shows decrease in Total cholesterol, LDL and Triglycerides while increase in HDL which indicates *Murchana Samskara* attributes Hypolipidemic activity.[41]
13.	Assessment of Effect of *Murchana* in *Ark Taila* on the basis of Physicochemical Parameters	Purohit *et. al.*	Journal of Ayurveda 15(3): Jul-Sep 2021	Decrease in viscosity, Acid value, peroxide value, iodine value and increase in specific gravity, saponification value indicates that *Murchana* process increases the shelf life and clinical efficacy of *Sneha Dravya*.[42]
14.	Role of *Murchchhana* Samskara in the preparation of medicated *Ghrita* w.s.r. to *Panchagavya Ghrita*	Vd. Priyanka Tamane	IJMHS, Vol. 8, Issue:1, Jan-Mar 2022	Analytical values, such as refractive index, saponification value, and acid values are decreased when compared to specific gravity which is increased in *Murchchhita Ghrita*.[43]
15.	Pharmaceutical and Analytical Study of *Gandharva Haritaki*	Anjali S Katore	Journal of systematic review Pharmacy, Vol.14,	*Sneha* receives antioxidants from *Murchchhana Dravya*. *Sneha* is chemically stable and easily absorbed

ISSN: 2456-3110 REVIEW ARTICLE July 2024

	Prepared by *Murchchhita* and *Amurchhita Eranda Taila* and Comparative Assessment for In Vitro Bio-Accessibility		Issue:3, Feb- Mar 2023.	by the body. When treated with particular medications for particular objectives. *Sneha* has a strong penetrating power and may dissolve active elements of medicines used for *Murchchhana*.[44]
16.	Comparative study of physico-chemical analysis of *Changeri Ghrita* prepared with *Murchita* and *Amurchita Ghrita*	Gayatri Nandkumar Patil	International Journal of Ayurveda and Pharma Research, Vol.11, Issue:2, Feb.2023, pg. 71-77	Increase in Specific gravity, refractive index, saponification value, iodine value and decrease in viscosity, Acid value, peroxide value of *Murchita Changeri Ghrita* indicates that antioxidants were added during *Murchana*. *Ghrita* becomes beneficial for health.[45]
17.	An observational study on *Sneha Kalpana* according to *Murchchhita* and *Amurchchhita Ghrita* – a review study	Dr. Sweta Sahay	JETIR, Vol. 10, Issue: 5, May 2023	There was an increase in refractive index, loss on drying, total ash, and iodine value, and a decrease in acid value, ester value, saponification value, and unsaponifiable matter. *Murchchhana* introduces enhancements in analytical criteria to make sure that the risk of medicated *Sneha* components decomposing and oxidation is reduced to a minimum.[46]
18.	An observational study on *Sneha Kalpana* based *Murchhita* and *Amurchhita Ghrita*	Dr. Munesh Yadav	JRTDD, Vol. 6, issue: 1, August 2023	It is evident that *Murchhana* modifies the pattern of absorbability and solubility required to produce the best possible medical effects. Decrease in Specific gravity refractive index, Acid value, Saponification value and increase in iodine value.[47]
19.	Spectroscopic evaluation of sesame and mustard oils treated with *Murchana* method	S Deekshitha et.al.	Lasers in medical science, 39:99, April 2024	UV–visible absorption spectroscopy indicates decrease in carotenoids (responsible for oxidation) after *Murchana* process in sesame oil suggests slow oxidation of oil after *Murchana.* Absorption peak for chlorophyll is lower in the case of *Murchitha* mustard oil compared to the *Amurchitha* mustard oil, reduced chlorophyll content indicates a possible delay in the oxidation of the oils which is indicated decrease in the iodine value, peroxide value and acid value of the *Murchitha* oil. Fluorescence spectroscopy indicates reduction of the components contributing to oil oxidation and rancidity in *Murchitha* mustard and sesame oil.[48]
20.	Comparative Physico-Chemical Standardization of *Kushmanda*	Savani AS *et. al.*	IJAHR, Vol.02, Issue:1, 2024	In this study *Murchita Kushmanda Ghrita* shows higher specific gravity and acid value while

ISSN: 2456-3110 REVIEW ARTICLE July 2024

	Ghrita Prepared by Using *Murchhita* and *Amurchhita Ghrita*			Lesser saponification value, iodine value and peroxide value.[49]

Discussion

While reviewing the classical literature on *Sneha Murchchhana,* it was found that the *Aacharya* Chakrapani used the term '*Murchchhita* first time as *Khaja Murchchhita* in the context of *Manthana* (churning).[50] Subsequently, a thorough explanation on *Sneha Murchchhana* was found with its procedure and advantages. *Murchchhana* of *Taila* and *Ghrita*, two of *Chaturvidha Sneha* (i.e., *Taila, Ghrita*, *Vasa* and *Majja)* have been found in classical texts. No references of *Vasa* and *Majja Murchchhana* were found in any of the literature. Acharya Govindadas Sen has described three kinds of *Taila* i.e., *Tila Taila* (Oil of *Sesamum indicum* Linn.), *Katu Taila* (Oil of *Brassica campestris* Linn.) and *Eranda Taila* (Oil of *Ricinus communis* Linn.) because in *Taila* preparation, these three varieties of *Taila* are commonly used in internal and external administration.

The process to remove *Dushtagandhadi Dosha* (foul smell) from *Taila* was found in *Gudhartha Deepika* Commentary of *Sharangadhar Samhita*. The method for *Taila Shodhana* was mentioned in *Yogatarangini*. The first reference regarding the term *Sneha Murchchhana* was found in *Jvara Chikitsa* of *Bhaishajya Ratnavali*. The pharmaceutical method of *Sneha Murchchhana* is similar in almost all the texts; however, two texts, *Yogatarangini* and *Rastantrasaar Evam Siddhaprayog Sangraha* have a slight variation in the process. In the text, *Yogatarangini*, *Taila* was kept in clay for one day and then it was processed with decoction, milk, and paste of aromatic substance.[51] The text, *Rastantrasaar Evam Siddhaprayog Sangraha* states to perform *Sneha Paka* first and after the completion of *Paka*, it should be kept under sunlight for seven days.[52]

The author of *Bhaishajya Ratnavali* has cited the method of *Ghrita Murchchhana*. *Ghrita Murchchhana* is performed to eliminate *Aamdosha* (rancidity) and it increases the *Virya* (potency). While *Tila Taila Murchchhana* is performed to remove *Dushtagandhadi Dosha* (Bad smell) and it imparts good odour and colour. *Katu Taila Murchchhna* is also performed to remove *Amadosha. Amadosha* can be correlated with rancidity. Oxidation and hydrolysis are the two main factors that are responsible for the rancidification of fat. The taste and odor of lipids are disagreeable because of their oxidation or hydrolysis into short-chain aldehydes and peroxides. That has been reported to be carcinogenic and increases aging, cholesterol level, and body weight while used for a long duration.[53] This *Murchchhana* process also prevents lipid peroxidation and imparts antioxidant characteristics to enhance the therapeutic effects of the medicated *Sneha*. There are certain factors like moisture content, free fatty acids, phosphatides and other substances that can change the Physico-chemical characteristics of oil. Removal of these factors is the objective of the refinement of oil. Refining is the process in which alkali is added to neutralize the free fatty acids and is removed in the form of soap stock. Sometimes acid is also used for the refining process and it is intended to remove phosphatides. In one research work, it is mentioned that bleaching clay (clay processed with formic acid or acetic acid) was used for the treatment of waste engine oil[54] which can be compared with the method of *Taila Shodhana* mentioned in *Yogatarangini*.

Tila Taila, Katu Taila and *Eranda Taila* have different physico-chemical parameters. The specific gravity of *Amurchchhita Tila Taila, Katu Taila,* and *Eranda Taila* were 0.9170, 0.9110, and 0.9650 respectively, which reduced to 0.9030, 0.9110, and 0.9380 after the *Murchchhana* process. Specific gravity is dependent on the composition present in the oil. There is an increase in the specific gravity of oil if there are increase in aromatic compounds and a decrease in saturated fatty acids which is good for health.[55] Ash value is the residue remaining after incineration and it increases after the *Murchchhana* process as there is an increase in the solid content of *Sneha.* Before *Murchchhana* process, the values of viscosity were 79.30, 342.17,

ISSN: 2456-3110 REVIEW ARTICLE July 2024

93.15 which was increased to 82.81, 354.68, 81.42 respectively after *Murchchhana*. If the viscosity of any liquid is decreased, it will help in easy absorption in the human body. Thus, the *Murchchhana* process increases the absorption rate of *Sneha Dravya*. The values of Refractive index were also increased from 1.4707, 1.4708, and 1.4804 to 14708, 1.4709, 1.4805 respectively. The refractive index is the fundamental physical property of a substance, which is often used to identify a particular substance, confirm its purity, or measure its concentration. The decreased refractive index value suggests that there is a decrease in density, which can be due to the heating process in that molecules of *Sneha* are spread apart and thus same mass of fat occupies a larger volume. A significant decrease from 222.66, 109.23, and 247.62 to 155.67, 92.33, and 162.44 respectively in the saponification value after *Murchchhana* process was observed. The saponification value is the measure of the average molecular weight (or chain length) of all the fatty acids. A decrease in Saponification value indicates that there is an increase in long-chain fatty acids which are beneficial for heart health and also lower the risk of age-related muscular degeneration. It was also found in research that long-chain fatty acids play an important role in the return of the homeostasis process and the resolution of inflammation.[56] Acid value of *Amurchchhita Tila Taila*, *Katu Taila* and *Eranda Taila* were 5.83, 3.37 and 1.68 which is decreased after *Murchchhana* as 5.5, 2.69 and 0.34. The acid value indicates the amount of free fatty acids present in the fat. A lowered acid value indicates a lower percentage of free fatty acids. Short-chain fatty acids and medium-chain fatty acids are primarily absorbed through the portal vein during lipid digestion, while long-chain fatty acids are packed into chylomicrons, enter lymphatic capillaries and then transfer to the blood at the subclavian vein.[57] Iodine value was increased from of 0.050, 0.101 and 0.025 to 0.151, 0.195 and 0.028 subsequently after *Murchchhana*.[58] The iodine value is used to determine the amount of unsaturated content in fatty acids. It indicates the degree of unsaturation in oil components. As iodine value increases also, there is an increase in unsaturated fat. Unsaturated fat improves blood cholesterol levels, stabilizes heart rhythms, and decreases inflammation.[59]

Conclusion

The ingredients used for the *Sneha Murchchhana* process possesses good colour, odour, and antioxidant properties which help to prevent rancidification of oil through inhibition of hydrolysis and peroxidation. Consequently, it aids in the prevention of disease that occurs due to the intake of rancid oil. Based upon the findings of quality control parameters of *Murchchhita Sneha*, it can be said that the decreased value of free fatty acids helps in increasing the stability of *Sneha*. The *Murchchhana* process increases the long-chain fatty acids and unsaturated fat which are beneficial for human health. After considering all the things it can be concluded that *Sneha Murchchhana* process imparts good colour and odour to *Sneha* with increased therapeutic efficacy and shelf life.

References

1. Kaviraj Shri Govind Das Sen, Bhaishajya Ratnavali, edited by Dr. G. Prabhakar Rao, Part-1, Ch. 5, ver.1285, 1st edn, Chaukhambha Orientalia: Varanasi, 2014, p. 220.
2. Kaviraj Shri Govind Das Sen, Bhaishajya Ratnavali, edited by Dr. G. Prabhakar Rao, Part-1, Ch. 5, ver.1285, 1st edn, Chaukhambha Orientalia: Varanasi,2014, p. 220.
3. Anonymous, The Ayurvedic Formulary of India, Part 1, *Paribhasa*, 2nd edn, GOI, Ministry of health and family welfare, Dept. of AYUSH: New Delhi, p. 351.
4. Anonymus, Ayurved Sarasangraha, *Ghrita Prakaran*, 1st edn, Shree Baidyanath Ayurveda Bhavan limited: Jhansi, 2015, p.761.
5. Thakur Nathusinhji, Rastantrasaar evam Siddhaprayog Sangraha, part-1, *Ghrita Taila Prakaran*, 29th edn, Krishna Gopal Ayurved Bhawan: Ajmer, 2019, p.409.
6. Rasavaidya Nagindas Chhaganlal Shah, Bharat Bhaishajya Ratnakar, part-1,*Akaradi Ghrita Prakarana*, Reprint, Motilal Banarasidas: Delhi 7, 1985, p. 55.
7. Acharya Sharangdhar, Sharangdhara Samhita Gudhartha Deepika Commentary by Pandit Kashiram, *Madhyam Khanda*, Ch.9, ver.17-18, 1st edn, Chaukhambha Surbharti Prakashana: Varanasi, 2006, p. 215.
8. Trimallabhatta, Yogatarangini, Edited by Shree Dattarama Mathura, Ch.4, ver. 21-22, Reprint, Khemraj Shrikrishnadass Prakashan: Mumbai, 2018, p. 20.

9. Kaviraj Shri Govind Das Sen, Bhaishajya Ratnavali, edited by Dr. G. Prabhakar Rao, Part-1, Ch. 5, ver.1286-1287, 1st edn, Chaukhambha Orientalia: Varanasi, 2014 p. 220-221
10. Anonymous, The Ayurvedic Formulary of India, Part 1, *Paribhasa*, 2nd edn, GOI, Ministry of health and family welfare, Dept. of AYUSH, New Delhi; p. 351
11. Rasavaidya Nagindas Chhaganlal Shah, Bharat Bhaishajya Ratnakar part-1, *Akaradi Taila Prakarana*, Reprint, Motilal Banarasidas: Delhi 7, 1985, p. 63
12. Anonymus, Ayurved Sarasangraha, *Ghrita Prakaran*, 1st edn, Shree Baidyanath Ayurveda Bhavan limited: Jhansi, 2015, p.774
13. Thakur Nathusinhji, Rastantrasaar evam Siddhaprayog Sangraha, part-1, *Ghrita Taila Prakaran*, 29th edition, Krishna Gopal Ayurved Bhawan: Ajmer, 2019, p.409
14. Kaviraj Shri Govind Das Sen, Bhaishajya Ratnavali, edited by Dr. G. Prabhakar Rao, Part-1, Ch. 5, ver.1290-1291, 1st edn, Chaukhambha Orientalia: Varanasi, 2014, p.222.
15. Anonymous, The Ayurvedic Formulary of India, Part 1, Paribhasa, 2nd edn, GOI, Ministry of health and family welfare, Dept. of AYUSH, New Delhi, p. 351
16. Rasavaidya Nagindas Chhaganlal Shah, Bharat Bhaishajya Ratnakar, part-1, *Akaradi Taila Prakarana*, Reprint, Motilal Banarasidas: Delhi 7, 1985, p.64
17. Anonymus, Ayurved Sarasangraha, *Ghrita Prakaran*, 1st edn, Shree Baidyanath Ayurveda Bhavan limited: Jhansi, 2015, p.774
18. Thakur Nathusinhji, Rastantrasaar & Siddhaprayog Sangraha, part-1, *Ghrita Taila Prakaran*, 29th edition, Krishna Gopal Ayurved Bhawan: Ajmer, 2019, p.409
19. Kaviraj Shri Govind Das Sen, Bhaishajya Ratnavali, edited by Dr. G. Prabhakar Rao, Part-1, Ch. 5, ver.1288-1289, 1st edn, Chaukhambha Orientalia: Varanasi, 2014, p. 221.
20. Anonymous, The Ayurvedic Formulary of India, Part 1, *Paribhasa*, 2nd edn, GOI, Ministry of health and family welfare, Dept. of AYUSH, New Delhi, p.351.
21. Rasavaidya Nagindas Chhaganlal Shah, Bharat Bhaishajya Ratnakar part-1, *Akaradi Taila Prakarana*, Reprint, Motilal Banarasidas: Delhi 7, 1985, p.63.
22. Anonymus, Ayurved Sarasangraha, *Ghrita Prakaran*, 1st edn, Shree Baidyanath Ayurveda Bhavan limited: Jhansi, 2015, p.774.
23. Thakur Nathusinhji, Rastantrasaar & Siddhaprayog Sangraha, part-1, *Ghrita Taila Prakaran*, 29th edition, Krishna Gopal Ayurved Bhawan: Ajmer, 2019, p.409
24. Raju Barvalia et al; A Comparative Pharmaco-Clinical Study of *Pancatikta Ghrta* Prepared by Different Methods in *Ekakustha* (Psoriasis), Department of Rasashastra and Bhaishajya Kalpana, I.P.G.T.& R.A., Jamnagar, Gujarat;2000
25. Zala Upendra et al; A comparative pharmaceutico-clinical study of different samples of *Pancha-Tikta Ghrita* with its effect on *Eka-Kushtha*, Department of Rasashastra and Bhaishajya Kalpana, I.P.G.T.& R.A., Jamnagar, Gujarat;2004
26. Aarthi TS et al; Pharmaceutical Standardization of *Ksheerbala Taila* with special reference to the Concept of *Taila Murcchana* and its Shelf-Life Study, Post Graduate Training & Self Fiananced Course Cell, I.P.G.T.& R.A., Jamnagar, Gujarat;2005
27. Namrata shah et.al; Scientific evaluation of *Sneha Kalpana* with special reference to *Pancha Tikta Ghrita* (Pharmaceutical, Analytical & Clinical), J.S. Ayurved Mahavidhyalay, Nadiad, Gujarat; 2016
28. Indu V L et. al; A Pharmaceutico analytcal and Experimental study of *Manjishtadyam Ghrita Murchchitha* and *Amurchchitha* W S R to Its wound Healing, Department of Ayurveda, Utkal University, Bhubaneswar, Odisha; 2017
29. Gunja Dahikar et. al; Pharmacetico analytical study of *Gunjadya Taila* prepared by using *Murchchhita* and *Amurchchhita Tila Taila* and evaluation of its antimicrobial activity and sub acute dermal toxicity study in albino rats, Faculty of Ayurved, Datta Meghe Institute of Medical Sciences, Wardha, Maharashtra ;2024
30. Hiremath et. al, Effect of *Murchhana Samskara* in the preparation of *Hingutriguna Taila*- An Analytical Study, Biomed & Pharmacol. J, Vol. 6, Issue:2, 2013
31. Neelam Choudhary et al; *Ghrita Murchana* with respect to comparative physico-chemical analysis of plain *Ghrita* and *Murchit Ghrita*, IJAPR, Vol. 3, Issue: 4, April 2015
32. Pankaj Rai, role of *Murchhana Samskara* in the preparation of medicated *Ghrita* w.s.r. to *Panchtikta Ghrita*, IAMJ, Vol.3, Issue: 8, August 2015
33. Ebin T U et. al; A study on *Taila Murchana* with a comparative analysis of *Panchapallava Murchita Tila Taila, Manjishtaadi Yoga Murchita Tila Taila* and *Amurchita Tila Taila*, IJARIIE, Vol.2, Issue:1, 2016
34. Juhi Ubale et al; Pharmaceutico - Analytical Study of *Shrungatakadi Taila* Using the Concept of *Taila Murchhana* (Oil Processing), Journal of research in traditional medicine, Vol. 3, Issue: 2, Mar- Apr 2017
35. Vinay R. Kadibagil et. al; Assessment of significant role of *Murchana Samskara* of *Ghrita* by Physico chemical analysis, IJRAP, Vol.8 (Suppl 2), 2017
36. Swamy Akshata et al; a conceptual review on *Taila Murchana*, IJRAPS, Vol.1, Issue:1, July 2017.
37. Vinay R. Kadibagil et. al; Assessment of significance of *Samskara* in the preparation of *Sukumara Ghrita* by Physico-chemical analysis, International research journal of pharmacy, Vol.9, Issue: 8, Aug. 2018
38. Shardul Chavan. Comparative physico – chemical analysis of *Amoorcchita* and *Moorcchita* samples of *Tila Taila, Katu Taila*

ISSN: 2456-3110 **REVIEW ARTICLE** July 2024

and *Eranda Taila* w.s.r. to bhaishajya ratnavali, Ayurpub, Vol.3, Issue: 5, Sep.-Oct. 2018.

39. Sandesh R. Wayal et. al; *Bhallatakadi Ghrita*: Development and evaluation with reference to *Murcchana* and *Shata-Dhauta* process, JAIM, Vol. 11, July 2020.
40. Nilambari S. Gurav et. al; Studies on *Ashwagandha Ghrita* with reference to *Murcchana* process and storage conditions, Journal of Ayurveda and Integrative Medicine, Vol.2, Issue:3, Sep.2020, p.243-249
41. Vinay R. Kadibagil et. al; Hypolipidemic activity of *Panchatikta Ghrita* prepared by *Amurchita* and *Murchita Ghrita,* International Journal of Pharmaceutical science and research, Vol. 12, Issue 8, Aug. 2021, p. 4302-4306
42. Purohit et. al; Assessment of Effect of *Murchana* in *Ark Taila* on the basis of Physicochemical Parameters, Journal of Ayurveda 15(3): Jul-Sep 2021
43. Priyanka Tamane; Role of *Murchhana Samskara* in the preparation of medicated *Ghrita* w.s.r. to *Panchagavya Ghrita*, IJMHS, Vol. 8, Issue:1, Jan-Mar 2022.
44. Anjali S Katore et al; Pharmaceutical and Analytical Study of *Gandharva Haritaki* Prepared by *Murchhit* and *Amurchhit Erand Tail* and Comparative Assessment for In Vitro Bio-Accessibility, Journal of systematic review Pharmacy, Vol.14, Issue:3, Feb- Mar 2023.
45. Gayatri Nandkumar Patil, Comparative study of physico-chemical analysis of *Changeri Ghrita* prepared with *Murchita* and *Amurchita Ghrita,* International Journal of Ayurveda and Pharma Research, Vol.11, Issue:2, Feb.2023, p. 71-77
46. Sweta Sahay, an observational study on *Sneha Kalpana* according to *Murchhita* and *Amurchhita Ghrita* - a review study, JETIR, Vol. 10, Issue: 5, May 2023
47. Munesh Yadav, An Observational Study On *Sneha Kalpana* Based *Murchhita* and *Amurchhita Ghrita*, JRTDD, Vol.6, Issue: 1, August 2023
48. S Deekshitha et.al; Spectroscopic evaluation of sesame and mustard oils treated with *Murchana* method, Lasers in medical science, 39:99, April 2024
49. Savani AS et. al; Comparative Physico-Chemical Standardization of *Kushmanda Ghrita* Prepared by Using *Murchita* and *Amurchita Ghrita,* IJAHR, Vol.02, Issue:1, 2024
50. Agnivesha, Charaka Samhita of Acharya Charaka, Dridhabala, edited by Prof. Rajeshwara Datta Shastri, Prof. Yadunananda Upadhyaya, Prof. Ganga Sahaya Pandey, with Vidyotini Hindi commentary by Pandit Kasinatha Shastri and Dr. Gorakhnatha Chaturvedi, *Chiktsa Sthana*, Ch.11, ver.58, Reprint, Chaukhambha Bharti Academy: Varanasi, 2019, p.347.
51. Trimallabhatta, Yogatarangini, Edited by Shree Dattarama Mathura, Ch.4, ver. 21-22, Reprint, Khemraj Shrikrishnadass Prakashan: Mumbai, 2018, p. 20
52. Thakur Nathusinhji, Rastantrasaar & Siddhaprayog Sangraha, part-1, *Ghrita Taila Prakaran*, 29th edition, Krishna Gopal Ayurved Bhawan: Ajmer,2019, p.409
53. http://www.foodtestingindia.com/health-effects-rancid oils/#:~:text=This%20chemical%20has%20been%20reportedlevels%2C%20obesity%20and%20weight%20gain
54. R.Abu- elella et.al; Used motor oil treatment: Turning waste oil into valuable product, Internation journal of chemical and biochemical sciences, Vol. 7, 31 May 2015
55. R.Abu- elella et.al; Used motor oil treatment: Turning waste oil into valuable product, Internation journal of chemical and biochemical sciences, Vol. 7, 31 May 2015
56. Rafael Zarate et. al; Significance of Long chain polyunsaturated fatty acids in human health, Clin Transl Med; PMC, PMID 28752333, 27 JULY 2017
57. P.G. Roopashree et. al; Effect of medium chain fatty acid in human health and disease,Journal of functional foods, Vol.87, December 2021
58. Shardul Chavan. Comparative physico - chemical analysis of *Amoorcchita* and *Moorcchita* samples of *Tila Taila, Katu Taila* and *Eranda Taila* w.s.r. to bhaishajya ratnavali, Ayurpub, Vol.3, Issue: 5, Sep.-Oct. 2018.
59. https://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/fats-and-cholesterol/types-of-fat/#:~:text=Unsaturated%20fats%2C%20which%20are%20liquid,number%20of%20other%20beneficial%20roles

How to cite this article: Darshita Sanchaniya, Bharti Umretia. A Critical Review on Sneha Murchchhana w.s.r. to Quality Control Assessment. J Ayurveda Integr Med Sci 2024;7:185-198.
http://dx.doi.org/10.21760/jaims.9.7.29

Source of Support: Nil, **Conflict of Interest:** None declared.

****