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PAKWA MATRA POTTALI – A UNIQUE SOLID DOSAGE FORM

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ABSTRACT

Rasaushadhis have an advantage over Kashtaushadhis in that they are quick acting, require lesser dosage and are easier to be consumed (palatable). Rasaushadhis containing Parada have an advantage over other preparations because of their unmatched therapeutic benefit. Kupipakwa and Pottalikalpanas are the important murchita Parada yogas. Talasindura is one such Kupipakwa preparation which has indication for both respiratory and skin infections. Then, this Talasindura, prepared by antardhooma method is modified into pakwa matra pottali, a unique formulation, to see the therapeutic effect of this method. Pakwa matra pottali works well for Staph aureus and Candida albicans while Talasindura works well for K. pneumonia infections. This pakwa matra pottali can be said to be the double strength preparation of Talasindura, hence can be extrapolated to other kupipakwa preparations also.

KEYWORDS: Kupipakwa, antardhooma, Talasindura, Pakwa matra pottali.

INTRODUCTION

The present situation of various microbes (virus/bacteria) cropping up each and every day and mutating at such a fast pace has become a major cause for concern. This may be iatrogenic, due to lowered immunity or any other reason. It is predicted that, in the near and

distant future also, lots of other microbes may show up in one form or other. A strong antimicrobial agent which is fast acting, in less dosage and also supports or nourishes the body without causing further deterioration is the need of the hour. Ayurveda has the answer to this in form of "Rasaushadhis."

With the advanced methods of manufacturing and packaging medicines, Ayurveda has also seen a lot of development in terms of modernization. There is always a constant urge to innovate and improve newer dosage forms. Among the existing dosage forms of Rasaushadhis are the kharaliya kalpanas, i.e., in the form of tablets, parpati, pottali and kupipakwa preparations. Among these, pottali kalpanas are said to be the hardest and sturdiest. This is owing to their method of preparation. The main aim of pottali kalpanas is to make the powdered ingredients into a very compact form, like a potli.[1] The main advantage of this pottali kalpana is that since it is in a very compact form, it can incorporate more amount of the ingredient, thereby helping with increased concentration in lesser dosage also. Along with this, since the ingredients are all packed tightly, there is no question of any moisture being present, hence making it extremely stable.

Among the many pottali kalpanas, we see Hemagarbha pottali, Ratnagarbha pottali, etc., being used extensively by Ayurveda practitioners. One such unique pottali kalpana is the Pakwa Matra Pottali, first mentioned by Acharya Shyamasundara in his book Rasayana Sangraha.[2]

In this book, the author says that, since in olden times, people were carrying the medicines in glass bottles while travelling, there was always the risk of glass bottles being broken and the medicines getting mixed with minute glass pieces. To prevent this, the author mentioned this Pakwa Matra Pottali. Another uniqueness of this pottali is that it is prepared from the kupipakwa preparations, i.e., the Parada which has already undergone murchana once in kupi paka is again subjected for Pottali paka. Keeping this idea in mind, an attempt was made to prepare Talasindura Pakwa Matra Pottali and also with the idea to see if this method would just help with bringing about sturdiness/hardness in the preparation or was there any therapeutic efficacy.

MATERIALS AND METHODS

Talasindura[3] was preparaed by kupipakwa antardhooma method of preparation with ingredients as follows:

Parada-Gandhaka Kajjali: 200 g

Shuddha Haratala Churna: 50 g

Shuddha Manahshila Churna: 25 g.

Shuddha Tankana Churna: 25 g.

Shuddha Navasadara Churna: 12.5 g.

This was given bhavana with shaaka patra rasa and then subjected to kupi paaka for 48 hours. The shining sindura varna Talasindura was collected from the neck of the kachakupi.

PAKWA MATRA POTTALI

Apparatus: Porcelain khalwa yantra.

Ingredients: Talasindura 20 g

Isabgol – Q.S. for mardana

Procedure: Talasindura 20 g was powdered nicely in khalwa yantra and isabgol (soaked in water overnight) was added in required quantity and triturated well to make a thick paste. This was then rolled into conical shape i.e., two pottalis were prepared of 13 g size each and allowed to dry.

GANDHAKA DRAVA PAKA

Procedure: A piece of silk cloth was taken and shodhita Gandhaka churna was spread over it in the centre. The dried pottali was kept over it and again, shodhita Gandhaka churna was added such that it covered all the four sides. This cloth was folded and again kept inside another silk cloth with shodhita Gandhaka churna at the base and then, some more shodhita Gandhaka churna was filled all around it. This was then tied firmly in the shape of pottali with the help of a thread. Another pottali was prepared similarly. Shodhita Gandhaka was taken in a small mud pot such that it covered 3/4th of it. It was kept in a small pan containing valuka placed on gas stove and heated on mandagni. After half an hour, Gandhaka started melting and by one and a half hours, it had melted completely. An iron rod with the pottali of Talasindura suspended with the help of a thread was placed along the mouth of the pot such that the pottali was immersed inside the molten Gandhaka but did not touch the base of the pot. After about 6 hours, the pottali was checked for pottali siddha lakshanas like vyoma varna of the molten Gandhaka, metallic sound when banged against a hard/metal surface, compact shape of the pottali and easily seperable from the silk cloth. Then, the gas was switched off and Pottali was taken out of the pot and allowed to cool. The adhered Gandhaka

churna was scraped off from the shining pottali and stored in air tight bottle. The weight of the pottali after paaka was 11 g. The same procedure was repeated for the other pottali also.

ANTIMICROBIAL TEST

The antimicrobial activity of TSP (Talasindura Pottali) & TS-1 (Talasindura Kupi paka) samples were evaluated against different human pathogens viz. *K.pneumoniae* (MTCC7162), *S.aureus* (MTCC3160) and *C.albicans* (MTCC-227).

Inhibition Zone (mm)						
Concentrations (µg/mL)	**TS-1**			**TSP**		
	K.pneumoniae	**S.aureus**	**C.albicans**	**K.pneumoniae**	**S.aureus**	**C.albicans**
5	**No zone of inhibition**	**No zone of inhibition**	**No zone of inhibition**	**No zone of inhibition**	**No zone of inhibition**	**No zone of inhibition**
10	4.1 ± 0.1	2.0 ± 0.1	3.1± 0.2	1.9 ± 0.1	4.3 ± 0.1	1.8 ± 0.1
25	8.8 ± 0.2	5.8 ± 0.2	6.4 ± 0.3	7.5 ± 0.2	8.9 ± 0.3	8.1 ± 0.1
50	17.2 ± 0.2	14.2 ± 0.2	12.2 ± 0.2	16.3 ± 0.3	17.4 ± 0.2	15.4 ± 0.3
Std.	18.1 ± 0.2	14.8 ± 0.2	13.5 ± 0.3	17.4 ± 0.2	18.8 ± 0.3	17.3 ± 0.2
MIC	8.50 µg/mL	8.50 µg/mL	8.00 µg/mL	6.0 µg/mL	5.50 µg/mL	6.00 µg/mL
Standard: Bacteria: Streptomycin (10 µg/mL); Fungus: Fluconazole (10 µg/mL); Experiments were done in triplicate and mean values were taken.						

K.pneumoniae – Klebsiella pneumonia; S.aureus – Staphylococcus aureus; C.albicans – Candida albicans.

DISCUSSION

Pottali kalpanas are formulated with the main aim of hardening the dosage form. In case of Pakwa Matra Pottali, the Acharya says that his main intention was to prevent the already prepared powder-form medicines of kupi pakwa preparations from getting mixed up or destroyed, especially while travelling. But since the medicine will have already undergone the murchana/paaka once in the kupi, subjecting it to paaka again in the Gandhaka drava might also contribute to enhancing its therapeutic efficacy. This was the idea behind this study. K.pneumoniae is a gram negative organism, Staph.aureus is a gram positive organism and C.albicans is a fungal representative. K.pneumoniae belongs to Enterobacteriaceae family and is predominantly responsible for respiratory infections involving both upper and lower lobes of lungs. Staph. aureus is the leading cause of skin and soft tissue infections like abscesses, boils, furuncles and cellulitis. Candida albicans is the most common cause of fungal skin infection, including vaginal yeast infection. Compared to other organisms, Talasindura showed good reponse to K.pneumoniae with respect to zone of inhibition.

Talasindura pakwa matra pottali showed good response to S.aureus and C.albicans compared to Talasindura sample regarding zone of inhibition.

CONCLUSION

Talasindura prepared with kupipakwa method may help best in cases of pneumonia caused by K.pneumoniae organism compared with its pakwa matra pottali.

The pakwa matra pottali form of Talasindura may work best for skin infections caused by S.aureus and C.albicans compared to its kupipakwa preparation.

Converting any prepared medicine into this pottali form may help a great deal in bringing a hardened/compact form to the medication, thus helping in safe transportation, which might reduce the too many layers of packaging we see today in case of fragile drugs.

Along with this, this pakwa matra pottali may be said to be the “double strength” preparation of our Ayurvedic medicines as confirmed by comparative zone of inhibition.

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