wjpmr, 2024, 10(3), 174-176

SJIF Impact Factor: 5.922

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

Review Article

ISSN 2455-3301

WJPMR

A CRITICAL REVIEW ON SNEHA KALPANA: OLEAGINOUS DOSAGE FORMS

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Article Received on 19/01/2024 **Article Revised on 09/02/2024** **Article Accepted on 29/02/2024**

ABSTRACT

Sneha Kalpana (medicated oil/Ghrita) is most commonly prescribed Ayurvedic dosage from in routine clinical practice. This class of formulations is reported to treat a very wide range of diseases among patients of all age groups. Sneha Kalpas manufactured in Ayurvedic pharmaceutics are used extensively for medicinal as well as cosmetic purposes. It is one of the widely used techniques in Ayurvedic drug industry to achieve solubility of both fat-soluble and water-soluble extractives into the oil medium. Lipid-based drug delivery systems (LBDDS) are one of the emerging technologies designed to address the challenges of solubility and bio-availability of poorly water-soluble ingredients. It is only Kalpana which is used through all four modes of administration viz., Pana, Abhyanga, Nasya and Basti. Quality and quantity of lipid soluble extract of medicinal ingredients varies, as per methods, types of material and ratio of material with reference to Sneha Dravya. Fat/Water soluble active principles of drugs are extracted into medicated oil in Sneha Kalpana. Classically, these formulations have longer shelf life in comparison to other Ayurvedic herbal medication forms. Medicated Taila is more therapeutically potent and have higher shelf life than crude Taila. The water soluble as well as fat soluble active principles can be transformed into Taila media and this addition of properties of material makes Taila therapeutically potent and effective. Increased saponification value indicates higher content of low molecular weight fatty acids. Medicated oils containing low molecular fatty acids are absorbed faster through cell membranes.

KEYWORDS: Clarified butter, Medicated oil, Sneha Kalpana, Sneha Paka.

INTRODUCTION

'Sneha' is fats or materials having enough percentage of fats in its constituents and 'Kalpana stands for techniques for pharmaceutical processing of medicaments. The word ‘Sneha’ as defined in Sanskrit-‘snih dhatu ghajptayay’, “Snih Preetau”–represents an attribute of getting attached or unification as characterised by oleaginous or fat or fatty material of natural animal or plant origin. Kalpana originated from ‘krupusamarthe’–represents a process to transfer a natural substance into a specific therapeutic form.[1,2] Origin of the word lipid is from the Greek word lipos meaning fats that implies any class of organic compounds that are fatty acids or their derivatives obtained from different sources. Hence, may be said that pharmaceutical dosage form prepared out of fats or fatty materials for desired therapeutics is known as Sneha Kalpana. Sneha Kalpana is an oleaginous preparation, one among the medicinal preparations in Ayurvedic therapeutics. Sneha Kalpana is a manufacturing technique where active phytoconstituents of plants are extracted in suitable fat media from the medias such as Kalka, Kwatha, Drava and Dravya in specific proportions of ingredients, mixed and heated under specific temperature to achieve chief desired therapeutic requirements. Here, aim is to extract the water soluble (polar) and fat /lipid soluble (non-polar) active phytoconstituents principles, thereby providing a broader range of therapeutic characteristics and to enhance the shelf life of Sneha. The lipid soluble materials are easily diffusible into the biological membranes through liposomal drug delivery system. Hence, Sneha Kalpas are permeable to various cells and tissues including cells of nervous system which are mostly lipoidal in nature. Modified forms of Sneha Kalpana are used in contemporary medical science to formulate dosage form to facilitate better absorption and hence, delivering quicker therapeutic response. Classically, defined shelf life of Sneha Kalpana is 16 months whereas, Drug and Cosmetics act, 1940 Rule 161-B has specified the shelf life of Ghrita and Taila as 2 and 3 years respectively.

Definition

Sneha Kalpana may be defined as a pharmaceutical process to prepare oleaginous medicaments from substances like Kalka (herbal paste of different parts of botanicals), Kwatha (specifically prepared decoction in accordance of Ayurvedic principles) or Drava Dravya (any other liquid such as milk, self-expressed juices, meat juice, etc.) taken in specific proportion and by subjecting them to unique heating pattern and duration to fulfil certain pharmaceutical parameter , according to the need of therapeutics. The Drava Dravya here may be other then Kwath such as Jala(Water), Swarasa(Self-expressed Herbal), Kanji (fermented Herbal beverage), Mansa Rasa(Meat juice), Gomutra(cow urin), etc.

Rules for preparation of sneha kalpana

1) If Drava Dravya during preparation of Sneha is Jala, Kwatha, and Swarasa, then amount of Kalka used should be one fourth, one sixth and one eighth of Sneha, respectively.
2) When indication of Sneha preparation is Dugdha (milk), Dadhi (curd), Takra (butter milk), and Mansa Rasa (meat juice), Kalka to be used should be one eighth and water should be added four times for Samyaka Paka (moderate heating) and complete transfer of active principles.
3) If Drave Dravya are more than five in number, then each Dravya should be taken in the same quantity as that of Sneha. If it is less than five, then total quantity of all liquids should be four times of Sneha.
4) If Paka is mentioned by only Kalka Dravyas, then water should be added four times of Sneha to replace Drava. Condition when Paka is mentioned by only Kwatha Dravya, then Kalka should be prepared by drugs of Kwatha.
5) If flower is indicated as Kalka Dravya, then its quantity should be one-eighth of Sneha.

Preparation of Sneha is mainly divided into three stages viz., Mridu Paka, Madhyama Paka and Khara Paka. **Mridu Paka** is first of Stage of Sneha Paka. Here, Sneha and Kalka are distinctly observed and Kalka become gum-like consistency, sticky on touch and produce cracking sound when kept on fire. **Madhyama Paka** is second stage of Sneha Paka, when Kalka becomes soft, non-sticky, Avaleha -like and does not stick to ladle. **Khara Paka** is third stage of Sneha Paka. When Kalka cannot be rolled into Varti, instead it breaks into smaller pieces.

Sneha Siddha Lakshana[2] (Characteristics of Sneha at the end of process): Sneha Kalka attains perfect wick-shape when rolled between thumb and index finger. If a part of Sneha Kalka is put into the fire, no sound is produced indicating the loss of moisture in it. Foam appears during Taila Paka and disappears in Ghrita Paka during completion of preparation. Desired colour, odour and taste of the ingredients become appreciable as the preparation is prepared.

Sneha Kalpana has a wide range of therapeutic applicability. Sneha Kalpa (medicated oils/ Ghrita) of Ayurvedic dosage forms, are used in therapeutics both topically and systemically. Thus, we can see a wide variety of uses of Sneha Kalpana, some of which are mentioned in table 1.

Tests for medicated Oils and Ghrita: The oils and fats contain saturated, unsaturated and polyunsaturated fats (Table 2). The types of fats present in oil specify the shelf life of medicated oils. General guidelines for analytical testing of medicated oils and Ghrita are provided by CCRAS (Table 3). **Rancidity** is decomposition of fats, oil or other lipids by hydrolysis or oxidation or both. Hydrolysis splits fatty acid chains away from glycerol. The fatty acids can further undergo auto-oxidation. Oxidation primarily occurs with unsaturated fats by a free radical mediated process, these chemical processes can generate highly reactive molecules in rancid foods and oils, which are responsible for producing unpleasant odours and flavours. **Refractive index** is measure for how much speed of light is refracted inside the medium. It is the ratio of the velocity of light in a vacuum to its velocity in the substance. **Viscosity** is measure of fluids resistance to flow difference in rate of flow. **Acid value** indicates amount of free fatty acids present in it. **Saponification value:** Saponification means chemically hydrolysed into soap by heating with an alkali. Saponification number or value is the quantity of potassium hydroxide required in mgs to neutralize the acid formed by hydrolysis of fat present in the drug. It indicates the fat content. Application of **iodine value** of is determination of amount of unsaturation in fat. Unsaturation is in the form of double bonds which react with iodine compounds. Higher iodine value indicates lesser stability of oil and more vulnerability towards its oxidation and free radical production.

Table 1: Therapeutic applicability of Sneha Kalpana.

Mode	Nasya Kalpana	Mukha Kalpana	Netra Kalpana	Abhyanga	Anuvasan Basti	Uttar Basti,Pichu	Internal Administration	Non Healing Ulcer
Example	Shadbindu Taila, Anu Taila	Irimedadi Taila	Triphala Ghrita	Dashamula Taila	Saindhavadi Anuvasan Tail	Mushakadya Taila	Panchatikta Ghrita, Kshira Bala Taila	Jatyadi Ghrita

Table 2: Composition of different oils and fats (%).[1]

Oil/Fat	Saturated Fatty Acid	Monounsaturated Fatty Acid	Polyunsaturated Fatty Acid
Ghee	65%	32%	3%
Sesame oil	14%	43%	43%
Mustard oil	10.7%	56%	32.6%

Table 3: Analytical test for medical Oils and Ghrita.[2]

Sr. No.	Parameters	Tests
1.	Organoleptic parameter	Description, Colour, Odour.
2.	Physico-chemical parameters	Ph Value, Rancidity, Specific Gravity, Moisture Content Congealing Point, Refractive Index, Viscosity.
3.	Chemical	Iodine Value, Saponification Value, Acid Value, Peroxide Value, Free Fatty Acids,Mineral oil test(it should be negative)
4.	Chromatographic profile	TLC/HPTLC/HPLC etc.
5.	Test for heavy metals	Lead, Cadmium, Mercury, Arsenic (Limits as per ASU Pharmacopoeia)
6.	Microbial Contamination	Total viable aerobic count, Total fungal count (Limits as per ASU Pharmacopoeia)
7.	Test for Specific Pathogen	Escherichia coli, Salmonella spp., Staphyloccocus aureus, Pseudomonas aeruginosa (Limits as per ASU Pharmacopoeia).
8.	Aflatoxins	B1, B2, G1, G2 (Limits as per ASU Pharmacopoeia)
9.	Shelf life	Accelerated and long-term stability study

REFERENCE

1. Gbian, Douweh Leyla, and Abdelwahab Omri. "Lipid-Based Drug Delivery Systems for Diseases Managements." Biomedicines, 2022; 10,9: 2137.
2. Onten CS, Kumar Vikas Chaudhary A. Varanasi: BHU; Study of Stability (Saveeryata Avadhi) of Samanya and Panchavartita Panchtikta Ghrita, (M.D.Ay.Dissertation), 2009.
3. Tripathi B, Sharangdhar S, Dipika Hindi Vyakhya. Varanasi: Chaukhamba Surbharati Prakashan, Madhyama Khanda, 2024; 9/1,9/3-4,9/8-11,9/12-13,9/14-15,9/18.
4. *Tripathi B, Sharangdhar S, Dipika Hindi Vyakhya. Varanasi: Chaukhamba Surbharati Prakashan, Madhyama Khanda, 2024; 9/1, 9/3-4,9/8-11,9/12-13,9/14-15,9/18.
5. 'Tripathi Bramhanand edited "Sharangdhar Samhita" commentary Naranashi, published by Chaukhamba surbharti Prakashana, Madhyam khanda, 2013; 9,1-19: 144, 145, 146.
6. "The Ayurvedic Pharmacopeia of India Government of India, Ministry of Health and Family Welfare, 1990; 1,6,3: 3-13.
7. "The Ayurvedic Pharmacopeia of India Government of India, Ministry of Health and Family Welfare, 1990; 1,6,3: 1-1.
8. *The Ayurvedic Pharmacopeia of India Government of India, Ministry of Health and Family Welfare, 1990; 1,6,3: 3-6.
9. 'The Ayurvedic Pharmacopeia of India Government of India, Ministry of Health and Family Welfare, 1990; 1,6,3: 3-9.
10. "The Ayurvedic Pharmacopeia of India Government of India, Ministry of Health and Family Welfare, 1990; 1,6,3: 3-7.
11. "The Ayurvedic Pharmacopeia of India Government of India, Ministry of Health and Family Welfare, 1990; 1,6,3: 3-8.
12. "Available from https://www.brainkart.com/article/Fats-and-oils 33983/(Last accessed on 15.02.2023 10:30 pm.)
13. "Anonymous, General guidelines for drug development of ayurvedic formulations, Guidelines Central Council For Researchin Ayurvedic Sciences Ministry of Ayush, Govt. of India, New Delhi, First Edition, Anusandhan Bhavan, Janakpuri New Delhi, Annexure-III, Test parameters, Tailas/Ghritas/Thylam/Nei (medicated oils and ghee), 2018; 40: I-III.