

COMPARATIVE PHARMACEUTICO ANALYTICAL STUDY TO EVALUATE THE CONCEPT OF AVARTANA WITH SPECIAL REFERENCE TO 1, 10, 50, 100 AVARTITA MADHUKA TAILA

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ABSTRACT

Avartana is a unique concept mentioned for *Sneha Kalpana*. The more the number of *Avartana* the more potent will be the formulation. "*Shata Paka Madhuka Taila*" is one such formulation that is explained in *Charaka Chikitsa Vataraktha Adhikara*. Samples were subjected to pharmaceutico - Analytical study to compare the probable changes that would have happened pharmaceutically & analytically. *Shata paka Madhuka Taila* was prepared as per reference & samples were Analysed. The change in the organoleptic characters of all the *Avartita* samples was noted. Consistency of taila to semisolid consistency of *ghruta* in proceeding *Avartana* was observed. A slight increase in specific gravity & Refractive index were noted, decrease in acid value & iodine value was observed. Rancidity test passed & peroxide value was nil. slight acidic pH was noted. The presence of more bands with different Rf values was seen towards 50th, 75th & 100th *Avartita* samples on TLC. Pharmaceutical procedure reveals that concentration of the Active bio constituents of *yastimadhu* & milk fat gets increased in each *Avartana*., And it was evident from organoleptic characters like conversion of liquid Consistency of *taila* to semisolid consistency of *ghruta* (on cooling) in proceeding *Avartana*. A slight increase in specific gravity & Refractive index suggests more active constituents, decrease in acid value & iodine value suggests products are more stable & less chance of rancid on successive *avartana*. Rancidity & peroxide value tells product are not rancid. pH changes indicate slight acidic

nature & may be irritant due to high potency. TLC shows the presence of more bands towards 50th, 75th & 100th avarti samples shows more active constituents. Hence Avartana process helps for potentiating the formulation by adding active constituents.

Keywords: *Sneha Kalpana, Avartana, Shata Paka Madhuka Taila.*

INTRODUCTION

Ayurveda is the oldest traditional system of medicine in India. It is the eternal science that mainly deals with the knowledge of life. For the effective administration of active principles of the drug in a diseased condition, Different medicinal substances came into the form of Formulations by the repeated search of our Acharyas. *Pancha vidha kashaya kalpanas* i.e. *Swarasa, Kalka, Kwatha, Hima, Phanta* are the outcome of their thoughts. Acharya Charaka mentioned them as *Pancha vidha kashaya kalpana* for the first time¹. Keeping this view in the mind several secondary preparations have been derived from these five basic preparations. And, *Panchavidha Kashaya Kalpana* having its lacunas, necessities which occurred in various areas like Dose, Shelf-life period, Route of administration, Availability, Easy way of administration of a drug, Palatability, Efficacy, to extract maximum active principles from drug various *Upa kalpanas* came into existence. Those are *Sneha Kalpana, Sandhana kalpana, Vati kalpana, Avaleha kalpana, Rasayogas* etc. *Sneha Kalpana* is the widely used dosage form for both External & Internal uses. *Sneha kalpana* may be defined as “A pharmaceutical process to prepare oleaginous medicaments from the substances like *Kalka, Kwatha & Drava dravyas*, in specific proportions by subjecting to a unique heating pattern and duration to fulfil certain pharmaceutical parameters, according to the need of therapeutics. This process ensures transformation of the active therapeutic properties of the ingredients to the solvents and hence to get fat-soluble, water-soluble or even the chemical constituents which are soluble in media like *Kanji, Takra* etc.² *Sneha* preparations have better pharmacokinetic action in comparison to other dosage forms because of the lipoid nature of the biomembranes, as lipid-soluble substances readily permeate into the cells. The introduction of *Sneha*

Kalpana into Ayurvedic pharmaceuticals may be the result of the above-mentioned facts. The rationality behind taking oil as a base is presumably to extract lipid-soluble active fractions from the ingredients into the oil and even this formulation holds its properties for a longer period when compared to primary preparations³. *Sneha* is the fat or fatty material obtained from 2 yonies i.e. *Sthavara & Jangama*⁴. 4 types of *Sneha Dravya* are mentioned i.e. *Sarpi, Majja, Vasa, Taila* according to Ayurveda⁵. *Taila Kalpana* takes a Lion share. Because it is the only one such *kalpana* that is used for all 4 modes of drug administration like *Pana, Abhyanga, Nasya & Basthi*, Through all the bodily routes of drug administration. *Vata*, the master controller of the body physiology when gets altered, is the *Taila Kalpana* which comes to help⁶.

Avartana is a unique concept mentioned for *Sneha kalpana* which prevails from the *Samhita Kala*. The concept of *Dasha paki, Shata paki, Sahasra paki* indicate the number of times, a process is repeated. The more the number of *Avartana* the more potent will be the formulation. *Avartita Kalpana* helps in improving therapeutic efficacy at low dosage, has quicker action, easy for administration and packaging. In our classics, the Concept of *Avartana* is explained for *tailas* like *Bala Taila*⁷, *Ksheera bala taila*⁸, *Madhuka taila*⁷ etc. *Shata Paka Madhuka Taila* is one such formulation which is explained in *Charaka Chikitsa Vataraktha Adhikara* where *Avartana* procedure is carried out⁷. Quicker relief from disease is the expectation of the hour. To achieve this expectation, the potentiation of our formulation is most essential. *Avartita sneha* is one such method said to impart more potency to the formulation. So, it is the need of the hour to do *Avartana* of *taila kalpana* for

attaining above said points. That's why this study of "Shata paka Madhuka taila" has been taken up.

OBJECTIVES

- 1) To do Murchana Samskara to Tila taila.
- 2) To Prepare 1, 10, 50 Avartita Madhuka taila as per classical guidelines.
- 3) To Prepare 100 Avartita Madhuka Taila.
- 4) To carry out "Comparative Pharmaceutico Analytical study of 1, 10, 50, Avartita Madhuka taila with 100 Avartita Madhuka taila".

MATERIALS & METHODS: Tila Taila Moorchana done as per reference of Bhaishajya Ratnavali Jwara rogadhikara⁹. Shatapaka Madhuka

taila was prepared as per the reference of Charaka chikitsa vata raktha Adhikara. Paka Assessment was done as per Sharangadhara Samhitha Sneha Adhyaya¹⁰. Ingredients for the preparation of Tila Taila Murchana & Shata Paka Madhuka Taila was collected from Amrita kesari, Depot, Krishna raj market, Bangalore. Tila taila was collected from genuine source. The preparation of Tila Taila Murchana & Shata Paka Madhuka taila was carried out in Rasashastra & Bhaishajya kalpana lab, Sri Sri College of Ayurveda, Bengaluru. Analysis was done in Sri Veda Tattva Pvt. Ltd. Bengaluru.

Tila Taila Murchana

Table 1: Ingredients of Tila Taila Murchana

SI No	INGREDIENTS	BOTANICAL NAME	PROPORTION	QUANTITY TAKEN
1	Tila Taila	Sesame oil	1 Part	1 Litre
2	Manjista	Rubia cordifolia Linn	1/16 th Part of Taila	62.5 g
3	Musta	Cyperus rotundus Linn	(From Musta to vatangura) each one - 1/64 th Part of Taila or 1/4 th Part of Manjista	(From Musta to vatangura) each one - 15 g Each
4	Hareetaki	Terminalia chebula Retz		
5	Vibhitaki	Terminalia belerica Roxb		
6	Amalaki	Emblica officinalis Gaertn.Syn		
7	Nalika (Raktha Padma)	Nelumbo nucifera Gaertn. Syn.		
8	Hribera (Udichya)	Pavonia odorata willd.		
9	Haridra	Curcuma longa Linn		
10	Suchipushpa (Ketaki)	Pandanus odoratissimus Roxb.syn		
11	Lodra	Symplocos racemosa Roxb		
12	Vatagura	Ficus bengalensis Linn		
13	Jala	-	4 Times to taila	4 Litre

Preparation of Murchitha Tila taila: 1 Litre Tila taila was taken in a cleaned wide-mouthed stainless-steel vessel & placed over Mandagni. Once it was heated, slowly kalka dravyas (Total 212 g) in 3 bolus form was added one by one & continuous stirring was done. It was followed by the addition of 4 L of Jala. Frequent stirring was done to allow Proper mixing of kalka dravya, Tila taila & Jala. The procedure was not completed within 1 day. 1st-day paka done for 30 minutes & 2nd Sneha paka done for 2 hours 40 minutes.

Sneha paka was carried out till obtaining Taila Siddhi Lakshana & Vessel was taken out from fire & Taila was filtered through cloth when the kalka dravya was in lukewarm Condition to avoid much loss of Taila. obtained murchita Tila taila measured & preserved. **Precautions:** kalka dravyas should be in fine form, Frequent stirring should be done to avoid sticking of kalka, Mandagni or madhyamagni was maintained throughout the procedure to avoid sticking of kalka. **Observations:** once kalka was added to the heated tila

taila, within 15 seconds froth started to appear & persist, along with fumes & peculiar sound was also appeared. froth occurred around double times of the oil & later subsided. followed by the addition of 4 times of jala & stirring was carried out. After the addition of kalka & jala to tila taila, the Whole mixture turned to reddish-brown colour. Initially stirring was less frequently done, later it was continuous. Later, boiling of whole contents started with fumes (+++) of evaporation of water content. Further, the consistency of the whole mixture was changed to thicker compared

to before & the quantity of mixture was also reduced. Later, Dark reddish coloured oil separated from kalka & started to boil. Less numbered bigger bubbles seen in the centre & more numbered smaller bubbles were seen on the sides. Later Murdu paka stage attained. On heating further, Madhyama paka stage started. kalka became soft in consistency & made varti out of it. kalka had the colour of brownish. Later, on keeping agni pareeksha, no crackling sound was heard. gandha, Varna, Rasa of murchitha tila taila was different from tila taila.

Table 2: Observations of Murchitha Tila taila

Date	Total Hours	Initial Qty of Tila Taila (In litre)	Kalka Qty (In Kilo)	Qty of Jala needed for Kalka Nirmana	Drava dravya Jala	Murchitha Tila taila obtained. (In Litre)	Loss / Gain (In Litre)	Loss / Gain (In %)	Kalka got After Filtration (In Kilo)
18 th Feb 2020 to 19 th Feb 2020	3 Hrs 10 min	1 Litre or 1000ml	0.212 kg or 212g	0.5 Litre or 500ml	4 Litre or 4000ml	0.98 Litre or 980 ml	-20 ml (20 ml Loss)	-2%	0.525 Kg or 525 g

Table 3: Organoleptic characters of Tila Taila, Murchitha Tila taila

SAMPLES	COLOUR	CONSISTENCY	APPEARANCE	ODOUR	TASTE
Tila Taila	Yellowish Brown	oily	Characteristic oily odour	Oily	oily
Murchitha Tila taila	Dark Reddish	Oily (But thicker than Tila taila) Liquid	Oily	Characteristic oily smell	Tiktha rasa + Slight madhura + oily

Table 4: Physicochemical Result of Tila taila, Murchitha Tila taila

Name of Tests	Tila Taila	Murchitha Tila taila
Specific Gravity	0.9163	0.991
Refractive Index	1.468	1.467
Acid Value	4.17	4
Iodine Value	110	23.9
Saponification value	198	191.75
Total Fat content	99.75	99.74
pH	6.2	5.21
Peroxide value	Nil	Nil
Rancidity	Pass	Pass

Table 5: TLC Results: Rf values & colors of the chromatogram of various samples viewed at 254 nm

SI No	SAMPLE	TLC RESULTS – Rf Values
1	Murchitha Tila Taila	0.86 Blue 0.92 Purple 0.97 Dark blue

PREPARATION OF SHATAPAKA MADHUKA TAILA

Table 6: Showing Preparation of Shatapaka Madhuka Taila

Practical Number	<i>Shata Paka Madhuka Taila</i>	It Includes Preparation starting from 1 st Avartana of <i>Madhuka taila</i> to 100 th Avartana of <i>Madhuka taila</i> .
1 st	Preparation of 1 st Avartana of <i>Madhuka taila</i>	<i>Sneha Paka</i> was carried out till attaining <i>Sneha siddhi Lakshana</i> by taking <i>Murchitha tila taila</i> as base (500 ml), <i>Yastimadhu</i> as <i>kalka</i> (31g), <i>Drava dravyas</i> as <i>ksheera</i> (2 Litre) & <i>Jala</i> (2 Litre) → Obtained 1 st Avartita <i>Madhuka Taila</i> was Measured & preserved. (540 ml)
2 nd	Preparation of 2 nd Avartana <i>Madhuka taila</i>	<i>Sneha paka</i> was carried out by taking obtained quantity of 1 st Avartita <i>Madhuka taila</i> (540ml) as base, <i>Yastimadhu kalka</i> (33g), <i>Ksheera</i> . (2160 ml) & <i>jala</i> (2160 ml) → Obtained 2 nd Avartita <i>Madhuka taila</i> was measured.
3 rd to 100 th	Preparation of 3 rd Avartana <i>Madhuka taila</i> to 100 th Avartana of <i>Madhuka taila</i>	As per the measured quantity of previously Avartita <i>Madhuka taila</i> , <i>Yastimadhu kalka</i> , <i>ksheera</i> & <i>jala</i> were added proportionally & <i>Taila paka</i> was carried out. The process was carried out till 100 Avarti Attained.

Table 7: Organoleptic characters of Different Avartita Preparations of Madhuka Taila

Name of the Preparation	Start.Date/Time & End. Date/Time	Paka Kala	Taila Qty(ml)	Kalka Qty(g)	Ksheera & jala Qty(ml)	Taila obtained	Kalka Obtained	Gain/Loss (ml & %)
1 st Avartita Madhuka Taila	19-02-2020 (3.30 pm to 4 pm) 20-02-2020 (11 am to 12.30pm)	2 h	500ml	31g	2000ml each	540ml	329g	+ 40ml (8%)
10 th Avartita Madhuka Taila	28-02-2020(3.35 pm to 5.40 pm) 29-02-2020 (9.15am to 9.40pm)	2h 35 min	740ml	46g	2960 ml each	790ml	319g	+50ml (6.75%)
50 th Avartita Madhuka Taila	13-06-2020(5.10 pm to 12.20 am) 14-06-2020(7.45 am to 2 pm)	13 h 25 min	4540ml	283g	18160 ml each	4700 ml	3200g	+ 160ml (3.5%)
100 th Avartita Madhuka Taila	06-08-2020(8.45 am to 11.05 pm) 07-08- 2020 (10.40 am to 5.30pm)	21 h 10 min	7320ml	457g	29280 ml each	7440ml	4705g	+ 120ml (1.63%)

Table 8: Observations of Different Avarti preparations of Madhuka Taila

Preparation	Colour	Appearance	Smell	Taste	Consistency
1 st Avartita Madhuka Taila	Dark reddish (colour Lighter than Murchitha taila taila)	Oily, Liquid (Thicker than <i>murchitha tila taila</i>)	Characteristic oily smell	Oily, Tiktha	Liquid, oily (Thicker in consistency)
10 th Avartita Madhuka Taila	Yellowish Brown	Ghee on cooling	Smell of <i>yastimadhu</i> + Ghee smell	More <i>madhura</i> + Ghee taste	Semisolid more, ghee like on cooling
50 th Avartita Madhuka Taila	More yellowish + slight brownish Coloured Ghee only	Ghee on cooling	Smell of <i>yasti madhu</i> + ghee	More <i>madhura tiktha</i> less + ghee`s taste more	Fully Turned to ghee on cooling
100 th Avartita Madhuka Taila	Yellowish brownish Coloured Ghee only	Ghee on cooling	Smell of <i>yasti madhu</i> + ghee	<i>Madhura rasa</i> + slight <i>tiktha rasa</i> - both equal	Fully Turned to ghee on cooling

Common Procedure: Previously *Avartita Madhuka taila* was taken in a wide mouthed stainless-steel vessel. It was kept over gas stove & fire was Ignited & allowed to heat over *Mandagni*. once it was Heated, *Drava dravyas (Ksheera & Jala)* 4 times to *taila* was added one after another & stirring was done. Followed by addition of *Yastimadhu Kalka* (1/16th part of *taila*)

& stirring was done. The procedure was not completed within a day. The next day also done until obtaining *siddhi Lakshana* & Vessel was taken out from fire & obtained *taila* was filtered through cloth when the *kalka dravya* was in Lukewarm condition to avoid much loss of *Taila*. Obtained *Avartita Madhuka taila* was measured & preserved. **Precautions:** *kalka*

dravya should be in Fine form. frequent stirring with mandagni or madhyamagni should be maintained throughout the procedure to avoid sticking of kalka. After the 1st day Paka of taila for few hours, should be kept closed with a lid (after it cools down) to avoid

falling off any impurities. stages of paka observed very carefully. filtration of taila has to be done in the hot stage to avoid loss. obtained Avartita Madhuka taila measured & preserved.

Table 9: Physico - chemical Result of Different Avartita Madhuka Taila Samples

Name of Tests	1 st Avartita Madhuka Taila	10 th Avartita Madhuka Taila	25 th Avartita Madhuka Taila	50 th Avartita Madhuka Taila	75 th Avartita Madhuka Taila	100 th Avartita Madhuka Taila
Specific Gravity	0.994	0.991	0.991	0.994	0.990	0.991
Refractive index	1.466	1.466	1.469	1.469	1.469	1.468
Acid value	4.12	3.32	3.25	3.1	3.19	3.4
Iodine value	24.1	24.8	23.89	24.3	24.89	24.8
Saponification value	191.32	191.71	190.62	191.99	191.62	191.75
Total Fat content	99.64	99.79	99.70	99.79	99.72	99.71
pH	5.32	5.89	5.62	5.26	5.91	5.83
Peroxide value	Nil	Nil	Nil	Nil	Nil	Nil
Rancidity	Pass	Pass	Pass	Pass	Pass	Pass

Table 10: TLC Results - Rf values & colours of the chromatogram of various samples viewed at 254nm

Sl No	Samples	TLC Results
1	1 st Avartita Madhuka Taila	0.84 Red 0.89 Purple 0.95 Dark blue
2	10 th Avartita Madhuka Taila	0.84 Red 0.90 Purple 0.93 Dark blue
3	25 th Avartita Madhuka Taila	0.85 Red 0.90 Purple 0.95 Dark blue
4	50 th Avartita Madhuka Taila	0.56 Green 0.70 Red 0.77 Blue 0.87 Green
5	75 th Avartita Madhuka Taila	0.70 Blue 0.88 Red 0.91 Purple 0.97 Dark blue
6	100 th Avartita Madhuka Taila	0.56 Green 0.70 Red 0.75 Blue 0.87 green

DISCUSSION

To understand the concept of Avartana, *Shata paka* ie, 100 *paka* of *Madhuka taila* was carried out. *Murchitha tila taila* was taken for the preparation of *Shata paka Madhuka taila*. During *Murchana* of *Tila taila*, *Jala* was added 4 times to the quantity of *taila* for the *samyak paka* (proper extraction) of the *kalka* even though not in *yoga*. After addition of *kalka*, suddenly froth & fumes with peculiar sound appears on oil, due to moisture content. oily consistency of *taila* was reduced after the addition of *jala* into the *taila*, mostly because of less viscous nature of *jala*. During the boiling of oil, due to water evaporation, less numbered bigger bubbles seen in the centre & more numbered smaller bubbles seen on the sides to appear. froth started appearing in the surface of *taila* suggestive of *samyak paka lakshana* of *taila*. Because *taila* contains unsaturated fatty acids which on heating continuous oxidation happens, lower fatty acids generated leads to bubbling. on completion of *paka* due to the conversion from unsaturated fatty acids to saturated fatty acids. In *mrudu paka* stage⁶, *varti* of *kalka* couldn't be able to prepare & crackling sound heard on *agni* due to the moisture content in it. In *Madhyama paka* stage⁶ crackling sound was absent by putting *taila* & *kalka* on fire, suggests devoid of moisture. spillage & evaporation of *taila* during heating & absorption of *taila* by cloth during filtration were the reasons for the loss of 20 ml of *Murchitha tila taila*. characteristic odour, slight *Madhura* & *Tiktha rasa* with characteristic oily taste & Dark reddish *varna*, Thicker in the consistency of *Murchitha tila taila* suggestive of entry of active constituents of *kalka* to *taila*. In the preparation of *Shata paka Madhuka Taila*, *Jala* was added 4 times to the quantity of *taila* for *samyak paka* of the *kalka* (proper extraction) as *ksheera* was the *drava dravya*⁷. The initial addition of *yastimadhu kalka* to oil was not followed due to chances of burning in direct contact with hot *taila*, so it was added after *drava dravyas*. ie, *ksheera* & *jala*. *Bhaishajya Ratnavali* reference also supports to this order of addition. In stage of boiling of milk, the temperature in different avartita samples ie, 1st, 10th, 50th & 100th was 99.5⁰c, 99.4⁰c, 99.6⁰c, 99.5⁰c respectively. As the

boiling point of milk is 95⁰c, so all reached that level. continues stirring was not required as the whole mixture was liquid, non-thick & non-sticky. In the stage of mixing, continuous stirring was essential because the mixture was thick, sticky in consistency. In the initial number of *Avarti* preparations, mixture colour was pinkish red due to a combination of reddish *taila*, yellowish-brown *yastimadhu kalka* & whitish *ksheera*. Later number of *Avartita tila* had light yellowish-brown, further onwards brownish coloured *taila* was mostly due to the addition of *yastimadhu kalka* & *ksheera* in each *Avarti*. In further stages of separation of oil & boiling of oil, temperature found was more, as the water evaporated more. In stage of *paka lakshana*, up to 6th *Avartana*, *phena udgama* was seen, later onwards slowly *phena shanti* observed due to conversion to ghee. For attaining *vishesha guna sanchaya* to *taila* as per *sharangadhara*, each *taila paka* was not completed within a day. if we keep these preparations in *ratri*, it will help for the *vishesha guna sanchaya* (for the entry of active constituents into *sneha*). so, 100 nights were kept as it is in the night after few hours of *paka* in the daytime. Reasons for colour change of oil from dark reddish, light reddish, yellowish, yellowish-brown successively in *Avarti* due to addition of *yastimadhu*, *ksheera*, continuous *agni paka* & also due to milk fat conversion to ghee. consistency changed from liquid, oily to partial semisolid, further semi solidness increased & converted to ghee form due to conversion of milk fat. *Murchitha tila taila* had an oily taste, slight *tiktha*, *Madhura rasa*. 1st *Avarti* had oily, *tiktha*, on successive *avarti madhura rasa* also added. on 7th slightly more *madhura* & less *tiktha rasa* & mixed taste of *ghruta* & *taila*. further onwards more *madhura*, less *tiktha*, ghee taste more, later more *tiktha*, less *madhura*, ghee taste more, further both *madhura* & *tiktha rasa* almost equal with ghee taste towards *shata paka*. Reason for taste change due to addition of the *yastimadhu*, *ksheera* (Milk fat conversion into Ghee) & *agni paka* also. In the case of odour, *murchitha tila taila* had a characteristic smell. Further onwards *yastimadhu* smell & *ghruta* smell was appreciated. later onwards same odour with more intensity was appreciated. From

1st Avarti to 50th Avarti 9.4 times of increment & from 50th Avarti to 100th Avarti 6.4 times increment of total quantity was there. Reason for more yield was milk fat conversion to *ghruta* form. As compared to gain, the loss was less because of the addition of ingredients in each *avartana*. Specific Gravity results suggest that compared to *Tila tila*, all samples specific gravity got increased suggestive of the presence of active Constituents. Marginal increase in the value of the refractive index in successive *avartana* due to additional phytoconstituents. After *murchana* acid value decreases also on successive *avartana* acid value decreases. *Tila taila* had a high acid value suggests higher fatty acids content & thereby faster is the rancidification as compared to others. So, on successive *Avartana* Acid value decreases. Ie, Product will be more stable towards successive *Avarti*. The iodine values of all the samples are very less compared to *Tila taila*. So, all samples are less reactive, stable, and less susceptible to oxidation & rancidification. There were not many changes in the fat value & saponification value of samples. pH value suggests that compared to *tila taila* all samples are a little acidic. Mostly due to the addition of *murchana* drugs & also due to the addition of milk (milk also slightly acidic). Samples May slight irritant in nature as it is with potency. pH variation due to continuous heat exposure. Peroxide values are zero for all the samples So none of the samples got rancid. Rancidity showing as all are pass means products are not rancid.

TLC results show that *murchitha tila taila* having 3 bands & the blue band in *murchitha tila taila* is replaced by the red band in 1st, 10th & 25th *Avartita Madhuka taila* mostly due to the active constituents by the addition of *yastimadhu* & milk. 1st, 10th, 25th *Avartita Madhuka taila* having similar 3 bands with different Rf values. 50th, 75th & 100th *Avartita Madhuka taila* shows different 4 bands with different Rf values. The reason for the presence of more bands in the 50th, 75th & 100th *Avartita Madhuka taila* samples might be because of the presence of more active principles.

CONCLUSION

To evaluate the concept of *Avartana* a study was undertaken to prepare 1, 10, 50, 100 *Avartita madhuka taila* & carry out a comparative pharmaceutico analytical study. The pharmaceutical procedure reveals that the concentration of the active bio constituents of *yastimadhu* & milk fat gets increased in each *avartana*. There was a conversion of liquid consistency of *taila* to semisolid consistency of *ghruta* (on cooling) in proceeding *avartana* due to the conversion of added milk fat to ghee & change in colour, consistency, odour, taste, appearance also noted. Analytical study reveals that increase in specific gravity & Refractive index suggests more active constituents, decrease in acid value & iodine value suggests product are more stable & less chance of rancid on successive *avartana*. Rancidity & peroxide value tells product are not rancid. No significant changes were seen in saponification & fat value. pH changes indicate slight acidic nature & may be irritant due to high potency. TLC shows the presence of more bands towards 50th, 75th & 100th *avarti* samples shows more active constituent. It can be concluded that pharmaceutically & Analytically concentration of Bio-constituents are more present in successive *Avartana*. Thus, *Avartana* process helps for potentiating the formulation by adding active constituents.

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