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

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ABSTRACT

Peet Karveer (Thevitia nerifolia, 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 Mool (Godugdha). In this study Cows 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 nerifolia, Ayurvedic pharmacopoeia of India.

INTRODUCTION

Karveer is included in Sthavar Upvisha in Rastarangini¹, Ras Ratna Samuchya² and Mool Visha³ 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 Karveer⁴. 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 Prakashä⁵ 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 and Godugdha being two of them. For Shodhana of Peet Karveer, the Swedan and Nimanjana 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 Shhavara 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.

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 Karvee Mool pieces were drown 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 drown out and dried.

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

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 F_{254} (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

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

Table 4.2: Table showing loss on Drying at 105°C of various samples of 'Peet Karveer Mool'

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

Table 4.3: Table showing Total Ash water soluble Ash and insoluble ash of Various samples of "Peet Karveer Mool"
Samples of Peet Karveer Mool | Total Ash | Water Soluble Ash | Acid insoluble Ash
--- | --- | --- | ---
Ashuddha | 6.26% | 4.42% | 0.65 %
Gomutra Sthapitam Shodhit | 4.86% | 5.92% | 0.42%
Godugdha Shodhit | 4.24% | 7.16% | 0.31 %
Distil water Sthapitam Shodhit | 5.15 % | 4.71% | 0.38 %

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

| Samples of Peet Karveer Mool | Alcohol extractive values | Aqueous extractive values |
--- | --- | ---
Ashuddha | 6.3 % | 3.6% |
Gomutra Sthapitam Shodhit | 7.7 % | 4.8% |
Godugdha Shodhit | 8.9 % | 7.7 % |
Distil water Sthapitam Shodhit | 6.8 % | 3.8 % |

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

| Media | No. of Spots | UV 254nm | UV 365nm |
--- | --- | --- | ---
Ashuddha | 10 | 0.01, 0.06, 0.09, 0.16, 0.38, 0.53, 0.59, 0.72, 0.83, 0.96 | 0.01, 0.06, 0.09, 0.17, 0.38, 0.57, 0.63, 0.71, 0.96 |
Gomutra Shodhita | 8 | 0.01, 0.14, 0.30, 0.41, 0.50, 0.72, 0.82, 0.92 | 0.16, 0.18, 0.23, 0.37, 0.42, 0.45 |
Godugdha Shodhita | 7 | 0.01, 0.10, 0.38, 0.51, 0.68, 0.81, 0.94 | 0.01, 0.12, 0.40, 0.62, 0.69 |
Distilled water | 9 | 0.19, 0.23, 0.30, 0.37, 0.43, 0.45, 0.52, 0.70, 0.81 | 0.01, 0.09, 0.16, 0.37, 0.53, 0.68, 0.95 |

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