© September 2024 | IJIRT | Volume 11 Issue 4 | ISSN: 2349-6002

A Review Article on Arka Kalpana

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ABSTRACT: ***It is a branch of Ayurveda that deals with formulations, therapeutic uses of drugs and pharmaceutical products. It helps in determining dosage forms. It is a more pleasant form of Ayurvedic formulation in compared with kalka, swarasa, kwath, etc. In studies of Arka Prakash, there are different kinds of procedures mentioned for varied types of dravyas. It is a colorless dosage form effective when administered in low dosage forms, it has better stability, compatibility and patient compliance. Arka kalpana have more potency, easy absorption and quick onset of action. This all surfaced the way for more future endeavors and better growth opportunities in pharmaceutical and clinical sectors dealing with arkakalpana. In our ancient. This paper aims to highlight the importance of this practice, as in recent years it has been collectively understood the burning need for preparation of extracts which are to be used in the fields of cosmetics and treating therapeutic disorders. In considerations to modern aspect, a distillation apparatus is used for the preparation of Arka.***

Keywords: Ayurveda, Arka Kalpana, Extraction, Distillation

Introduction

Ayurvedic studies are recognized as an ancient system of medicine in entire Asia and Indian sub-continent. These studies are about 5000 years old having great healing potential by using natural components. Ayurveda is originated through vedic culture. Ayurveda has evolved into various branches which can be fruitful towards Life and Science. Its main concern is to treat diseases and keep body fit. Researchers have been doing researches on therapeutic agents that can heal body and maintain its capacity to deal with diseases. Such therapeutic agents are called as Drugs. Ayurvedic formulations are provided by Acharyas. There are five basic types of Kalpana such as kwatha, kalka, hima, swarasaandphanta[1]. Drugs are administered in different forms as per drugs availability and patient's convenience [2]. Arka is one of the types of form [3]. The process by which the active constituents of drugs and volatile oils are collected is termed as Arka kalpana and the content separated by this method is called as Arka [4]

Classification as per contents[5]
1) Gandha Arka: Extracting Arka from the drugs containing volatile oil or fragrance e.g: Ajmoda, etc.
2) Esthira Arka: Extracting Arka from the drugs not containing Volatile oil e.g: Triphala, etc.
3) Drava Arka: Extracting Arka from the drugs that are liquid in state.
Method of Arka Preparation:- In preparation of Arka, we should consider following points, 1) Apparatus used in Arka preparation. 2) Process of Arka preparation (Methodology) 3) Role of Agni in Arka preparation. Ayurvedic approach5 which is described in Arka –Prakash Apparatus:- In this classical review is described. Mud used for preparing of Arka – Patan Yantra:- Before invention of modern technique the apparatus for distillation was being prepared. Iron powder, geru, alum, black clay, red clay, bone powder, glass powder etc. should be taken in equal quantities and clay should be mixed in equal quantity. Urine of cow, horse, gout, buffalo and elephant. The clay should be added there after dried in sunlight, till the smell of urine gets completely removed. In this way clay for manufacturing distillation apparatus is prepared.

Method of manufacturing apparatus:- Round shaped vessel should be manufactured by pot maker from the above clay.The mouth of the pot should not be less than 3 angula (3 cm.) For covering again same size of lid should be prepared and there should be lips of 3 angula by which it is jointed with the vessel.Powder of old bones should be used to seal the joint to make it airtight.One small hole should be

made in the lid.In this hole the tube of Bamboo (One is small and another one is double the size of first one) is inserted and clay should be applied on the joints. So that fumes may not escape out.The small tube is inserted measuring 4-5 Angula inside the pot.Arka-patra should be kept below the large tube. The fume that comes out from the pot is collected in that vessel and this vessel should be kept in cold water. In this way the fumes gets condensed & again collected in the form of Arka.

Method of Arka Preparation:- (i) General Method: In 2nd chapter of Arka-Prakash, it is mentioned that for preparing Arka first of all, the drugs are to be coarsely powdered and ten times water should be added to it and it should be soaked for 24 hrs. Then Arka should be extracted by using Arka – Yantra. (ii) Special Method: Apart from general method some special methods are also mentioned by Ar. P. According to 5 types of Dravyas, which are used in the preparation of Arka, (1) Very hard drug (2) Hard drug (3) Fresh drug (4) Twig (5) Liquid drug. Though the method of Arka preparation is same as mentioned in general method, here water should be added according to the hardness of the drug. (1) Very hard drug - The drugs which are one year old and very hard like Sandal wood etc. are considered as very hard drug. General method is applied for preparing Arka of such drugs. (2) Hard drug - Ajamoda, Trikatu, Kirata etc. drugs are considered as hard drug. While preparing the Arka from such drugs two times water is to be added and kept for 12 hrs. After that Arka is to be prepared by using Arka-Patan Yantra. (3) Fresh drug - These drugs are divided into two Groups Juicy drugs 1)
Leaves 2) Fruits Juiceless drugs 1) Fleshy drugs 2) Fibrous drugs

Discussion

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.

Test of Arka:- - Taste and odour of the drug from which, Arka Patan is done must be present. - When Arka is filled in different Patra, the colour of Arka should be similar to Shankha, Kundan and moon rays. Colour should not change if it is filled in Jirnasthi Mrutika Patra.General Dose of Arka – 12-24 ml7 .Anupan – Tambulbhakshana /Lavanga. Durgandhanashan Vidhi:- - If Arka is having bad smell then it has to be fumigate with Dhum produced by powder of Hingu, Methika, Rajika etc. mixed in Ghrita and then it should be kept in Navin Handi.
Storage:- Arka should be stored in airtight glass bottles – Any Arka if kept open and exposed to air will loose its volatile medicinal principles.

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.

References

[1]. Shastri P. Sharandhar Samhita of Sharangadhar with SankritGudartha Commentary by Adamal. Varanasi: ChaukhambaOrientaila 2002;145.
[2]. Tripati I. Arka Prakash of LankapatiRavan with Hindi Commentary, Pratham Shatak, Verse 46. Varanasi: Chaukhamba Sanskrit Series 1995;9.
[3]. Mishra S. Abhinav Bhaishjya Kalpana Vigyan. Varanasi: ChaukhambaSurbharti Prakashan;176-77.
[4]. CCRAS. The Ayurvedic Formulary of India (Part I, Vol I) 2003;27.
[5]. Tripati I. Arka Prakash of LankapatiRavan with Hindi Commentary, Pratham Shatak. Varanasi: Chaukhamba Sanskrit Series, 1995;9-28.