

Comparative Study of Raw, Murchita and Refined Oil of Various Oil Samples, (Sunflower, Soya, Groundnut Oil)

Nitu Singh*

R.R. Hiremath**

R.C. Mathad***

B.S. Prasad****

ABSTRACT

Sneha kalpanas are one of the unique formulations of Bhaishajya Kalpana. Sunflower, Soya and Groundnut oils are in use for day today's life. Taila Murchana is adopted to enhance the potency of oil, by removing their bad odour. The nature of raw oil, murchita oil, and refined oil is varied physically and chemically. Murchita oil is more potent seen in analysis compared to refined and raw samples. Shelf life and therapeutic property of Murchita oil is more as compared to refined and crude oil.

Key words: Sunflower, Soya, Groundnut Oil, Murchana, crude oil, refined oil.

INTRODUCTION

Essential fatty acids are important dietary constituent of our body. Sneha kalpanas are potent formulations widely explained in Indian pharmaceuticals to prepare oleaginous medicaments from substances like kalka dravya, drava dravya in specific proportion by subjecting it to unique heat pattern and duration. They have various route of administration. They are used internally, externally, as basti, for abhyanga etc. Before preparing any snehas it has to undergo Murchana kapana. Murchana is a unique process explained in Bhaishjya Ratnawali ¹.

Murchana removes impurities like amadosha, durgandhata, ugrata etc bad characteristics helps in adding good smell and color to oil simultaneously enhance potency of further sneha preparations. It enhances potency of oil because its rancidity decreases, and it undergo samskara process by murchana. Many edible vegetable oils are used for various cooking and food preparation. Here an attempt is made to know the efficacy of crude oil, murchita oil and their refined oil (market samples).

MATERIAL AND METHOD

Raw oils selected are 1. Sunflower oil 2. Soya oil 3. Groundnut oil, Raw and Refined samples are collected from market, Belgaum.

Method, Murchana of these all oils are done by following classical reference Bhaishjya Ratnawali. Pharmaceutical study is carried out at dept of Rasa Shastra, KLE University Ayurvedic Medical college, Belgaum.

Author's Affiliation: *Department of Rasashastra, K.L.E.S University B.M.K Ayurvedic medical college Belgaum, **Asst.prof Department of Rasashastra& Bhaishjya kalpana, K.L.E.S University B.M.K Ayurvedic medical college Belgaum., ***Professor Department of Department of Rasashastra, K.L.E.S University B.M.K Ayurvedic medical college Belgaum, ****Principal, Department of Kaya chikitsa, K.L.E.S University B.M.K Ayurvedic medical college Belgaum

Reprint's request: Dr. R.R Hiremath Asst.prof.
Department of Rasashastra& Bhaishjya kalpana, KLES
University B.M.K Ayurvedic medical college Belgaum,
Email-dr_rrhiremath@yahoo.co.in Phone No-09480539098

(Received on 30.12.2010, accepted on 28.01.2011)

INGREDIENTS

1. Raw Sunflower oil: 1liter 2. Raw Soya oil: 1liter 3. Raw Groundnut oil: 1liter

HERBAL DRUGS

Fine powder of Vibhitaki, Haridra, Harikati, Ketaki, Hribera Nalika, Lodhra, Musta are

taken 12gm each, Manjistha= 96 gm, Jala =3.75 lit

Procedure of Murchana ^{2,3}

Sunflower Oil is taken in a container and slightly heated. Kalka is prepared by all specified herbal drugs and added to the container. Four parts of water is added, kept on fire for boiling till oil portion remains. Then vessels is taken out from the fire, self cooled and filtered.

Table No 1 Showing the Organoleptic characters of sunflower oil

S.No	Parameters	Sunflower oil	Murchita sunflower oil	Refined sunflower oil
1.	Color	Yellow	Dark red	Light yellow
2.	Smell	Astringent	Pleasant	good
3.	Appearance	Oily	Oily	Oily
4.	Touch	Smooth	Smooth	Smooth
5.	Clarity	Clear	Clear	Clear
6.	Opalence	Translucent	Translucent	Translucent

Table No 2 Showing the Organoleptic characters of Soya oil

S.N	parameters	Raw soya oil	Murchita soya oil	Refined soya oil
1.	Color	Light yellow	Dark red	Lemon yellow
2.	Smell	Good	Pleasant	Good
3.	Appearance	Oily	Oily	Oily
4.	Touch	Oily non sticky	Oily non sticky	Oily non sticky
5.	Clarity	Clear	Clear	Clear
6.	Opalence	Translucent	Translucent	Translucent

Table No 3 Showing the Organoleptic characters of Ground Nut oil

S.NO	parameters	Raw ground nut oil	Murchita ground nut oil	Refined ground nut oil
1.	Color	Dark yellow	Dark brown	Dark yellow
2.	Smell	Astringent	Good	Astringent
3.	Appearance	Oily	Oily	Oily
4.	Touch	Sticky	Oily non sticky	Oily non sticky
5.	Clarity	Clear	Clear	Clear
6.	Opalence	Translucent	Translucent	Translucent

Same procedure is adopted for other two oils.

OBSERVATION

Initially color of oil was pale yellow and kalka dravys are floating, settles down when 4 times water added in it. After some time

homogeneity of oil and water was observed. Pale yellow color of oil changes to dark brown color in succeeding stages. The smell of raw oil was teekshana, irritative before Murchana and after murchana it was changed to pleasant due to boiling with Kalka dravya. Kalka

Table no 4. Showing the results of all samples

Sl.No	Results	Sunflower oil	Soya oil	Groundnut oil
1	Initial weight	1000 ml	1000 ml	1000 ml
2	Final weight	750 ml	670 ml	750 ml
3	Loss of oil	250 ml	230 ml	250ml
4	Reasons	1. Oil was absorbed by kalka dravya, cloth of kalka dravya. 2. Loss on handling		

produces sound when sprinkled on fire. When paka completed Kalka is soft in nature and free from water and converted in varti form.

groundnut are done at Central research labarotary, KLE University Ayurvedic Mahavidyalay, Belgaum. This is very essential to know their efficacy and compare at various stages.

RESULTS

Analytical study

Analysis of Raw, Murchita and Refined oil (market sample) of sunflower, soya and

The selected are parameters for analysis:

1. Refractive Index
2. Specific gravity

RESULTS OF ANALYTICAL STUDY

Table No 5 showing the analytical data of sunflower oil

S.NO	parameters	Raw sunflower oil	Murchita sunflower oil	Refined sunflower oil
1.	R.I	1.47	1.471	1.47
2.	Loss on drying	0.4	0.3	0.6
3.	Sp.gravity	0.914	0.913	0.914
4.	Viscosity	65.87	43.65	57

Table No 6 showing the analytical data of Soya oil

S.NO	parameters	Raw soya oil	Murchita soya oil	Refined soya oil
1.	R.I	1.471	1.471	1.471
2.	Loss on drying	0.5	0.3	0.6
3.	Sp.gravity	0.914	0.916	0.914
4.	viscosity	62.86	43.05	52.58

Table No.7 showing the analytical data of Ground Nut oil

S.NO	parameters	Raw ground nut oil	Murchita ground nut oil	Refined ground nut oil
1.	R.I	1.465	1.464	1.464
2.	Loss on drying	0.818	0.3	0.6
3.	Sp.gravity	0.912	0.904	0.912
4.	Viscosity	68.87	47	67.09

3. Viscosity
4. LOD

DISCUSSION AND CONCLUSION

Sneha kalpanas are prepared by mixing oil, kalka dravya, and water and boiled till it reduced to oil quantity. Added Water portion during paka shows a unique role in extraction of active principle of kalka to oleaginous material and also in absorption of oil in body⁴.

In an emulsion i.e. oil and water, a third component is required to stabilize the emulsion. Here Surface-active agents (herbal drugs) are used in combinations for the purpose of stabilizing an emulsion and to enhance their therapeutic property. The reduction in interfacial tension between the oil and water caused by adsorption of emulsifying agents at the interface was the main stabilizing factor.

Kalka which is a emulsifier used in sneha kalpana has two phases i.e -Hydrophilic phase and -Lypophilic phase. The active principles will transfer from kalka to lipid and water respectively (Solid/liquid mass transformation phenomenon)⁵. Along with that boiling is very essential and mentioned in classics which increases the solubility of the material. This increases the diffusion coefficient, decreases the viscosity of the liquid so reducing the boundary layer thickness^{6,7}.

In case of sneha kalpana the water soluble constituent interacts with hydrophilic end of fatty acid and oil soluble constituent interacts with hydrophobic end. Like this all the fat-soluble and water soluble constituents introduced in to oil media. This will enhance their potency in therapeutics.

Rancidity is the offence odor and taste of fats and oils on standing exposed to air moisture and warm temperature. This may result from the formation of obnoxious aldehydes due to the oxidation of unsaturated

Tryacylglycerols at the double bonds of their fatty acids residues by atmospheric oxygen and ozone. Loss on drying was much reduced (Table no. 5,6,7) after Murchana and less when compared to refined oil samples. This data its self indicates the importance of Murchana process. Due to Murchana the oil preparations will not get rancid soon.

Viscosity was reduced after murchana (Table no. 5,6,7) and same in both Raw and Refined samples of all oils. This shows clearly that bio availability and absorption of oil increases by murchana. Specific gravity and RI are not altered after murchana shows oil does possess any mixtures through paka kriya.

REFERENCE

1. Shastri Ambika dutta, Bhaisjya ratnawali Choukhambha Sanskrit Samsthana 17thEdition Charaka jwara roga dhikara 5thchapter Pp-130.131
2. Shobha Hiremath 2nd Edition Bhaisajya kalpana vijnanam Choukhambha Sanskrit samsthana Sneha kalpana Pp-233-234
3. Rama Chandra reddy 2nd Edition Bhaisajya kalpana vijnanam Choukhambha Sanskrit Samsthan Sneha kalpana 5th chapter Pp 371,373,377
4. Krishna murthy M.S etal, A comparative pharmacological study of 107&50 avartita taila prepared by atibala and their efficacy in management of sandhigata vata.
5. Cooper & Gunn tutorial pharmacy 6th edn 162-163, 251, CBS publishers & distributors New Delhi.
6. Mithal B.M.A text book of pharmaceuticals formulation 6th edn vallabh prakashana new delhi. Pp201,202,203,208,209.
7. Unnikrishna.P Arya vaidyana vo 12th no.3 Feb-april 2007, Pages 190-192.