Role of different media in Karpanpatru Taila Preparation

Manisha Goyal*, B. J. Patgiri**, B. Ravishankar***, P. K. Prajapati ****

Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar.

Abstract

Total six samples of Karpanpatru Taila were prepared with Murchchhita and Amurchchhita Sarshapa Taila (mustard oil) by using three different liquid media i.e. Gomutra, Takra and Kanji by following classical method and analyzed. The pharmaceutical analysis revealed that the Karpanpatru Taila prepared with Murchchhita Sarshapa taila by using Kanji, Gomutra, Takra as a liquid media showed minimum loss i.e. 4.00%, 8.33% & 8.66 respectively in comparison to Amurchchhita Sarshapa Taila by using Kanji, Gomutra, Takra i.e. 5.5%, 10.68%, 12% respectively. Pharmaceutical drawbacks like excessive frothing and burning of eyes & nose were absent during the preparation of Karpanpatru Taila with Takra and Kanji while present in batch of Gomutra. Analytical study reveals that Acid value was negligible increased after even 6 month in the samples of Murchchhita Karpanpatru Taila while significant increased in the samples of Amurchchhita Karpanpatru Taila. Saponification value was decreased in the samples of Murchchhita Karpanpatru Taila while increased in the samples Amurchchhita Karpanpatru taila. Microbial growth was found absent in all the samples of Karpanpatru Taila even after 6 months.

Key words: Sneha Kalpana, Murchchhana, Gomutra, Takra, Kanji, Acid value, Saponification value.

Introduction

Basically Karpanpatru Taila is derived from a compound name as Karpogi Paste. This is mentioned in Siddha pharmacopeia and has been utilized to treat vitiligo since mid 50’s. The clinical users were quite satisfied with its results but complain of its short life was very frequent due to contamination of fungus. Thus to overcome this problem of Karpanpatru Lepa, another Kalpana was formulated by the scholar Zhankana et.al. during her Ph.D. research work i.e. Karpanpatru Taila prepared by using the same ingredients under the code name Vit-8 oil. This oil was prepared with Gomutra as a media due to their best Kusthaghn effect. But during preparation of Vit-8 oil some pharmaceutical drawbacks were faced. i.e. excessive frothing, burning of eyes & nose and headache etc. So to overcome these drawbacks this work has been selected for pharmaceutical study under the name of Karpanpatru Taila.

Karpanpatru Taila was prepared by using three different media like i.e. Gomutra, Takra and Kanji to compare pharmaceutically the role of media. Generally Sneha Kalpana is used by all possible route of administration. There are so many controversies regarding the preparation of Sneha Kalpana with different liquid media and shelf life too. Therefore, the entire samples were also prepared by Murchchhita and Amurchchhita Taila to overcome the Gandha, Varna and Raso tpatti in Taila. Thus, following aims and objectives were considered for the present study.

Aims and Objectives

1) To establish a suitable method for preparation of Karpanpatru Taila.
2) To observe and establish the role of media during the preparation of Karpanpatru Taila.
3) To establish the shelf life of Karpanpatru Taila prepared by amurchchhita Sarshapa Taila and Murchhita Sarshapa Taila.

Material & Methods

The Karpanpatru Taila was prepared by using general principles of Sneha Kalpana as per Sharangdhara Samhita, where Murchchhana of Taila was carried out as per the reference of Bhaishajya Ratnavali Jwradhikara¹. Karpanpatru Taila was prepared with Murchchhita and

¹Lecturer, Government Ayurvedic College, Vadodara, **Reader, Dept. of Rasashastra & Bhaishajya Kalpana including Drug Research, I.P.G.T. & R.A., Jamnagar. ***Head, Pharmacology Laboratory. ****Professor & Head, Dept. of Rasashastra & Bhaishajya Kalpana including Drug Research.

DOI: 10.4103/0974-8520.68198
Amurchchhita Sarshapa Taila using Kalka Dravya like Bakuchi, Tiwaraka, Krishna Jeeraka, Kalaunji, Narikela, Vatam, Postdana in equal quantity, Hartala 1/20th part of each ingredient and Drava Dravya i.e. Gomutra, Takra, Kanji were taken as per the general ratio of Sneha Kalpana i.e. 1:1/4:4. Takra was prepared as per the reference of Sushruta Samhita. Kanji was prepared as per the reference of Vijyanabodhani commentary of D. A. Kulkarni on Rasa Ratna Samuccaya.

Taila was heated till it became moisture free (at 160°C) as per general practice of tradition and after slight cooling (at 90°C), Kalka was added which was followed by addition of Drava Dravya. Along with it, four times of water i.e. equal to Drava Dravya was added in the preparation of Karpanpatru Taila with Takra. Then mixture was subjected to Sneha Paka over Madhyamagni till Siddhi Lakshanas (chief desired characteristics) were obtained. The heating duration was adjusted in such a manner that whole process would get completed by five nights.

**Observation & Results**

During the preparation of Karpanpatru Taila with Gomutra excessive frothing, burning of eye & nose and headache etc. were observed. Acrid smell was smelt during the preparation of Karpanpatru Taila with Takra and Kanji. Near to final stage, temperature was slightly raised. More yield was obtained in the Karpanpatru Taila prepared with Murchchhita Sarshapa Taila (Table 1 and 2) and according to liquid media maximum yield was obtained in the Karpanpatru Taila prepared with Kanji as a liquid media.

Analytical phase of the study includes the organoleptic and physicochemical evaluation along with microbial growth. The organoleptic characters examined were Varna (colour/appearance), Gandha (odour) and Sparsha (consistency), while the physicochemical parameters like pH, specific gravity, total solid contents of the liquid media (Table 3) and refractive index, specific gravity, acid value, saponification value etc. of the Karpanpatru Taila (Table 4, 5, 6) were analyzed as per the standard methods.

**Organoleptic Characters**

Amurchchhita batch of Karpanpatru Taila prepared with Gomutra was dark brown in colour whereas brown colour was observed in the samples of Karpanpatru Taila prepared with Takra and Kanji, while all samples of Murchchhita batch of Karpanpatru Taila were dark red in colour. Consistency was oily and odour of Gomutra was felt in Karpanpatru Taila prepared with Gomutra, while in other samples non specific odour were smelt. Translucency in all the samples of Karpanpatru Taila were observed.

**Physico-Chemical Characters**

Specific gravity index remains unchangehd in the initial and 6 months older sample of Karpanpatru Taila. Acid value was found increased after Murchchhina in all samples of Karpanpatru Taila. This may be due to incorporation of some acid matter from Murechehhana Dravya in Taila. Acid value and saponification value were increased in the 6 months older sample of Karpanpatru Taila prepared by using Amurchchhita Sarshapa Taila. In case of Karpanpatru Taila prepared by using Murchchhita Sarshapa Taila increase of acid value was marginal and saponification value was decreased.

**Discussion**

Fine powdered Kalka Dravyas were taken in the processing of Sneha Kalpanas to get maximum extraction. With the help of little amount of water it was converted into a bolus form. By doing this, surface area of Kalka was reduced which comes in contact with Taila. So Kalka did not burn when it was added into the warm oil. During heating of Sarshapa Taila pungent, vapours evaporate which causes burning of eye and nose. These vapours may be of sulphur which are liberated by mustard oil. After demomestisation, colour of Taila was converted into light yellow from dark yellow because of shifting of chemical bonds due to thermal power effect. During the addition of Kalka frothing was seen. It may be due to evaporation of moisture content from Kalka and its fine particle size.

The colour of Taila was dark red and characteristic odour was perceived in the batches of Murchchhita Karpanpatru Taila. This odour may be due to Kalka Dravyas like Manjishthra, Hribera, Haridra etc. Consistency of Taila was thick due to presence of fine particles of Kalka that are filtered along with Taila.

In Karpanpatru Taila prepared with Takra, four times of water was added to carry out proper Paka. Sneha Paka was carried out for 5 days because Gomutra, Takra and Kanji were used as Drava Dravya. Excessive frothing, burning sensation in eyes and nose and headache occurred during preparation of Karpanpatru Taila with Gomutra. It may be due to the liberation of ammonia present in Gomutra. Smell of Gomutra spread in all over the surrounding area during the Paka. More loss was found due to fineness of particle size of Kalka resulting in increase of surface area and thus more absorption of Taila. Secondly, it may be due to manual handling. Weight of the Kalka increased after filtration. It may be due to absorption of moisture and Taila by Kalka.

Observation shows that more loss was found in the Amurchchhita Karpanpatru Taila. It may be due to the moisture content present in Sarshapa Taila which evaporates during the heating of Taila before subjecting it to Paka. Weight of Kalka after filtration increased in all batches of Karpanpatru Taila due to presence of solid contents of media viz. Gomutra, Takra, Kanji and absorption of Taila and moisture content by Kalka.

The specific gravity and refractive index remain unchanged in the initial and 6 months older sample of...
Table 1: Comparative results obtained during of preparation of Murchchhita Karpanpatru Taila with Gomutra, Takra, Kanji

| Parameters                                      | KP Taila with GM | KP Taila with TK | KP Taila with KJ |
|------------------------------------------------|------------------|------------------|------------------|
| Initial quantity of oil (L)                     | 3                | 3                | 3                |
| Initial quantity of Kalka (g)                   | 750              | 375              | 750              |
| Quantity of obtained oil (L)                    | 2750             | 2740             | 2863             |
| Weight of Kalka after filtration (g)            | 1459             | 916              | 1500             |
| Colour of Kalka                                 | Dark Brown       | Dark Brown       | Dark Brown       |
| Total loss (ml.)                                | 250              | 260              | 136.70           |
| Loss in %                                       | 8.33             | 8.66             | 6.0              |
| Colour of finished product                      | Dark Red         | Dark Red         | Dark Red         |

Table 2: Comparative results obtained during of preparation of Amurchchhita Karpanpatru Taila with Gomutra, Takra, Kanji

| Parameters                                      | KP Taila with GM | KP Taila with TK | KP Taila with KJ |
|------------------------------------------------|------------------|------------------|------------------|
| Initial quantity of oil (L)                     | 3                | 3                | 3                |
| Initial quantity of Kalka (g)                   | 750              | 375              | 750              |
| Quantity of obtained oil (L)                    | 2680             | 2640             | 2816.76          |
| Weight of Kalka after filtration (g)            | 1427             | 956.7            | 1459.3           |
| Colour of Kalka                                 | Brown            | Brown            | Brown            |
| Total loss (ml.)                                | 320              | 360              | 166.7            |
| Loss in %                                       | 10.68            | 12               | 5.56             |
| Colour of finished product                      | Dark Brown       | Brown            | Brown            |

Table 3: Physico-chemical parameters of Medias

| Media   | pH       | Specific gravity | Solid content (5) |
|---------|----------|------------------|-------------------|
| Gomutra | 7.63     | 1.032            | 7.003             |
| Takra   | 4.13     | 1.211            | 5.929             |
| Kanji   | 3.35     | 1.0132           | 3.643             |

Table 4: Physico-chemical parameters of KP Taila prepared with Gomutra

| Parameters                  | 0 Month | 6 month | 0 month | 6 month |
|-----------------------------|---------|---------|---------|---------|
| Specific gravity            | 0.9146  | 0.9170  | 0.9243  | 0.9290  |
| Refractive index            | 1.4750  | 1.4740  | 1.4740  | 1.4750  |
| Acid value                  | 6.12    | 7.16    | 5.13    | 5.95    |
| Saponification value        | 168.06  | 169.99  | 171.44  | 170.30  |

Table 5: Physico-chemical parameters of KP Taila prepared with Takra

| Parameters                  | 0 Month | 6 month | 0 month | 6 month |
|-----------------------------|---------|---------|---------|---------|
| Specific gravity            | 0.9087  | 0.9097  | 0.9120  | 0.9115  |
| Refractive index            | 1.4730  | 1.4740  | 1.4740  | 1.4740  |
| Acid value                  | 4.63    | 5.62    | 8.49    | 8.68    |
| Saponification value        | 165.63  | 166.89  | 175.49  | 168.39  |

Karpanpatru Taila. It indicates no drastic changes occur to the prepared oil even after six months of storage. Acid value can be defined as the number of milligrams of potassium hydroxide required to neutralize the free acids present in 1 g of sample of oil. And Saponification value can be defined as the number of milligrams of potassium hydroxide required to neutralize the fatty acids resulting from complete hydrolysis of 1 g of the sample of oil. Generally, rancidity causes free fatty acid liberation, hence acid value and saponification value are used as an indication of rancid state. Here acid value and saponification value were increased in the 6 months older sample of Karpanpatru Goyal, et al.: Role of media in Karpanpatru Taila preparation
Taila prepared by using Amurchchhita Sarshapa Taila. In case of Karpanpatru Taila prepared by using Murchchhita Sarshapa Taila increase of acid value was marginal whereas saponification value was decreased. It is indicative of occurrence of rancidity in Karpanpatru Taila prepared by using Amurchchhita Sarshapa Taila. The results also prove the importance of the process of Murchchhana of Sneha prior to the preparation of Sneha Kalpana.

All the samples of Karpanpatru Taila prepared by both Amurchchhita as well as Murchchhita Sneha were found to be free from any fungal and bacterial growth. Oils are generally immune to microbiological contamination due to less moisture content. Microbial growth in oils is found only if there is more water content. Here negative results for fungal and bacterial growth test should be considered as important findings and suggests all the samples are completely free from microbial contamination and contain moisture up to considerable limits.

Conclusion

Karpanpatru Taila is developed on basis of a Siddha compound name as “Karpogi paste” which is mentioned in Siddha pharmacopeia and utilized to treat vitiligo. Drawbacks like excessive frothing, burning in eye and nose and headache etc. were absent in Karpanpatru Taila prepared with Takra and Kanji as a liquid media in both groups i.e. Amurchchhita & Murchchhita. Fine powdered Kalka should not be taken in the preparation of Sneha Kalpana to achieve maximum yield. Pharmaceutically Kanji can be considered as a best liquid media for the preparation of Karpanpatru Taila from the point of yield. Murchchhana process should be taken as mandatory for Sneha Paka. No change was found in organoleptic characters and no significant change was found in physicochemical characters of all samples of Karpanpatru Taila even after 6 month at normal storage conditions.

References

1. Govind Das, Bhaishajya Ratnavali, Hindi Commentary by Ambikadutta Shastri, Chaukhamba Sanskrit Sansthan, Varanasi, 15th edition, 2002, Jwaradhikar 5/1286, pp. 130
2. Zankhana G. Tank, A Pharmaceutico-clinical study of VIT 8 lepa & VIT 7 oil (modified Karpanpatru - A herbomineral compound in the management of Switra (Vitiligo) 2006.
3. Sharangadhara Acharya, Sharangadhara Samhita, commentary of Adhamala and Kashiram, Chaukhamba Orientalia, Varanasi, 4th edition 2000. Madhyam Khand 9/1, pp. 212
4. Acharya Sushruta, Sushruta Samhita, Ambika Datta Shastri, Hindi commentary, Chaukhambha Sanskrit Sansthan, Varanasi 2001, Sutra Sthana 45/85, pp. 176.
5. Rasa Vagbhatta, Rasa Ratna Samuchaya, commented by D.A.Kulkarani published by Meharchand lakshamidas, 3rd edition, 1982, pp. 217.
6. Ibid. Sharangadhara Samhita, 9/7, pp. 213.
7. Ibid. Sharangadhara Samhita, 9/12-14, pp. 214.
8. Ibid. Bhaishajya Ratnavali, 5/1286, pp. 133.
9. Anonymous Pharmacopoeia of India. 3rd edition, controller of plications, Delhi, 1985, A-71, 73, 137, 140, 104.
10. Kokate CK, Purohit AP, Gokhale SB, Pharmacognosy, 33rd edition, Nirali Prakashan, Pune, 2005, 274-275.

Table 6: Physico-chemical parameters of KP Taila prepared with Kanji

| Parameters          | AKP | 0 Month | 6 month |
|---------------------|-----|---------|---------|
| Specific gravity    |     | 0.9093  | 0.9085  |
| Refractive index    |     | 1.4730  | 1.4730  |
| Acid value          |     | 5.83    | 7.20    |
| Saponification value|     | 169.72  | 171.18  |

| Parameters          | MKP | 0 month | 6 month |
|---------------------|-----|---------|---------|
| Specific gravity    |     | 0.9120  | 0.9142  |
| Refractive index    |     | 1.4730  | 1.4740  |
| Acid value          |     | 8.09    | 9.24    |
| Saponification value|     | 176.63  | 172.14  |

Goyal, et. al.: Role of media in Karpanpatru Taila preparation

हिंदी सारांश

कर्पनपत्रू तेल के निर्माण में विभिन्न माध्यमों का महत्व उपलब्धि, क्र. जे. पद्मिनी, क्र. रविशंकर एवं पी. के प्रजापति

कर्पनपत्रू तेल का निर्माण मूर्च्छित और अमूर्च्छित तेल के द्वारा तीन विभिन्न माध्यमों का प्रयोग करके कुल 4: सैम्पल बना कर विश्लेषण किया गया। निम्नलिखित अध्ययन में कर्पनपत्रू तेल जो कि मूर्च्छित तेल तथा कोौजी, गोमुख तथा तक्र में क्रमशः 8.66%, 8.33%, 8.66 तथा अमूर्च्छित तेल में 9.9%, 90.68%, 92% क्रमशः की हानि पायी गयी। कर्पनपत्रू तेल जो कि तक्र और कोौजी से बनाया गया उसमें गोमुख के तुलना में अधिक फैल तथा आयों और नाक में जलन नहीं पाया गया। विश्लेषणात्मक अध्ययन में पाया गया कि मूर्च्छित तेल की तुलना में अमूर्च्छित तेल में 4: हीही के बाद एसिड मात्रा में महत्त्वपूर्ण बदल देखी गयी। सेम्पनिकक्षण मात्रा में अमूर्च्छित तेल में कमी तथा मूर्च्छित तेल में बढ़त देखी गयी। 4: महीने के बाद भी माइक्रोवॉल्यूम प्रोध सभी लैंपल में अनुपस्थित पाया गया।