

A COMPARATIVE ANALYTICAL STUDY OF PEET KARVEER (*THEVETIA NERIIFOLIA* JUSS) W.S.R. TO DETOXIFICATION PROCEDURE UNDER DIFFERENT MEDIA

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ABSTRACT

Peet Karveer (*Thevetia neriifolia*. Juss), is classified under *Upvisha Dravya* (Semi-poisonous drugs). In classical *Ayurvedic* pharmacopoeias it is advocated that *Shodhana* (purificatory procedures) of the *Mool* (Root) should be carried out before its internal administration. Though there are different *Shodhana* methods mentioned in Classics. *Ayurvedic* pharmacopoeia of India (API) recommends only one method for the *Shodhana* of *Karveer Moola* (*Godugdha*). In this study Cow's milk, Cow's urine and distilled water were used as media. They impact of *Shodhana* was evaluated by physico-chemical and chromatographical parameters. Chromatological evaluation of the media used (after purification) showed different Rf value. Among the 3 media used more Rf values showed in *Godugdha* media signifying more toxic removed from drug into media. Upon analyzing other parameter also *Godugdha* media has been proved significant purificatory media compared to *Gomutra* and distilled water.

Keywords : *Shodhana*, *Peet Karveer*, *Thevetia neriifolia*, *Ayurvedic pharmacopoeia of India*.

INTRODUCTION

Karveer is included in *Sthavar Upvisha* in *Rastarangini*¹, *Ras Ratna Samuchya*² and *Mool Visha*³ by *Acharya Shushrut*. *Karveer Mool* (Root) has got very high therapeutic value. Many formulations are available in the classics containing *Karveer Mool*. *Karveer* based *Ayurvedic* medicines are commonly used in conditions like *Jwara*, *Hridaroga* etc. There are three types of *Karveer* i.e. *Shweta Karveer*, *Rakta Karveer*, *Peet Karveer*⁴. In the present study *Peet* variety of *Karveer* will be studied/purified by using different medias as per the classics and analysed accordingly. Whenever poisonous drugs (*Dravya*) used in medicine they need

purification (*Shodhana*) before therapeutic use. Otherwise it can be hazardous rather than beneficial. So the poisonous drugs which having higher concentration of toxin, may reduce their toxicity by the process of *Shodhana* and can be used as a medicine.

Shodhana is a process that converts the dreadful drug to a safest drug. A good definition for *Shodhana* process is given in *Ayurveda Prakasha*⁵ the bad qualities those are present in the un-purified drug will be reduced or nullified after subjecting to *Shodhana* process. So *Vaidyas* should always use these *Vishas* in *Chikitsa* after proper *Shodhana* is considered as the submission of drug to different procedures

are mentioned for different drugs same of them are specific to that particular drug. For *Karveer*, *Shodhana* has been prescribed and different methods are available for it, *Shodhana* by using *Gomutra*⁶ and *Godugdha*⁷ being two of them. For *Shodhana* of *Peet Karveer*, the *Swedan* and *Nimanjjana* procedure of *Peet Karveer* is done using different media like *Gomutra*, *Godugdha* and Distil water. Thus, *Peet Karveer Shodhana* done by using different media may have different physio-chemical characteristics and it will be observed and compared in this study.

AIM & OBJECTIVES:

- 1) *Shodhana* of *Peet Karveer* (*Thevetia neriifolia* Juss.) *Mool* from different media.
- 2) To evaluate the effect of *Shodhana* on *Shodhana Poorva & Shodhana Pashchat* *Peet Karveer* (*Thevetia neriifolia* Juss.) *Mool* analytically.
- 3) To compare *Shodhit Peet Karveer* (*Thevetia neriifolia* Juss.) *Mool* from different media.

MATERIALS- Raw sample of *Peet Karveer Mool* was collected from Bhopal. The authenticity of the *Peet Karveer* (*Thevetia neriifolia* Juss.) was carried out by macroscopic and microscopic examination with the guidance of Botanist in Shreeji Laboratory Indore.

METHODOLOGY- As the *Peet Karveer Mool* is *Sthavara Vanaspatic Visha*, it should be purified before using in medicinal preparation.

For the study *Shodhana* is done by two methods mentioned in *Samhita* and by distil water as a control group. But there is no such study done earlier which shows changes in toxic principle of '*Peet Karveer Moola*' after *Shodhana Sanskara*. So we select here to study changes taking place in

'*Peet Karveer Mool*' before and after *Shodhana Sansakar* according to the modern parameters mentioned in the Ayurvedic Pharmacopeia I.S.M. Govt. of India.

Peet Karveer i.e. *Thevetia neriifolia* is a plant which is mentioned as *Upavisha* in *Ayurveda* and as irritant organic vegetable poison in modern toxicology. Toxicological properties of *Thevetia neriifolia* are well explained in *Ayurveda* and modern science. According to *Ayurveda* poisonous plants are subjected to *Shodhana Sanskara* prior to their therapeutic use. And *Peet Karveer Mool* is no exception to it.

As per literature references, *Shodhana Sanskara* of *Peet Karveer Mool* reduces its toxicity and enhances its therapeutic use. Physical and chemical changes due to *Shodhana* have not been studied with reference to modern parameters. Hence the study of *Peet Karveer Mool Shodhana* was carried out with the help of modern parameters to see whether it reduces its toxicity or not.

Experimental Study:

- 1) Well ripened *Mool* of *Peet Karveer* was selected.
 - 2) *Shodhana Sanskara* of *Peet Karveer Mool* was done by *Shodhana Dravyas* like
 - i) *Gomutra* (Cow urine)
 - ii) *Godugdha* (Cow milk)
 - iii) Later on *Shodhana* was carried out with distil water *Sthapitam* as control group.
 - 3) *Ashuddha* and three *Shodhit* samples were analyzed for physical and chemical parameters.
- Peet Karveer Mool* was cut in many pieces and taken for *Shodhana* process.

Shodhana Procedure:

Shodhana of *Peet Karveer Mool* is done by three methods.

i) By Gomutra Sthapitam :

Quantity sufficient *Gomutra* taken in earthen pot and 125 gm of *Ashuddha Peet Karveer Mool* pieces immersed in it and kept for 24 hours and pot covered with plate. After this *Peet Karveer Mool* pieces were drawn out from the earthen pot and dried.

ii) By Godugdha Swedan:

A *Pottali* containing *Peet Karveer Mool* pieces was suspended in *Dolayantra* containing cow's milk and the whole apparatus was heated in low flame for 3 hr. Then *Peet Karveer Mool* was taken out and then grounded to coarse powder.

iii) By Distil Water Sthapitam:

Quantity sufficient distil water taken in earthen pot and pieces of *Peet Karveer Mool* immerse in it for 24 hours. Pot covered with plate. After this *Peet Karveer Mool* pieces drawn out and dried.

Parameters: Parameters were taken according to the Ayurvedic pharmacopoeia I.S.M. Govt. of India⁸.

Thin Layer Chromatography

Thin layer chromatography gives information regarding chemical components present in sample. Thus, here change in the chemical composition due to *Shodhana* with respect to *Ashuddha* sample can be strained by TLC by comparing various band present in their TLC pattern.

The alcoholic extract was spotted on Silica Gel 60 F₂₅₄ (Merck) plates and were run using solvent system,

Ethyl Acetate : Methanol : Water (1.6 : 0.225 : 0.16)

RF values of various samples are shown in Table No.4.5.

RESULTS: The obtained quantity of *Shuddha Peet Karveer Mool* varies

according to the media used. The figures have been shown in Table 4.1. The analytical figures are shown in Table 4.2 to 4.5.

DISCUSSION

The percentage of loss in weight is higher in *Godugdha Shodhit* as compare to *Gomutra Sthapitam* and Distil water *Sthapitam Shodhit*.

Percentage loss was observed more in both sample of *Gomutra* and *Godugdha Shodhita* compared to distil water it signifies that more toxins might have been extracted from the sample into the media in both while less extraction from was observed in distilled water hence weight reduction is less.

Loss on drying indicates the amount of moisture in drug. As loss on drying less in *Godugdha Swedana* signifying loss moisture content and hence possess good qualities compared to *Gomutra*, distil water and *Ashuddha* sample which have increasing more loss on drying.

None ash value signifies the increased /more amount of adulteration or poor quality of the drug. Here in *Godugdha* and *Gomutra* have almost equal and are having less ash which signifies the capacity of media in purification of toxins. Where as its more in *Ashuddha* and distilled hence purification level is less.

Water soluble Ash value of *Ashuddha* sample is 4.42 % which increase in sample *Shodhana* with *Godugdha* 7.16 % whereas decreases in samples subjected to *Shodhana* with *Gomutra Sthapitam* 5.92 % and Distil water *Sthapitam* 4.71 %.

Acid insoluble ash value of *Ashuddha* (0.65%) sample and *Godugdha Shodhit* (0.31%) whereas acid insoluble ash of samples carried out *Shodhana* with *Gomutra Sthapitam* (0.42%) and Distil water *Sthapitam* is (0.38%) respectively.

Same is the condition with water soluble ash and acid insoluble ash where the value mentioned here represents the role of media *Godugdha* extracts. More toxins and impurities from the drugs hence increasing water soluble ash value and same activity is found less in decreasingly in *Gomutra*, distil water and *Ashuddha* sample respectively.

More water and alcohol soluble extractives signifies more of extraction. There in the study water and alcohol soluble extractive in *Godugdha* media is found more which signifies more extraction of toxins in this media .While in other medias it is found decreasingly in *Gomutra* ,distil water and *Ashuddha* samples accordingly.

Hence from the results of the analytical study it is observed that media *Godugdha* helps in more detoxification compared to other media. While *Gomutra* even though has similar activity but lesser compared to *Godugdha*.

TLC report indicates about different number of spot observed when used / studied about different media *Shodhit*, *Peet Karveer Mool*. The observation and Rf values are tabulated in table No.4.5.

Here, when observed under 254nm *Ashuddha*, Distil water sample shows more Rf values which is indicative of presence more alkaloids and toxins in these samples whereas in *Godugdha* and *Gomutra Shodhita* samples Rf values are less indicative of elimination of maximums toxins and alkaloids in, the purificatory media. The same has been observed at 366nm.

CONCLUSION

While comparing with 3 purificatory media *Gomutra* and distilled water majorly plays only one chemical action with *Peet Karveer Mool*, osmotic dehydration. By this chemical action that much toxic principal will not be removed when comparing with *Godugdha*. Because in *Godugdha* in addition to osmotic dehydration, externally heat (*Swedana*) also supplied to purification media, so that more and more toxins was extracted from the *Peet Karveer Mool*. So comparing 3 purification media *Godugdha* plays a best role in detoxifying the *Peet Karveer Mool*.

Table 4.1: Table showing the percentage of loss in weight due to *Shodhana* of various samples

Samples of <i>Peet Karveer Mool</i>	Wt. Before <i>Shodhana</i>	Wt. after <i>Shodhana</i>	% of loss in wt .
<i>Gomutra Sthapitam Shodhit</i>	125 gm	109	12 %
<i>Godugdha Shodhit</i>	125 gm	110	12.8%
Distil water <i>Sthapitam Shodhit</i>	125 gm	113	09.6%

Table 4.2: Table showing loss on Drying at 105⁰ of various samples of '*Peet Karveer Mool*'

Samples of <i>Peet Karveer Mool</i>	Wt. of sample in gms.	Total loss in wt. after drying	% of L.O.D.
<i>Ashuddha</i>	5	0.216	4.32%
<i>Gomutra Sthapitam Shodhit</i>	5	0.184	3.68%
<i>Godugdha Shodhit</i>	5.0058	1.02	2.04%
Distil water <i>Sthapitam Shodhit</i>	5	0.206	4.12%

Table 4.3: Table showing Total Ash water soluble Ash and insoluble ash of Various samples of "*Peet Karveer Mool*"

Samples of <i>Peet Karveer Mool</i>	Total Ash	Water Soluble Ash	Acid insoluble Ash
<i>Ashuddha</i>	6.26%	4.42%	0.65 %
<i>Gomutra Sthapitam Shodhit</i>	4.86%	5.92%	0.42%
<i>Godugdha Shodhit</i>	4.24%	7.16%	0.31 %
Distil water <i>Sthapitam Shodhit</i>	5.15 %	4.71%	0.38 %

Table 4.4: Table showing Extractive values of Various samples of "*Peet Karveer Mool*"

Samples of <i>Peet Karveer Mool</i>	Alcohol extractive values	Aqueous extractive values
<i>Ashuddha</i>	6.3 %	3.6%
<i>Gomutra Sthapitam Shodhit</i>	7.7 %	4.8%
<i>Godugdhas Shodhit</i>	8.9 %	7.7 %
Distil water <i>Sthapitam Shodhit</i>	6.8 %	3.8%

Table 4.5: Showing Rf. Values of various samples in Thin Layer Chromatography

Media	No. of Spots	Rf Values
UV 254nm		
<i>Ashuddha</i>	10	0.01, 0.06, 0.09, 0.16, 0.38, 0.53, 0.59, 0.72, 0.83, 0.96
<i>Gomutra Shodhita</i>	8	0.01, 0.14, 0.30, 0.41, 0.50, 0.72, 0.82, 0.92
<i>GodugdhaShodhita</i>	7	0.01, 0.10, 0.38, 0.51, 0.68, 0.81, 0.94
Distilled water	9	0.19, 0.23, 0.30, 0.37, 0.43, 0.45, 0.52, 0.70, 0.81
UV 366nm		
<i>Ashuddha</i>	9	0.01, 0.06, 0.09, 0.17, 0.38, 0.57, 0.63, 0.71, 0.96
<i>GomutraShodhita</i>	6	0.16, 0.18, 0.23, 0.37, 0.42, 0.45
<i>GodugdhaShodhita</i>	5	0.01, 0.12, 0.40, 0.62, 0.69
Distilled water	7	0.01, 0.09, 0.16, 0.37, 0.53, 0.68, 0.95

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