



IJAPC

Volume 11 Issue 2,
2019

www.ijapc.com

2350-0204

GREENTREE GROUP PUBLISHERS



Pharmaceutical Preparation, Modification and Physicochemical Analysis of *Dasamoolakatutraymentrashayam* and *Dasamoolakatutrayment* Syrup

Jyothi K^{1*}, Vineeth P K² and Ramesh N.V³

¹⁻³Dept of Rasashastra & Bhaishajya Kalpana Amrita school of Ayurveda, Amritapuri, Amrita Vishwavidyapeetham, India

ABSTRACT

Panchavidhakashayakalpana is the primary *kalpana*. *Dasamoolakatutraymentrashayam* is one among them which is indicated in *swasa*, *kasa* and *parshwasoola*. Respiratory diseases are more common in children. Due to the unpleasant taste, children find it difficult to take *kashaya*. *Sarkarakalpana* is one among the secondary *kalpana* which is palatable and has more shelf life. *Dasamoolakatutraymentrashaya* is modified into syrup /*sarkara* which is palatable to children. *Kashayakalpana* can be easily modified into syrup form by adding sugar. Hence in the present study the modification of *kashaya* to syrup and comparing its physicochemical characteristics was done. The pharmaceutical preparation of the syrup was easy and it has similar analytical value compared to API standards.

KEYWORDS

Dasamoolakatutraymentrashayam, *Sarkarakalpana*, *Syrup*, *Respiratory disease*



Greentree Group Publishers

Received 17/07/19 Accepted 21/08/19 Published 10/09/19



INTRODUCTION

Ayurveda, being the science of life, put forward two methods for the maintenance of health. They are *swasthaparayanam* and *athuraparayanam*. *Kalpanavijnana* is equally important to the maintenance of health. *Bhaishajyakalpana* is broad subject including more relevant topic than modern pharmaceutical science. The *Bhaishajyakalpana* can be broadly divided into *aushadhakalpana* and *aharakalpana*. The *aushadhakalpana* is again divided into primary *kalpana* and secondary *kalpana*. The primary *kalpana* include *panchavidhakashayakalpana*. *Kashaya/kwatha* is one among the *panchavidha kashayakalpana*. *Dasamoolakatutrayam kashaya*¹ is one among the *kashayakalpana* which is mentioned in *sahasrayoga* and indicated in respiratory conditions. Respiratory disorders are common especially in children. Ayurvedic medicines are very effective in the management of *swasa* and *kasa*. Children are not willing to take *kashayas*.

Syrup or *sarkarakalpana* is palatable liquid formulation and have larger shelf life compared to *kashaya*. It is similar to *sarbath*. To any liquid preparations like *kashaya*, *hima*, *phanta*. double the

sugar added and boiled over mild fire until the *kashaya* attains syrup consistency.²

The *Dasamoolakatutrayamkashaya* has *kashaya*, *tikta rasa*. By adding *khandasarkara* the palatability and shelf life will be increased. Hence the present study is to modify a *kashaya* to syrup by adding sugar and analyse the organoleptic and physico chemical characteristics.

AIMS AND OBJECTIVE

- 1) To prepare *Dasamoolakatutrayamkashayam* and *Dasamoolakatutrayamsyrup (sarkara)*.
- 2) To analyse the physico chemical properties of *Dasamoolakatutrayamkashayam* and *Dasamoolakatutrayam* syrup.

MATERIALS AND METHODS

The method is divided into pharmaceutical study and analytical study. In pharmaceutical study, preparation of *Dasamoolakatutrayamkashaya* and *Dasamoolakatutrayam* syrup were prepared. In analytical study, analysis of *kashaya* and syrup were carried out.

The plant materials are collected from authentic sources.

1. Pharmaceutical study

a. Preparation of *Dasamoolakatutrayamkashayam* :³



The kashaya was prepared in the teaching lab of RSBK, Amrita School of Ayurveda.

Table 1 Ingredients of Dasamoolakatutrayam Kashayam

| Sl No. | Sanskrit Name | Botanical Name | Family |
|--------|---------------------|--------------------------|----------------|
| 1 | <i>Bilva</i> | Aeglemarmelos | Rutaceae |
| 2 | <i>Agnimanthi</i> | Premnaintegrifolia | Verbanaceae |
| 3 | <i>Shyonaka</i> | Oroxylumindicum | Bignoniaceae |
| 4 | <i>Patala</i> | Stereospermumsuaveolence | Bignoniaceae |
| 5 | <i>Gambhari</i> | Gmelinaarborea | Verbanaceae |
| 6 | <i>Brihati</i> | Solanamindicum | Solanaceae |
| 7 | <i>Kantakari</i> | Solanumxanthocarpum | Solanaceae |
| 8 | <i>Goksura</i> | Tribulusterrestris | Zygophyllaceae |
| 9 | <i>Shaliparni</i> | Desodiumgangeticum | Fabaceae |
| 10 | <i>Prishnigarni</i> | Urariapicta | Fabaceae |
| 11 | <i>Pippali</i> | Piper longum | Piperaceae |
| 12 | <i>Maricha</i> | Piper nigrum | Piperaceae |
| 13 | <i>Shunti</i> | Zingibaroffcinalis | Zingibaraceae |
| 14 | <i>Vasa</i> | Adathodavasica | Acantaceae |

All the raw materials were washed properly and dried. All the dravyas are powdered coarsely. The kashayam was prepared according to the reference of *Sarngadharasamhitamadhyamakhandam*, 2nd chapter *kashayakalpana*.

Table 2 Preparation of Dasamoolakatutrayam Kashayam

| Dravyas | Quantity | |
|-------------------|----------|---------------------------------------|
| <i>Dasamoolam</i> | 15g each | |
| <i>Trikatu</i> | 15g | Reduced to 1/8 th (420 ml) |
| <i>Vasa</i> | 15g | |
| <i>Jala</i> | 3.360 l | |

The kashayachoorana and water taken in vessel. The level was measured with the help of a measuring scale. Then the kashayawas boiled over mild fire and when boiling the colour of the kashayawas

changed in to brown colour. The smell of the kashayawas changed. After the completion of the process the colour was changed to dark brown. Then the kashayawas filtered through a cloth and 420ml kashayawas obtained.

b. Preparation of Dasamoolakatutrayam syrup:⁴

According to Dravyaguna Vigyanauttarardha, sarkarakalpana, kashayam was prepared and double quantity of khandasarkara was added and boiled over mild fire until the liquid attains syrup consistency. Kashaya 200 ml was taken and 400g (double quantity) of khandasarkara was added. Then it was boiled over mild fire and until getting the one thread consistency.

Table 3 Preparation of Dasamoolakatutrayam Syrup.

| Dravyas | Quantity |
|------------------------------------|----------|
| <i>Dasamoolakatutrayamkashayam</i> | 200 ml |
| <i>Khandasarkara</i> | 400g |

After cooling 200ml of kashaya was taken and added 400gm of khandasarkara to it. Then it was boiled and after 25 minutes it became one thread consistency. The total amount of syrup obtained was 250ml. The colour of the syrup was dark brown and smell is like that of sugar. The liquid was more viscous and sticky to touch in nature.

2. Analytical study

The physico chemical characteristics of dasamoolakatutrayamkashayam and



dasamoolakatutrayamsyrup were analysed in Amrita school of ayurveda. Both the samples were analysed for organoleptic characters, pH, Refractive index, specific gravity and total soluble solids. Then the *dasamoolakatutrayam* syrup was analysed for reducing sugars, non reducing sugars and total sugars.

RESULTS

The analytical parameters of *dasamoolakatutrayamkashayam* and *dasamoolakatutrayam* syrup were carried out to develop the preliminary standards. The results shown in the tables (Table 4 & Table 5).

Table 4 Organoleptic characters of *Dasamoolakatutrayam Kashayam* and *Dasamoolakatutrayam* syrup.

| Parameter | <i>Kashaya</i> | Syrup |
|-----------|---------------------|-----------------------|
| Colour | Dark Brown | Blackish brown |
| Odour | Pungent odour | Pleasant odour |
| Taste | <i>Tiktakashaya</i> | <i>Madhurakashaya</i> |
| State | Liquid | Honey like (viscus) |

Table 5 Physicochemical parameters *DasamoolakatutrayamKashayam* and *Dasamoolakatutrayamsyrup*.

| Parameters | <i>Kashaya</i> | Syrup |
|----------------------|----------------|-------|
| pH | 5.15 | 5 |
| Refractive index | 1.34 | 1.47 |
| Specific gravity | 1.04 | 1.35 |
| Total soluble solids | 10 | 73 |
| Reducing sugar | - | 4.834 |

DISCUSSION

Dasamoolakatutrayamkashayam is mentioned in sahasrayoga in the treatment of *swasa, kasa* and *parwasoola*. The

kashayatikta rasa of the drug and low shelf life made this formulation difficult to use in clinical practise without adding preservatives. Modification of *kashaya* into syrup was an attempt to enhance the palatability, shelf life, patient compliance especially children and reduces dosage. *Dasamoolakatutrayakashaya* is the combination of *dasamoola*, *trikatu* and *vasa* and 16 parts of water is added and reduced to one eighth part.

Double quantity of *khandasarkara* was added to the preparation and which helps to prevent the microbial growth, palatability and increased shelf life of the medicine. *Khandasarkara* is having the *kaphanissaraka* and *bhedana* property which will be effective in the management of *swasa* and *kasa*. In the syrup preparation mild fire should be given until the liquid attains one thread consistency, which provides honey like consistency of syrup. The syrup had smell of sugar and the taste changed to *madhuratiktakashaya*.

Khandasarkara was added to the *kashaya*, the organoleptic character of syrup was changed. The colour changed from dark brown to blackish brown, the liquid state changed to viscous nature the odour changed from pungent to aromatic sweat odour, the taste changed from *kashayatikta* to *madhurakashaya* the properties of



khandasarkara was added into the *kashaya* and brought these changes.

The pH indicated the acidity or alkalinity of the solution. The pH of the *kashaya* was 5.15 and the syrup was 5 which indicate the acidic nature of the solution. Therefore both samples were acidic in nature. pH value indicates the absorption, efficacy and irritability of the solution.

The refractive index of the *kashaya* is 1.34 and the syrup is 1.47. The increased refractive index of the syrup is due to the addition of sugar particles which indicates the density of syrup was increased.

The specific gravity of the *kashaya* is 1.04 and the syrup is 1.35. Increased specific gravity of syrup is due to the presence of sugar.

The total soluble solids of the *kashaya* are 10 and the syrup is 73. The soluble contents determine the amount of constituents in a given sample. The presence of sugar particles causes significant increase in the TSS of syrup.

The reducing sugar of the syrup is 4.834. Sugar which do not undergone reduction reaction. An aldehyde or ketone in the presence of an alkaline solution is a reducing sugar.⁵

CONCLUSION

Dasamoolakatutrakshaya is indicated in *swasa, kasa* and *parwasoola*.

This is converted in to syrup form by adding *khandasarkara*. The pharmaceutical preparation of the syrup was very easy and having similar analytical value compared to the standard limit as per API. Syrup has high osmotic pressure which prevents the growth of bacteria thus preventing the decomposition and increases the shelf life.



REFERENCES

1. K.V KrishnanaVaidyan and S.Gopala Pillai, Sahasrayoga, 30th edition, Alappuzha, Vidyarambham Publications, 2011, p.63.
2. K. Ramachandra Reddy, BhaishajyakalpanaVijnanam, Reprint, Varanasi, Chaukhambha Sanskrit Bhavan, 2005, p.197.
3. Guru Prasada Sharma, AdamallaDipika Tikka Kasirama Vaidya Gudardhadipika tikka, Sarngadharasamhita, Varanasi, ChaukhambaKrishnadas Academy, p.144.
4. Acharya YT, DravyaGuna Vijnanam, 2nd edition, Bombay, SatyabhamabaiPandurang, Uttarardha, PradhamaParibhashaKhanda, 2003, p.40-41.
5. Shanty Thomas, Govinda Sharma K, Vinay R Kadibagil, Sunil kumar K N, Preparation and Modification of ChinnodbhavadiKwatha to Syrup and Quality Standardisation. ISSN: 2277-457