



STUDY ON THE ROLE OF VATI KALPANA (TABLET FORMULATION) IN ENHANCING THE SHELF LIFE OF HERBAL DRUGS

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ABSTRACT Vati kalpana is a major part in Bhaishajya kalpana also known as Ayurved pharmaceuticals. Vati Kalpana is the outcome of Kalka Kalpana, one of the five basic Ayurvedic pharmaceutical preparations. Vati Kalpana is an essential component of Ayurvedic pharmaceuticals because of its various benefits, including ease of administration, palatability, and ease of dispensing and transportation. Vati Kalpana is a pharmacological method in which the powder of raw drugs (herbal or Herbo minerals) is triturated with Kasayam, juice, or even honey, and the medicines are prepared as pills or tablets. The Food and Drug Administration has mandated that all pharmaceutical products should have an expiration date (or shelf life). The search criterion was using the words "Shelf life", "Saveeryata avadhi", "stability study", and "expiry date" in relation to the Ayurvedic formulations. The most common myth regarding ayurvedic medicine is that these medicines don't have any no expiry date but in reality, it is not true, Ayurvedic medicines do have shelf life. Shelf life is a very important aspect of pharmaceuticals, which depends upon packaging, storing, material to be used in packaging, excipients used in dosages forms and some other external aspects as like climatic condition of storage place and markets.

KEYWORDS : Vati Kalpana, Kalka Kalpana, Shelf life, Saveeryata avadhi, expiry date, storage.

INTRODUCTION

As the first principle of Ayurveda is to maintain the health of a healthy person, to keep them away from any form of disorder, thus a lot of immunomodulators are properly explained in ayurvedic literature. In ayurvedic pharmaceuticals, Vati or tablets has been one of the most convenient and palatable forms of oral administration of medicines, keeping the shelf life intact and also easy targeting of the site of action, which can be modified by altering the disintegration time. In Ayurveda, different acharyas had mentioned vati Kalpana in many contexts, but the detailed description regarding Vati Kalpana in a separate chapter was first mentioned by Acharya Sharangdhara. Powdered raw drugs (Herbal or Herbo-mineral) are triturated along with water, certain swarasa, gomutra, godugdha, jaggery, guggulu or honey as binding agents and then molded into spherical form by hands or machine, the final product is known as Vati, Vatak or Gutika. Binding agents used also have their own medicinal values. Origin of Vati in classics Vati Kalpana is the result of Kalka Kalpana in Ayurveda. The Kalka Kalpana is the primary Kalpana, and the same principle applies to the Vati Kalpana.

Synonyms: The synonyms of Vati described in Sarangdhara samhitha are Gutika, Vati, Modaka, Vatika, Pindi, Guda, Varti etc.

Types Of Vati: There are two types of Vati, based on the method of preparation as explained in Ayurveda Pharmaceutical texts, they are (i) Agnisadhya Vati and (ii) Anagnisadhya Vati.

General Method Of Preparation Of Vati: The raw materials/drugs of plant origin are dried and separately made into fine powders, the minerals mentioned are made into Bhasma or Sindura and Parada and gandhaka triturated to form Kajjali form unless otherwise mentioned according to the formulation. These are taken in a Khalva yantra and triturated to form a homogenous soft paste with the prescribed fluids added in succession specific to the formulation. Sugandha dravyas are added and grounded again. The mixture is to be made into a paste so that, it should not stick to the fingers when rolled in between them. Pills may be dried in the shade and collected and stored in airtight and sterilized containers.

Ratio Of Essential Drugs In The Preparation Of Vati : The ratio the essential ingredients in relation with fine powder of medicinal drugs is as follows.

- Sita – 4 times
- Guda – 2 times
- Guggulu and madhu – equal
- Jala or any other liquid preparation – 4 times Dose of Vati Kalpana

Dose: 1 karsha is the general dosage of the vati.

Anupana For Vati : Vati is administered along with water, honey, milk or any other suitable liquid preparation.

Saveeryataavadhi Of Vati: Two year is the shelf life of pills prepared

from herbal drugs and indefinite time

In case where Parada and Gandhaka are mentioned, Kajjali is made first and other drugs are added in it, one by one according to the formula. Bhasma or sindura, of mineral, metals and gems are made unless otherwise mentioned, purification of animal products is mandatory. In case guggulu is one of the ingredients, then no binding material is needed. If tikshna dravyas used like Vatsanabha, Raskarpura and Rasapushpa etc., then they should be grounded into micro powder form in Khalva yantra then mixed well with other ingredients.

Ingredients Used In Vati: In the preparation vati kalpana three ingredients are necessary

- Fine powder of drugs.
- Binding substance/ Sweet substance.
- Bhavana dravya.
- Drugs in the form of fine powder In Churna Kalpana drugs are dried separately, pulverized and sieved through sieve no 85.

Binding Substance/ Sweet Substance: In the pill formation, jaggery, sarkara and honey are used they are called as binding substance. These substances remove foul smell and bitterness of the drugs and make vati palatable.

Drug For Bhavana: The liquid added should be optimum in quantity so as to form soft or soggy mass and to keep the material wet throughout grinding. If in the formation of vati, Kwatha is used then bhavana should be given to principal drug churna, Kwatha made with eight times water and reduced to 1/8th part and filter through cloth.

Precautions For Vati Nirmana :

Before preparation of vati Drugs for vati nirmana should be free of dust, insects, and worms, among other things. Preparation of vati, fine churna must be used (Mesh size No.-85). Swarasa and Kwatha should be utilized according to their descriptions. Guggulu should only be used after purification. Any metal or mineral utilized must be in the form of bhasma. If Parada and Gandhaka used they should be used in Kajjali form. During Preparation of Vati Fine powder (Churna) of all ingredients must be properly mixed. Vati should be the same size, shape, and appearance. The preparation of the vati mardana should be implemented properly.

General Dose Of Vati: Vati dose is determined based on the patient's body, strength, disease, and other factors. One Karsha (12 g) is the standard dose of vati.

Shelf Life Of Vati: According to Acharya Sharangdhara, the shelf life of vati is one year [8]. It is given two years under the regulations of the Drug and Cosmetic Act 1961B if it is stored free of moisture.

Preservation: Pills made of plant drugs when kept in air tight containers can be used for two years. Pills containing minerals can be

used for an indefinite period. (The Ayurvedic Formulary of India)

Purpose Of Vati Kalpana: Due to the following reasons, pills are an ideal form of medication such as:

- (1) **Accuracy Of Dosage:** The drugs and excipients are uniformly mixed in the trituration process show active ingredient content within the permitted limits. The patient thus receives the intended dose, an intention not always realised when liquid medicines are measured in domestic spoons of varying capacities.
- (2) **Stability:** Drugs in the solid form are usually more chemically stable and having potency for long time. Where there is the possibility of a gradual loss of potency, the date of manufacture should be mentioned on the container. It helps retaining the volatile principles of drugs like Kasturi, Amber, Campor and many herbal aromatic plants.
- (3) **Patient Acceptance:** Pills containing nausea drugs can be covered with a protective coating to mask the taste. Owing to their comparatively small bulk pills can be carried by the user without inconvenience, thereby permitting regular dosage, a condition not always easy to achieve with liquid medicines. 4) **Economy:** Pills are made by mass production method on machines of high efficiency and output. They also represent a rapid and economical means of dispensing.

Characteristics Of Good Quality Of Pills/Tablets: 1. It should contain the stated dose within permitted limits. 2. It should be sufficiently hard to withstand reasonable handling from the time of manufacture until they reach the consumer. 3. It should be a suitable size for easy administration and be free from physical imperfections and foreign matter, which would detract from their appearance. 4. It should be disintegrate readily. 5. It is preferable to use micro fine powder for the preparation of Vati.

Equipments For Tablets/Pills Manufacturing: Equipments required for Tablets/Pills Manufacturing are Rapid Mixer Granulator, Double Cone Blender / Mechanical Shifter Spray Coating Machine, Rotary Tablet Press, Tablet Counting Machine, Tablet Polishing Machine, Automatic Tablet Printing Machine, Strip Packing Machine Some Important Ayurvedic Tablets /Pills:

CONCLUSION:

In the Ayurvedic field of practice through several types of kalpanas (formulations) are being used presently, Vati kalpana (Tablet/Pills) plays an important role in pharmaceuticals of Ayurveda, because to many advantages like easy administration, palatability, convenient form for dispensing & transporting, to keep the medicine potent for long time and also its quick action. Tablet can be prepared in several ways and product performance can be depend on suitable composition of the formulation, Due to availability of various formulation techniques, good patients compliance and huge potential, several tablet/pill products popularised in the pharmaceutical market. It is also emphasised that newer scientific and technological innovations should be undertaken for the emergence of promising and versatile dosage form with novel performance and characteristics.

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