Arka Kalpana: A Literature Review

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Abstract— There are five basic types of Oushadhi Kalpana such as Swaras, Kalka, Kwatha, Heema and Phant. Arka is such another promising Kalpana. Arka has attracted attention in researchers. Arka is purest form of drugs. It is obtained by giving Agni Sanskar to drug. Arka is preparation obtained by distillation of drugs soaked in water using the Arkayantra or any convenient modern distillation apparatus. Arka is most potent Kalpana of all kashaykalpana. It has increased potency, reduced dose, more shelf life and fast action etc. This article is based on Classical review of Arka Kalpana, Specific methods for preparation of Arka,Prashasta Arka lakshana, Dose, Prayogamarga, Anupaan, Importance of Arka etc.

Index Terms- Arka, Arka Kalpana, Arka preparation, importance of Arka.

I. INTRODUCTION

ARk :(Shabdakalpa drum):- Definition:- 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.

Historical Review:- The word Arka is not mentioned in Vedic literature as well as in Samhita Granthas and even Sangraha Granthas. First of all, Shodhal in 12th cent. described the „Arka-Kalpana" After words it was adopted by many workers and so many books were written on it. The main reference book of Arka-Kalpana is „Arka-Prakash" but there is no any explanation about the author of this text. This text is present in the form of conversation between Ravana and Mandodari, In the 14th Century, Unani Chikitsa was flourishing and Arkas were used frequently in that period by Unani Hakims. Therefore some people say that Arka-Kalpana, is not derived from our Panchavidha-Kashaya Kalpana,but it is originated from Unani system of medicines. No reference about Arka-Kalpana is found in Rasa-Shastriya texts, only in Rasa-tarangini there is one shloka about it2 - Parishrutasalilam Yantren nadikakhyena vahinsantapa yogatah Bindusho yatstrutam niram tatparistrutamucyate. (r.t.2/59)

PRASHASTA ARKA LAKSHAN –

A. According to Arkaprakash

1. The Arka which is having more Sugandha than Dravya.
2. Arka having same Varna of Dravya which when kept in Jeernasthi Mrittikapatra. When kept in different Patra; colour looks like color of Shankha,kunda, or Indu (moon).
3. It tastes like Dravya when kept on tongue. This type of Arka is Uttam Arka .

B. According to Ayurveda Sara Sangraha –

1. In Ayurveda Sara Sangraha mentioned that Arka will be having clear Shweta varna like Parada and Gandha as that of Dravyas[1] .

BHAISHAJYA MARGA (ROUTE OF DRUG ADMINISTRATION) FOR ARKAArka can be used for Paan, Swedan, Nasya, Gandusha, Anjana, Lepa, Dhupana And Karna Purana. In Panchamshatakama of Arkaprakasha granth, various modes of administration are mentioned according to various diseases. In most of the diseases Arka is advised for paan. For Daahnashanlepa of Arka is advised. For Bhootonmadnasya, Anjana, lepa, paan is advised. For Apsmarnasya, karnapurana, Anjana, paan etc advised[2].

DOSE[3, 4] – In AFI and API dose 12-24 ml is mentioned for most of Arkas when taken orally.

ANUPAN[5] - Anupan is vehicle of medicine. It increases absorption and effect of medicine. Various Anupan like jal, madhu, milk is mentioned. But Arka is usually mixed with equal quantity of water before use.

ARKAPANOTTAR KARMA[6]

After Arka sevan, Tambulbhakshan is advised by Arkaprakash. If tambul is not available then lavang or clove should be consumed. SHELF LIFE According

to drug and cosmetic act 1945-16B, 6th amendment, shelf life of Arka is 1 year.

ARKA GRAHAM PATRA /STORAGE OF ARKA[7] - Arka must be stoared in Jeernasthimrittikapatra, Glass bottles or stone bottles. If these three are not available then mrittikapatra should be used.

IMPORTANCE OF ARKA[8] –

1. Arka is more effective than Kalka, Churna, Swarasa and Taila. It is most potent form of drug.
2. Arka's are Dosha Rahitam, Sheeghrakari (fast acting) and have many Guna's hence called as Gunasanghprakashkam. Lord Shiva himself has praised Arka.
3. Arka is most potent form of drug; it has more shelf life and patient compliance. Dose of the drugs can be reduced by using Arka due to its potency.
4. Arka is prepared by the combination of Jala and with the help of Agni, so due to AgnisanskarArkas become Laghupaki, Vyavayi, Vikasi, and thus assimilates quickly in the body.
5. It is easy to administer and saves lot of time. It can be used in preventive and curative aspect. It has highest concentration of volatile oil.

Arka kalpana is one of the uniqueformulations in this modern age. Various dosage forms are being converted to Arka due to its reduced dose, patient compliance and increased potency. We can find many references regarding Arka kalpana in different literatures likeArkaprakash, A.F.I, Ayurveda Sara Sangraha, Gadanigraha of Shodhal, Rasatantrasara etc. A detailed explanation regarding all the aspects in the manufacture of Arka is seen in RavanakritArkaprakash. Various routes of administrations are also mentioned in literature. Arkapanottar karma, Prashasta Arka Lakshana, Properties of Arka give detailed idea about various aspects of Arka Kalpana.

DISCUSSION

Classification according to Modern Science : a. Simple distillation. b. Vacuum distillation c. Fractional distillation d. Steam distillation e. Destructive distillation (Dry distillation)

According to Modern Science:- Apparatus – Distillation is the process by which liquid is vaporized and recollected by cooling and condensing the vapor. The apparatus required for distillation

1) Boiler (Heating mantle) - which provides heat and maintain the heat.

2) Vessel, in which vapors are produced by heating the liquid up to its boiling point.

3) Condenser - This functions as a cooling device of vapor either by circulation of water or air at atmospheric temperature. e.g.: Liebig Condenser, Worm Condenser, Hallock block - tincoil condenser, Reflux condenser (Return – flow condenser), Soxhlet extraction apparatus

4) Receiver - It is used for the collection of the condensed liquid. Process of Distillation:- In the process of distillation, condenser is mounted in the neck of the flask containing the material being treated. As vaporization occurs, the vapors enters the condenser, the pressure of the vapors causes the distillate to spurt out from it. At the same time, a certain amount of back pressure is produced by the presence of the liquid retained in the condenser and this interrupts the smooth progress of the distillation process.

Distillation consists of two steps

(A) Evaporation

(B) Condensation

A) Evaporation:-

Evaporation may be defined as the free escape of vapors from the surface of a liquid. It should be distinguished from boiling or ebullition, which takes place at one temperature only for a given pressure. The Kinetic theory of matter assist us to understand how evaporation takes place at any temperature and from the surface of a liquid only. It is presumed that the molecules of a liquid are always in motion, moving hither and hither at enormous speeds, frequently colliding. The molecules of a liquid are believed to exert an attractive force upon each other. It will be seen that the Kinetic theory affords an explanation of the fact that when a liquid is allowed to evaporate without being heated it gradually becomes cooler. This is because the molecules with the highest velocity are escaping from the liquid. Latent heat of Vaporization:- It will be seen, therefore, that if it is desired to change a liquid into a vapor without fall in temperature, heat must be supplied. This heat is called latent heat of vaporization and when the vapor returns to the liquid state the latent heat is evolved as sensible heat. 1 gm. of water at 100°C may be converted in to water vapor (at normal atmospheric pressure) of the same

temperature, the expenditure of 537 Cal. of the heat energy is required.

B) Condensation:

Condensation is the reverse process of evaporation or vaporization. It will be recalled that, in order that 1 gm. of water at 100°C may be converted into water vapor (at normal atmospheric pressure) of the same temperature, the expenditure of 537 cal. of heat energy is required. Accordingly, when water vapor is condensed by cooling, this same quantity of heat (the latent heat of vaporization) is liberated. Unless adequate provision is made to carry away the heat that is released, the condenser soon becomes too hot to condense the vapor at all and permits it to escape into the atmosphere. The condensation of water vapor requires a more rapid heat exchange that required for any of the other vapors produced from the common solvents. According to Cook and Lawall - "Remington"s practice of pharmacy", it has been calculated that steam at 100° C requires about twenty-five times its weight of water at 20°C. to condense it. In most of cases, water is used as the cooling media and is most effective when supplied as a stream from a constant source, rather than when used by simply surrounding the condensing tube with a relatively large volume of water that is not in motion. The constant motion provides for the continuous replacement of the water as it becomes heated. The condenser should be designed so as to have a relatively large cooling surface, since the rate of condensation is proportional to the area of surface exposed.The condensing surface should be made of substance, which is a reasonably good conductor of heat, for the rapidity of condensation is proportioned to the speed with which the heat is carried away. For this reason, metallic condensers are more efficient than those made of glass.

CONCLUSION

Arka Kalpana has its roots in Hima and Phanta Kalpana. The main reference book of Arka Kalpana is "Arka Prakash" but there is no explanation about the author of this text and also about time period of this text. Regarding the distillation process we can give some points for the Arka extraction i.e. Separation of components via distillation depends on the differences in boiling points of the individual components. Also, depending on the concentration of the components present, the liquid mixture will have different boiling point characteristics. Therefore, distillation process depends on the vapor pressure characteristics of liquid mixtures.

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