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PHARMACEUTICAL AND ANALYTICAL STUDY OF PANCHATIKTA GHRITA

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INTRODUCTION

Ayurveda is an ancient religio Vedic science originated from the ancient vedic civilization of Bharat. It was developed from vedas specially Atharvaveda and Rugveda. It's well known that the Ayurveda is a science of life. "Ayurvedo Amrutanam" because it is God's gift Dharma, Artha, Kama, Moksa that shoud be practiced by ancient Acaryas which is based on Atharveda, one of the oldest scripture of Hindus. In samhita, Acaryas have mentioned Astanga ayurveda (eight branches) i.e. Kaya, Bala, Graha, Urdhvanga, Salya, Drasta, Jara, Vrusana. Bhaishjya Kalpana is not mentioned in any of the angas of Ayurveda, it is co-related to all the eight angas based on it's uses.

AIM AND OBJECT

The present Studies entitled **"Pharmaceutical & Analytical study of Panchatikta Ghrita."To study in detail**

- **Pharmaceutical & Analytical of Pachatikta Ghrita.**

1. To evalute the Pharmaceutical Properties of Panchatikta Ghrita.
2. To evalute the Pharmaceutical properties of Panchatikata Ghrita.
3. To Standaridies the Panchatikta Ghrita.

SNEHA KALPANA

1. Introduction: Sneha and kalpana these two words frame the wording Sneha kalpana. Here Sneha means fat or fatty material and kalpana denote a pharmaceutical process of medicaments. 1"Kalpanam upyogartham Prakalpanam samsakaranamiti" Kalpana is the

process through which a raw material converted into medicinal form according to the necessity of the physicians.

Chronicled appraisal: Prime Vedas are the source of knowledge and Ayurveda is a part of it. Athervaveda mention about, pivas paka & Taila paka, where visha dravyas are used in the processing. In Yajurveda also Havi and Ajya are mentioned for Ghrita.

Samhita period: Samhita kala is considered as the golden period for Sneha kalpana. In brihtrayee Sneha kalpana flourished due to its immense use for different purposes ranging from external applications to internal administration through different routes. **Charak samhita –** Primary knowledge of Sneha as its properties, source of origin, types etc. is clearly mentioned. Systematic method of preparation, types of Sneha paka, proportions and Siddhi lakshana of Sneha 3kalpana and its uses discussed in this samhita. th 4And in Charak Viman Sthana 7 separately Sneha siddhi lakshana are mentioned.

Different kalpas of Sneha kalpana are elaborated in this Samhita.

3. Sources of Sneha kalpana

Sneha is obtained from two Yonies (Sources)

Ex. for Sthavara yoni Jangama yoni.

Also Sthavara Sneha dravyas are also classified in Virechaka Sneha, Vamaka Sneha, Shirovirechaka Sneha, Vranahara Sneha, Mahavyadhihara Sneha, Mutrasangahara Sneha, Sharkara Ashmarihara Sneha, 8 Prameha hara Sneha, Pitta Vata hara Sneha Krishnikarana Sneha, Pandukarana Sneha.

4. Properties of Sneha Dravya – The substance which possesses the properties like liquid, minute, non stable, unctuous, slimy, heavy, cold, dullness and softness is Sneha Dravya.

5. Classification of Sneha Kalpana

Sneha Kalpana may be devided under three headings.

1. Based on the Nature of Media: Ghrita Kalpa, Taila Kalpa, Vasa Kalpa, Majja Kalpa, Yamaka Sneha, Chatuh Sneha.
2. Based on the stage of paka: Ama Paka, Mridu Paka, Madhya Paka, Khara Paka, Dagdha Paka.

3. Based on the types of utility: Pana, Anuvasana, Abhyanga, Shirobasti, Uttarbasti, Nasya, Karnapurana and Dharana.

6. Advantages of Sneha kalpana

To extract the fat soluble active principles from the raw material. To enhance and hasten the absorption of drugs, when used topically in fat medias.

To obtain extra benefits of specific Taila /ghee used (Nutritive) To preserve the drug for longer time.

Increases the bioavailability of drugs.

Sneha kalpas are the only dosage form which can be used both internally as well as externally.

Susruta samhita – Sneha kalpana elaborately described in Susruta Samhita.Susruta was first mentioned about Sneha kashayas. Specific preparations like Satdhauta ghrita, sahastrapaka Taila etc. are also highlighted in this treaty. At chikitsa susruta enumerate, types of Sneha, process of preparing Sneha kasaya, Sneha siddhi lakshana, types of Sneha paka, uses of Sneha and evil effects of Sneha.

Astanga Samgraha and Astanga Hridaya

Both treatise mentioned Sneha kalpana with some changes from former treatises.

Chakradatta - Clinical uses of tailas and ghritas are mentioned in this text different medias are used in the preparation of Sneha kalpas.

Sharangadhar samhita

6 Acharya Sharangdhar has discussed details of Sneha kalpana in a separate chapter. This treaty deals with method of preparation, proportions, uses, types of pakas and Sneha siddhi lakshana etc.

Gadanigraha – In this book separate chapters of Sneha kalpana Tailadhikaras, Ghritadhikaras are included by Acharya sodhala.

Sahastrayoga – The treaty owned by the kerala Vaidyas also elaborated the ratios and different Ghrita and Taila preparations.135 Ghritas & 96 tailas are mentioned in this treaty.

Bhiasajya Ratnavali- This treatise clearly described about Sneha murchhana. Method of preparation of Sneha kalpana is also elaborated by Acharya Govind Das Sen.

7. Requirements for Sneha kalpana

Sneha kalpana needs following materials

1. **Kalka dravya:** Fine paste of medicinal plants and minerals should be taken as a kalka dravya.
2. **Drava dravya:** Water, Kwatha, Swarasa, Kanji, Ksheer, Dadhi, Takra etc. Sneha dravya: Mainly different types of fat containing media such as Taila, ghee etc.

8. Concept regarding the proportion

General ratio for Sneha paka: If the quantity of the ingredients is not mentioned, then the kalka, Sneha, and drava dravya should be collected in the proportion of 1: 4: 16 respectively.

3. Sources of Sneha kalpana – Sneha is obtained from two Yonies (Sources) Ex. for Sthavara yoni Jangama yoni

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9. General method of Preparation

Sneha Paka process may be devided in three phases.

(1) Sneha Murchhana

(2) Sneha Paka

(3) Paka siddhi

- **Sneha Murchhana**

Murcchana is a special pharmaceutical procedure, before subjecting the drugs to Sneha paka, Sneha is supposed to under go one particular procedure called as Sneha Murchhana. It is applied for both Taila and Ghrita.

- **Objectives of Murchhana**

Murchhana may be performed to achieve the following objectives.

- Amadoshaharatwa – removal of 'Ama' which can be correlated to the 'moisture content' which can be directly related to rancidity problems.
- Removal of bad odour of crude Taila.
- Sneha will acquire the capability to receive more active principles.
- Stability of the Sneha is also supposed to increase.
- Impart appealing colour to the Taila.
- May alter the solubility and absorption of the finished product.

Sneha paka

According to the keraliya vaidyas while preparing the Sneha kalpana, first the Kalka dravya is mixed in Drava dravya, then this mixture is poured in slightly heated Sneha and Sneha paka is done. This will facilitate uniform distribution of active principles in the Sneha, ultimately enhances the efficacy.

Drug Profile

Ayurveda was the first to give an elaborate description of various therapeutic measures calculated to aim of, not only the radical removal of the melodies but also the restoration and maintenance of Dosaika equilibrium. In Ayurveda, drug or diet articles that reverse or break the samprapti without producing any side effect has been looked upon as ideal drugs or diets

Pharmaceutical Study

Pharmaceutical Research. The Main Objective of Pharmaceuticals research is to produce a safe effective and quality drugs safety and efficacy of a drug depends upon the quality of the raw materiel and standard operating procedure of a drug. The fundamental principal of Ras Shastra and Bhaisajya Kalpana like Shodhana, Jarana, Marana, Bhavna, pak etc are the integral part of drug development. These fundamental Principal are applied for the manufacturing and enhancement of Medicinal properties of Drug which are necessary for the dispensing of drug to the patient in most suitable attractive and palatable form.

Drug Standardization: A standard is numerical value which quantifies the parameter and thus denotes quality and purity of a material thus standard indicates a label of performance a scale by which value can be obtained and measured so that the higher quality drug can be prepared.

Outcome of standardization

1. Batch to batch standardization, can only be achieved primarily through careful control of raw materials, manufacturing processes and marker compound content which should remain same in every batch.
2. It confirms that the dose contains the correct amount at the extract of drug by analyzing though validated analytical methods, the content of marker compound (s) both qualitatively and quantitatively in a particular dosage from.
3. Provide formulations of consistent composition, for the conduction of reliable clinical trials.

4. Standardization can act as a positive control for the manufacturing prices. Quality control.

An Ayurvedic preparation of medicine involves multi step procedures where many plant, animal and mineral drugs are used as raw material. The complete compositions increases the difficulties of standardization and subsequent quality control of the finished product. It is therefore essential to document and standardize the botanical and chemical characters of each ingredient. Standardization of an Ayurvedic formulation can be achieved in 3 steps.

1. Raw material standardization
2. Process standardization.
3. Finished product standardization.

Analytical Study

Today, in Ayurvedic institutes and other various institutes all over the world, a lot of work has been carried out and still going on individual and compound herbal drugs, for the standardization. The studies on Ayurvedic formulations and prepared drugs have been under taken in some Ayurvedic institutes. In these studies some non-specific parameters are adopted to evaluate the quality of drugs, which are not sufficient to fulfill the purpose of standardization. Although it is very tedious job to standardize Ayurvedic herbal preparations especially compound drug because of their complex chemical nature and secondly for non-. availability of reference standards or literature about the same. In ayurvedic classics also only the organoleptic characteristics of end products after completion of the processing are mentioned along with therapeutic properties of the finished product. These features can be considered as the characteristics of finished products and provide inspiration and guide lines to take over this particular work on Pancatikta ghrta prepared by different methods.

Determination of Acid Value and Free Fatty Acids. Acid Value

The acid value is determined by directly titrating the material in an alcoholic medium with aqueous sodium or potassium hydroxide solution. Reagents: 1) Ethyl Alcohol 2) Phenolphthalein Indicator Solution 3) Standard Aqueous potassium Hydroxide or Sodium Hydroxide solutions Procedure: Mix the oil or melted fat throughly before weighing. Weigh accurately a suitable quantity of the cooled oil or fat in a 200ml conical flask. The weight of the oil or fat taken for the test and the strenth of the alkali used for the titration shall be such that the volume of alkali required for the titration does not exceed 10ml. Add 50 to 100ml freshly neutralized hot ethyl alcohol, and about one mililitere of phenotitrate while as hot as possible with standard aqueous alkali solution shaking vigorously during titration.

Calculation

Acid Value = 56.1 VN

W V = Volume in ml of standard potassium hydroxide or sodium hydroxide solution used.

N = Normality of standard potassium hydroxide or sodium hydroxide solution. W = Weight in g. of the material taken for the test.

Rancidity: Rancidity is the development of unpleasant smells in fats and oils, which are often accompanied by changes in their texture and appearance.

Viscosity: Viscosity is a quantitative measure of a fluid resistence to flow. It is defined as the internal friction of fluid.

Heavy Metals: The term heavy metal refers to any metallic chemical element that has a relatively high density and is toxic or poisonous at low concentrations. They can not be degraded or destroyed.

Peroxide Value: The peroxide value is defined as the amount of peroxide oxygen per 1kg of fat or oil. traditionally this was expressed in units of milliequivalent, although if we are using SI units then the appropriate option would be in millimoles per kilogram (N.B. 1 milliequivalent = 0.5millimole; because 1 mEq of 02 = 1mmol/2=0.5 mmol of 02, where 2 i valence). The unit of milliequivalent has been commonly abbreviated as mequiv or even as meq.

Loss on Drying: Loss on drying (LOD) is determined by heating the sample below its melting point in an oven and it includes all volatile matter including water content and solvents. Loss on Drying is an unspecific analytical technique removing not only water but all other volatile impurities like alcohol etc. from a sample The degree of drying depends upon, 1 temperature Drying time LOD or total moisture content analysis of Pharmaceutical products can include both bound (e.g. water of hydration) & free water.

Arsenic, Cadmium, Mercury, Lead Sample A Value Absent

A B Sample Value Absent Absent

Sample B Value Absent Arsenic, Cadmium, Mercury, Lead

Sample Value A 500 B 200

In cases there are additional trace of other volatile impurities present, like alcohol; LOD may be higher than water content. In other cases, LOD may be lower than water content, as bound

crystal water may not be removed by heating. %LOD = % Water content - % water molecule in the APL. The Loss on Drying test is designed to measure the amount of water and volatile matters in a sample when athe sample is dried under specified conditions. e.g. 105°C, 3 hours. The nature of the drug substance that is to be weighed and used in compounding a prescription must be known exactly. I fthe substance is a hydrate, its anhydrous equivalent with may need to be calculated on the other hand, if there is absorbate moisture present that is either specified on a certificate of analysis or that is determined in the pharmacy immediately before the drug substance infused by the procedures under loss on drying this information must be used when calculating the amount of drug substance that is to be weighed in order to determine the exact amount of anhydrous drug sustance required.

Microbiological Analysis: Micrological Analysis is the use of biological biochemical, molecular or chemical methods for teh detection, identification or enumeration of microorganisms in a material. it is often applied to disease causing and spoilage microorganisms. Microbiological analysis helps to keep under control the proliferation of viruses, bacteria, microorganism which may cause contamination, intoxication and disease. In order to achieve successful result sin the isolation and Identification of bacteria we sould make sure we use the right water type Crucial step in microbiological analysis are. Sampling - Appropriate representative samples are the foundation for reliable and accreted results Filtration - This step is important to enhance microorganism recovery and avoid exogenous contamination Culturing - It is affected by the quality of the growth medium. Incubation - The final stage before enumerating microorganisms This procedure uses samples of water and from these samples determines the concentration of bacteria.

DISCUSSION OF THE ANALYTICAL STUDY

Analytical study will give the idea of the constituents of any of the formulations. The study is dependent on the availability of the laboratory technique and technicians. It will determine the fixed values of a sample of any kind. It will be a marking line to note the limits or ranges of the fixed values. Hence it stands as a method of standardization of any formulations. As the Ayurvedic formulations have a varied range of such fixed values, it is the timely necessity to determine those. It will Contribute much to the genuinity of the drug, in determine of the adulterations and quality of the product. In present study from the view of the process standardization, two samples are taken. SampleA. Panchtikta Ghrita prepared by ghrita Murchna, Sample B. Pancthikta Ghrita prepared with non ghrita Murchna.

DISCUSSION OF SNEHA KALPANA PROFILE

Sneha Kalpana has got an important place in Ayurveda, not only in ancient era but also in present era. As Sneha Kalpana is prepared by using kalka, kwatha, and sneha, it extracts all the water and fat soluble active ingredients and it the drug is prepared in this procedure, its shelf-life gets increased. Sneha Kalpana is not mentioned in Vedas. Only mentioned types of Ghrta according to use. The first reference of this is available in Ataraya and Susruta time and there it is mentioned that Sarpi is the best among 4 types of Snehas. In Samhita period Caraka has mentioned 4 types of Snehas and has also accepted that the Ghrta is the best Snehas. Ghrta though extracts the properties of other drugs to which it is added never leaves its own properties. So the Ghrta Kalpana characterized the properties of all of its ingredients. Because of this, it is called as the best. The Snehapaka is used for many purposes. Mrdu paka taila should be used for Nasya. The taila which is used for nasya undergoes repeated heating. So the Mrdu paka becomes Madhyama paka. Khara paka taila is absorbed more through the skin so this is used for abhyanga, local applications and to fill up the orifices, for general purposes (eg. Pana, Basti etc) Madhyama paka sneha is recommended. Sneha can be used both for samana and sodhana therapies but dose is different. As per discussion of Snehakalpna, we observed that many factors role in an enhances efficacy of Sneha, they are termed as "SAMSKARA".

CONCLUSION

During our pharmaceutical study

1. Panchatikta Ghrita prepared by Murchita Ghrita. It quantity is much lesser then the ghrita prepared by non Murchita Ghrita
2. Time Consumption to prepare to Panchatika Ghrita by Murchita Ghrita is double to that of Ghrita Prepared by without non murchita ghrita
3. Panchatikta Ghrita prepared by murchita ghrita is costlier then the ghrita preparied by non murchita ghrita.

In analytical study

1. Analytical study shows low acidic value low sponification value and high iodine value in panchtikata ghrita prepared by following the murchana process which means ghrita prepared by classical method is much more stable with long self life then the ghrita prepared by is much more stable then ghrita prepared non murchit ghrita

2. Panchatikta ghrita prepared by murchna process has higher viscosity which means it is much more dense due to presence of alkloids then the ghrita prepared by non murchita ghrita
3. In short Ghrita prepared by non murchita ghrita is cheaper an economically valuable then the ghrita prepared by classical method but analytical study shows that panchatikta ghrita prepared by classical method has higher therapeutic value then the ghrita prepared by non murchita ghrita.

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