

IMPORTANCE OF VARIOUS UPKALPANA IN AYURVEDIC THERAPEUTICS**Kaur Harpreet¹, Kumar Harish², M.V.R.Wijayanthimala³, Rao V Nageswara⁴**^{1,3} PG Scholar, ⁴Associate professor, Dept. of Rasashastra and BhaishajyaKalpana, National institute of Ayurveda, Jaipur, Rajasthan, India²PG Scholar, Dept. of RachanaSharira, PMT'S Ayurved College, Akhegaon Road, Shevgaon, Ahmednagar, Maharashtra, India**ABSTRACT**

The Ayurvedic formulations range widely from *Swarasa* (expressed juice) to *Netra Bindu* (eye drops), *Malhara* (ointments), *Kshara Sutra* (surgical threads) etc. *BhaishajyaKalpana* deals wide range of medicinal preparations, they are, primarily *PanchaVidhya Kashaya Kalpana* (Basic *Kalpana*) namely *Swarasa*, *Kalka*, *Kwatha*, *Hima* and *Phanta* and *Upkalpana* (secondary preparations) like *Churna*, *Vati*, *Sneha*, *Asavarishta*, *Guggulu*, *Varti*, *Lepa*, *Sattva*, *AvalehaKalpana* etc. All *Upkalpana* were derived from five basic *Kalpana*. Due to extensive use of *Upkalpana* in comparison to *PanchaVidhya Kashaya Kalpana* these are mostly prescribed in present era. Due to easy administration, long shelf life, high therapeutic value, Palatability etc., *Upkalpana* are accepted by all age groups.

Keywords: Ayurvedic Formulations, Drug, *Bheshaja*, *PanchaVidhya KashayaKalpana***INTRODUCTION**

Ayurvedic classics consider 'drug' a very important tool in the patient management. This tool needs to be handled judiciously, if not done so it is likely to prove injurious or sometimes fatal to the life of the patient who is receiving it. *Acharya Charaka* while discussing different aspects of drugs and drug therapy says even a poison is an effective drug if used judiciously, whereas a drug becomes harmful if it is not used judiciously¹. Similarly, use of an unknown drug may also prove injurious to the health of the patient. *AcharayaCharaka* quotes as follows:

"An unknown drug is just like a poison or a weapon or a fire or the *Vajra*, the famous weapon of *Indra* (the king of Gods as per Hindu mythology)".² He further elaborates the concept by saying that not a single substance in the Universe is devoid of thera-

peutic potential and hence is a potential drug source, provided it is used judiciously in appropriate indications. All *Dravya* in the Universe can be used as a drug. But the term Drug or *Bheshaja* is applicable in specific condition when it is used for definite purpose (*ArthaPrayojana*) and with logical thinking (*Yukti*). Thus the two essential conditions of Drug or *Bheshaja* are:

1. Purposiveness
2. Rationality

The main sources of drugs from which they are originated are:

1. Plant
2. Animal
3. Mineral source

All plant, animal and mineral product in whatever nature they can be hardly used as a drug in their natural form. Hence almost every substance has to undergo a specific

processing to acquire in a therapeutic dosage form. Such processing is termed as Ayurvedic pharmaceuticals i.e. 'Bhaisajya-Kalpna' in terms of Ayurveda. The form which ultimately comes into use by the patient is termed as a drug dosage form. Concept of 'Drug' is principally based on the type of activity of a substance on the human body. Drug is supposed to be 'Veer-yaPradhaana' meaning principally therapeutically active.

PRINCIPLES OF AYURVEDIC PHARMACEUTICS:

The pharmaceutical procedures for any drug involve various steps starting from identification and collection of authentic raw material to packaging and storage of the finished drug. Raw material of specific type having specific characteristics and therapeutic action, grown on a specific soil in a specific geographical area in specific atmospheric conditions should be collected in a specific season. Only such raw material will produce the expected therapeutic effect provided it is used in proper dose with logical thinking³. Plant material should never be collected from dirty, marshy and gravel filled places. The plants growing in a graveyard or on a footpath should not be collected. Raw material which is infected, burnt or chilled also is not likely to produce the expected therapeutic effect and hence should not be collected. The best season for collection of all types of plant material is 'SharadaRitu', whereas plants specifically used for induction of purgation and emesis should be collected in *BasantaRitu* (At the end of spring)⁴. As described above every substance in the Universe possess a potential to become a drug. But not all the parts of the substance are always therapeutically useful in view of the specific diseased state. In such a situation the therapeutically useful part of the substance needs to be

separated out and put to therapeutic use. The therapeutically useful part is termed as 'SaaraBhaga' in Ayurvedic terminology. Different procedures may be required to separate out such useful constituent. The components soluble in water are extracted in water whereas solvents like fat, oil or alcohol are required to extract ingredients soluble in those solvents. A combined solvent system is also used sometimes. Water being universal solvent is used for majority of extractions.

FACTORS INVOLVED IN PHARMACEUTICAL PROCESS:

Fresh as well as dried plant material is used for processing depending on availability and necessity. Different procedures are adopted to prepare a dosage form to make it stable for a longer period. Thus the type of pharmaceutical processing depends on following factors:

1. Nature of the raw material: fresh or dry
2. Required concentration of the dosage form
3. Solubility of therapeutically useful component of the plant
4. Heat stability of therapeutically useful component of the plant
5. Route of administration
6. Shelf life of prepared dosage form

BASIC KALPANA: The Ayurvedic formulations range widely from *Swarasa* (expressed juice) to *Netra Bindu* (eye drops), *Malhara* (ointments), *Kshara Sutra* (surgical threads) etc. However there are five basic *Kalpna* termed as '*PancavidhaKashaya Kalpna*'⁵ from which all other drug formulations or forms are derived or developed. These five basic *Kalpna* are known as Primary Formulations and all other *Kalpna* like *Churna*, *Vati*, *Avaleha*, *Asava-arishta*, *Taila*, *Ghrita* etc. were derived from these basic formulations and these are known as secondary formulations. The five basic *Kalpna* consists of:

1. *Swarasa* - expressed juice
2. *Kalka* - Fine paste obtained by grinding fresh or wet grinding dried plant material,
3. *Kwatha* - decoction
4. *Sheeta* or *Hima* - cold water infusion
5. *Phanta* - hot water infusion.

Generally the first two forms are prepared from freshly collected plant material and are directly put to patient use, whereas the last three forms *Kwatha*, *Sheeta* and *Phanta* are aqueous extracts prepared from the dried plant material.

The basic principle behind preparation of these five primary formulation' is that the plant as a whole or any part of the plant as a whole may not be useful for the expected therapeutic action. Some of the plant ingredients are therapeutically active. These ingredients have to be extracted from the plant and put to therapeutic use. Water being comparatively inert universal solvent is used as a media for extraction of such active ingredients from the plant.

EXTRACTION TECHNIQUES IN AYURVEDA: Three types of extraction techniques, depending on the heat sensitivity of the plant material, are used. The extracts so obtained are termed as '*Kwatha*', '*Phanta*' and '*Hima*'. *Kwatha* and *Phanta* are used for extraction with hot water whereas *Hima* is used for extraction with cold water. The water insoluble plant material is separated and thrown out as a waste material at the end of all these extraction processes. Use of specific extraction system depends on the target disease condition, the target patient and the source substance⁶. Some of the plants require specific extraction technique for obtaining expected therapeutic action⁷ e.g. '*Mandookparni*' and '*Guduci*' should be used only in the form of *Swarasa* (expressed juice) for their '*Rasayana*' effect and '*Shankhpushpi*' should only be used in the form of *Kalka* (paste)

and *Mulethi* in powder form. It is expected that therapeutic action of above mentioned plants will be destroyed if other procedures of extraction are utilized because of the sensitive nature of the related plant ingredients.

The concentration declines in descending order with reference to *Swarasa*, *Kalka*, *Kwatha*, *Hima* and *Phanta*. '*Swarasa*' possesses highest concentration whereas '*Phanta*' possesses the lowest⁸. They are used depending upon the condition of the patient. '*Swarasa*' should only be used when the general condition of the patient is good otherwise the drug is likely to be harmful. Children and elderly may not be suitable for receiving the '*Swarasa*', the expressed juice, whereas for a robust individual- '*Phanta*', the hot water infusion may fall short of yielding the expected effect. The disease status also plays an important role in deciding the form of the drug. Severity of the disease invites use of concentrated drug forms.

DISADVANTAGES OF BASIC KALPANA:

- *Swarasadi* five basic *Kalpana* ought to prepare and use within a day as their shelf life is very short.
- It is uncomfortable to physician to keep with him always fresh drugs to treat patients.
- All drugs cannot be available at all places.
- Other disadvantages of basic *Kalpana* like bitter and pungent taste/ large dose / longer duration for efficacy etc.

ADVANTAGES OF UPKALPANA OVER BASIC KALPANA: To overcome all these disadvantages of five basic *Kalpana* new dosages form came into existence. Later on these new dosage forms are known as *Upkalpana*. All the difficulties

which arise in basic *Kalpana* during their preparation, use, Palatability etc. are overcome by these new dosage forms.

1. Easy to administration
2. Pleasant and agreeable taste
3. Safe in use
4. High therapeutic efficacy
5. Economic
6. Accepted by all age groups
7. Longer shelf life

REQUIREMENT OF BEST DOSAGE

FORM: There are the four basic requirements of a best drug dosage form: 1) Safety 2) Efficacy 3) Stability 4) Palatability Ayurveda also gives prime importance to these four basic requirements. In Ayurvedic therapeutics, drugs in both forms are used, crude as well as processed and converted into different formulations. It is necessary that the form of the drugs or formulations when ready for ingestion, should be not only effective but also easy to administer and agreeable to patient. The main emphasis is on removing the physical and chemical impurities from the crude drugs.

UPKALPANA (derived formulation) IN AYURVEDA:

1. Arka: The method by which the volatile oil and active principles of the drug are collected is called as *Arka-Kalpana* and the compound prepared through this procedure is called as *Arka*. It is a suspension of the distillate in water having slight turbidity and colour according to the nature of the drugs used and smell of the predominant drug.

2. SandhanaKalpana (Alcoholic preparations): These are fermented preparations of medicinal plants which contain self-generated alcohol. The fermentation procedure adopted to prepare these preparations is termed as '*SandhanaKalpana*' and the fermentative agents used to stimu-

late fermentation are termed as '*SandhanaDravya*'. When some liquids *Kashaya*, *Swarasa* etc. and some drugs either medicinal or food drugs like *Guda*, Honey etc. are mixed and put together for some times to achieve fermentation, are known as *Sandhana*.

Asava: The root word meaning of *Asava* indicates fermentation process which occurs in *Asava*. Acharya *Charaka* defines "*EshamAsutvataAsavaSanjya*."

Asava are those formulations which are prepared by "*AsutaPrakriya*" (fermentation) One which is fermented without boiling is called *Asava*⁹.

Arishta: One which does not get spoiled easily is known as *Arishta*. Hence these two terms denote different aspects of same preparation.

"*Na RisahyateyaItiArishta*."

Kwatha or boiled / cooked source material is used in the preparation of *Arishta*¹⁰.

3. Avaleha (Linctus): It is a semi-solid preparation of the drugs meant for licking. It acquires the consistency of a thick paste. *Avaleha* is a product liked by all ages. *AvalehaKalpana* may be defined as a process where various things like decoction, powder, sweetening agents, fat material and perfuming substances are employed for the preparation of soft, semi-solid ingestible medicaments. This process ensures absorption of active therapeutic properties of ingredients used. Linctus's are swallowed slowly in small doses without addition of water. The other similar forms are known as *Modaka*, *Guda*, *Khanda*, *Lehya*, *Praasa* etc.

4. Churna (powders): It is fine powder of a drug. Powders are used for internal and external purpose. Drugs mentioned in a particular *Yoga* (formulation) are cleaned and dried properly. They are finely powdered and sieved. When there is number of

drugs in yoga, the drugs are separately powdered and sieved and mixed thoroughly to make it homogenous. In industry, however, all the drugs are cleaned, dried and powdered together by disintegrators. Mechanical sifters are also used. Sometimes it is necessary to use plant ingredients in fresh form in such a case drug paste is prepared, dried, and then added. The powder which are used for internal use should be fine at least of 80 mesh sieves. It should not adhere together or become moist. The finer the powder, the better is its therapeutic value. They retain potency for two months as per the classical reference¹¹.

5. Ghana: It is a dried aqueous extract. It is the solidified mass prepared by evaporating the entire aqueous portion from 'Kwatha'. The water content of the 'Kwatha' is evaporated by subjecting it to slow heating. Firstly Kwatha is in liquid form, then on exposure to heat it becomes semi solid and at last it becomes solid Ghana. These dosage forms are grouped as 'Rasakriya' and are broadly classified as Avlaleha and Ghana. Avaleha is the one which is semi-solid and can be licked whereas 'Ghana' is the one which is solid¹².

6. SnehaKalpana (Medicated oils/ Ghee): SnehaKalpana may be defined as - 'A pharmaceutical process to prepare oleaginous medicaments from the substances like Kalka, Kwatha and Drava Dravya, 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, Butter milk etc. In other words, fixed oil *TilaTaila* serves mostly as solvent for fat soluble substances. Preparations for internal use keep their potency for about sixteen months. Medicated oils when used for internal purpose are administered along with adjuvants known as *Anupana*. When no *Anupana* is specified such oil should be taken with warm water or warm milk.

7. Lepa: Drug formulation in the form of a paste used for external application is called *Lepa*. The drugs are made into a fine powder. Before use on the body part, the powder is mixed with some liquid or other medium indicated for each preparation and made into a soft paste. Water, Cow's urine, oil, and ghee are some of the media used for mixing. Vegetable *LepaChurna* (powder) will preserve their potency for 3 years if kept in air tight containers. Mineral and metallic preparations last indefinitely.

8. Sattva: It is the water extractable solid substance collected from a plant. The plant is cut into small pieces, macerated in water and kept overnight. Then it is strained through cloth and the solid matter is allowed to settle. The supernatant liquid is decanted and the remaining *Sattva* is washed with water and decanted and the process is repeated several times. The *Sattva* so sediment is allowed to dry and is powdered. This can be preserved in a closed container.

9. Varti/ Netrabindu (Eye drops): *Vartis* are made by grinding the fine powders of the drugs with the fluids in the formula to form a soft paste. This is then made into thin *Varti* of about 2 centimetres in length and dried in shade. *Netrabindu* is prepared by dissolving the semisolids of drugs to be applied with *Netra-Shlaka* (type of drug applicator to the eye). These can be preserved for one year if kept in air tight container. In case of formulations in which

minerals are used, the drugs are preserved for indefinite period.

10. Vati and Gutika (Tablets): Tablets are the unit solid dosage form of medication or medicaments with or without suitable diluents. They are prepared usually by moulding and compression. They are made of one or more drugs of plant, animal or mineral origin¹³. The plant ingredients are dried and made into fine powders, separately and ground to soft pastes before they are rolled in to pills with the help of fingers. When more than one liquid is mentioned for grinding, they are used in succession. When the mass is properly ground and is in a condition to be made into pills-flavouring agents are added and ground again. The criterion to determine the final stage of the formulation before making pills is that it should not stick to the fingers when rolled. Pills may be dried in shade or under direct sunlight as specified in the texts. Pills can be used for two years. Pills containing minerals can be used for an indefinite period.

DISCUSSION AND CONCLUSION

Apart from oral dosage forms, drugs administered through other routes of administration such as per-rectal, per urethral, per vaginal, nasal etc., are also described by classics. Creams, ointments, lotions, dusting powders etc., are also described for external application. We see there are so many advantages of *Upkalpana* like Easy to administration, Pleasant and agreeable taste, Safe in use, High therapeutic efficacy, Accepted by all age groups, Longer shelf life. For e.g. In *Arka* palatability is good, In *Sandhana Kalpana* self-generated alcohol plays an important role, *Avaleha* and *Ghana* is accepted by almost all age groups because they are easy to swallow, Tablets are easy for administration etc. Apart from these, *Upkalpana* has high

therapeutic effectiveness. Thus these *Upkalpana* can be used easily in present era according to acceptability of the patients.

Thus 'Ayurvedic *Bhaisajya Kalpana*' encompasses a wide range of drug dosage forms which can be used by the health care provider in accordance with the patient requirements.

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