

Study on Pudina (mint) arka prepared by three different methods

Research Article

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Abstract

Mint or *Pudina* (*Meantha spicata* L) is very common home herb, used in kitchen and also as a home remedy to treat common abdominal problems. It has an important place in Ayurveda and Unani system of medicine. Its juice, paste, powder, extract, distillate are used individually or as ingredient in many formulations to treat stomachache, dyspepsia, indigestion etc. Since it's having volatile oil as important constituent, so Arka is most efficient dosage form to use it. There are conflicts in method of preparation among Arka Prakash (AP), Ayurveda Formulary of India (AFI) and National Formulary of Unani Medicine (NFUM). To evaluate the best method among them the present study has been planned. 3 Samples of *Pudina Arka* were prepared by following these references using simple distillation method. Method of *Arka* Prakash was found impractical and difficult to extract *Arka*. Both the remaining references was found suitable for preparation. The method mentioned in NFUM is found most suitable.

Keywords: Arq-e-Pudina, Distillate of Mint, Arka Kalpana.

Introduction

Mint is a very commonly used herb in kitchen as part of food, as flavoring and at the same time it is also used as home remedy for abdominal problem, for mouth freshener. It is also well described drug in Ayurveda and Unani System of medicine, In both the system important therapeutic values of Mints has been mentioned (1),(2) Where is it useful in Stomachache, Dyspepsia, Indigestion, *Aruchi*, *Krimi*, etc. Generally it is used in *Kalka* (Paste), *Choorna* (Powder), *Swarasa* (Juice), *Phant*, *Taila* (Oil) and *Arka* (distilled mint water) dosage form. Among all these, *Arka* is a preparation, which is very palatable to use, where it overcome its taste and it is much easier to take than powder, paste etc. In Ayurvedic text *Pudina Arka* is indicated in *Chhardi* (Vomiting), *Ajeerna* (Indigestion), *Adhamaana* (Flatulence), *Udarshoola* (Stomachache) and *Mandagni* (digestive impairment) etc(3). In Unani system of medicine also, same types of indications of *Pudina Arka* are mentioned (4). As per various classics methods of preparations are different in various

text, where ratio of raw drug, water and distillate (*Arka*) is different, It is the need of the time to select a perfect and best method by which best quality of *Arka* can be obtained. So considering this purpose the present study has been planned, where the methods of *Arka* Prakash(5) (an Ayurveda classical book which is specially dedicated to *Arka Kalpana*), Ayurveda Formulary of India(6), and National Formulary of Unani Medicine(7) were taken to evaluate the best and convenient method.

Methodology

Pudina (mint; *Meantha viridis*) leaves were collected from Herbal garden, National Institute of Ayurveda, Jaipur. Distilled water was taken from Drug testing laboratory, Department of Rasashastra & Bhaishajya Kalpana, National Institute of Ayurveda, Jaipur.

Instruments used: Round bottom flask, heating mantle, Condenser, Receiver Flask, Rubber tube. Stands, Clamps etc.

Pudina leaves were collected and washed with tap water.

Clean leaves were analyzed to test its authenticity in the Drug testing laboratory, Department of Rasashastra & Bhaishajya Kalpana, NIA, Jaipur.

The drug was tested for Macroscopic, Microscopic and Physico- chemical parameters and were compared with standards mentioned in Ayurvedic Pharmacopeia of India(8).

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Table No.1 showing the characters of mint (standards and observed results)

S.No.	Physico-chemical parameter	API standards	Sample (Analyzed)
1.	Foreign matter (Total %)	Not more than 2%	2 % (in Ariel parts)
2.	pH (10% aqueous solution)	Not mentioned	8.1
3.	Total Ash (% w/w)	Not more than 14%	13.2
4.	Acid insoluble ash (% w/w)	Not more than 4%	4
5.	Water soluble extractive (% w/w)	Not less than 7%	7.5
6.	Alcohol soluble extractive (% w/w)	Not less than 2%	2.1
7.	Volatile oil (% v/w)	Not less than 0.2 %	0.7

Three samples of *Arka* were prepared by following the reference of Arka Prakash(9), Ayurveda formulary of India (11) and National Formulary of Unani medicine (12) where in all these references ratio and quantity of *Pudina* leaves, water (taken) and *Arka* (Distillate) are different as mentioned in Table.

Table No. 2 showing the ratio of Mint, water and distillate according to AP, AFI & NFUM

Reference	Ratio of Pudina leaves, water and <i>Arka</i>		
	<i>Pudina</i> leaves	Water taken	<i>Arka</i> (Distillate)
Arka Prakash	1	1/100 th Part [for <i>Sinchana</i> (sprinkling)]	Not mentioned. [Till <i>Prashsta Arka</i> Obtained (10)]
Ayurveda formulary of India	1	15	6
National Formulary of Unani Medicine	1	20	8

Table no. 3 showing the quantity of mint, water and Arka according to AP, AFI & NFUM

Reference	Quantity of		
	<i>Pudina</i> leaves	Water taken	<i>Arka</i> (Distilled upto)
Arka Prakash	32 gm	QS (Sprinkled)	-
Ayurveda formulary of India	41.66 gm	325 ml	250 ml
National Formulary of Unani Medicine	31.25 gm	625 ml	250 ml

For preparation of Sample 1 (*Arka Prakash* method) water was sprinkled over the leaves. The wet leaves were placed in round bottom flask of distillation apparatus and heating was started. The temperature was gradually increased up to 100°C and then reduce to 60°C. This temperature was maintained throughout the procedure.

For preparation of Sample 2 & 3 (AFI & NFUM), same method was followed for both, where *Pudina* leaves were slightly crushed and placed in round bottom flask with distilled water. It was placed over heating mantle and distillation apparatus was assembled. Receiver flask was marked up to the amount of *Arka* will be extracted. After marking and assembly, the mantle was started for heating, temperature was gradually increased up to 100°C and kept for 30 minutes then it was reduced to 50°C and was maintained throughout the procedure till appropriate quantity of *Arka* obtained. Then the *Arka* was preserved in air tight container and marked as Sample 2 (AFI) and Sample 3 (NFUM).

After preparation of *Arka*, all the three samples were analyzed for organoleptic and physico-chemical characters i.e. pH, Specific gravity & refractive index in the Drug testing laboratory, Department of Rasashastra & Bhaishajya Kalpana, NIA, Jaipur and the results were recorded.

Results

Arka Obtained:

Sample 1 (*Arka Prakash*) ~ 7 ml; Duration: 60 min.

Sample 2 (AFI) - 250 ml; Duration: 7 hrs.

Sample 3 (NFUM) - 250 ml; Duration: 7 hrs. 30 min.

Analytical tests

Table No.4 showing the physico-characters of 3 Arka Samples

Character	Sample 1 (A.P.)	Sample 2 (AFI)	Sample 3 (NFUM)
Color	Yellowish transparent	Transparent	Transparent
Odour	Typical Mint like (Strong)	Typical Mint like	Typical Mint like
Taste	<i>Kashaya, Tikta</i> (Strong)	<i>Kashaya, Tikta</i>	<i>Kashaya, Tikta</i>
Appearance	Oily	Clear watery	Clear watery
Clarity	Floating oil drops	Floating oil drops	Floating oil drops
pH	-	8.1	8
Specific Gravity	-	1.002	0.997
Refractive index	-	1.35	1.33

Discussion

Number of dosage forms are described in traditional systems of medicine i.e. Ayurveda and Unani system of Medicine. These are planned because of a large number of drug from different origin (i.e. Plant, animal and mineral) and their properties. According to the properties of the drugs and purpose of medication the dosage form is selected. In Ayurveda, there are five fundamental dosage forms which are known as *Panchavidha Kashaya Kalpana*(13) i.e. *Swarasa, Kalka, Kwatha, Hima, Phanta* and other secondary dosage form. In Unani System of medicine *Huboob-wa-Agras, Jauhar, Kohal, Kushtajat, Majoon, Raughaniyat, Saiyyalat, Araq* are some important dosage forms(14). Among these *Hima, Phanta* and *Siyyalat* are used for the drugs which are having volatile or aromatic matter as their active portion. But the problem with all these formulation are that these have to be taken instantly and now longer shelf life, sometimes these are difficult to swallow due to unpleased taste or appearance and higher dose. So considering all these the scholars developed *Arka* (or *Araq*) *Kalpana*, a unique dosage form for overcoming to all these problem. It is pleasant in appearance, odour and taste so palatability of the drug increases and the shelf life is also higher which is 6-12 months(15) (16) or till the presence of *Prashasta Arka* properties(17). Although *Arka Patana Yantra* has been described in *Arka Prakasha*(18). But it is very complex to collect all its raw material and prepare it, so simple distillation apparatus was used for *Arka* preparation, that is very easy to assemble and at the same time it also provide sophistication too(19). It is much easier to mark it up to desired level and can be observed easily also. During preparation, in method of *Arka Prakasha*, where amount of water mentioned, was observe not enough for *Arka* extraction. Only sprinkling of water over the leaves has been said by the author that was found not enough to extract the *Arka*. Very less quantity of *Arka* was distilled by this method, so this method was looking not possible practically. Whereas in another two methods, sufficient quantity of *Arka* was obtained. While in comparison in between these two samples in amount of *Arka* obtained and their characters, the method of National Formulary of Unani Medicine was found better to drain maximum volatile matter and sufficient amount of *Arka*. By looking towards the amount of the *Arka* to be drained, in classical method, it has described according to the time and *Agni pramana* (amount of heat), *Arka* has to be drained and parameters has not given according to the amount of the *Arka*. In today's era it's quite difficult to decide and carryout the distillation according to the *Agni pramana* (Amount of heating). As in the present date, various methods are more convenient and easy to control the heat during the process.

Conclusion

Arka Kalpana is an important dosage form for the drugs, are having volatile matter as their active ingredients. *Arka* Prakash has also mentioned *Arka* of some other drugs and indicated for various purposes, but in case of *Pudina Arka*, preparing method of *Arka*

Prakasha was found not much practically possible, negligible amount of *Arka* obtained by this method. While the method of Ayurveda Formulary of India and National Formulary of Unani medicine were found more convenient and practical for preparation of *Pudina Arka*. Among these method of NFUM was looking better according to ratio of ingredients, convenience during preparation, yield obtained, and characters of final product. It seems sufficient to extract the maximum amount of volatile oil in the final product. It is suggested for further research to evaluate the *Arka* on more sophisticated instruments and evaluate through preclinical and clinical studies.

Acknowledgement

Director & Dean, National Institute of Ayurveda, Jaipur. HOD, all the teachers, scholars, all the team members, Department of Rasashastra & Bhaishajya Kalpana, National Institute of Ayurveda, Jaipur, Rajasthan.

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