Published online in http://ijam.co.in ISSN No: 0976-5921

International Journal of Ayurvedic Medicine, Vol 12 (4), 839-841

Preliminary analytical study of *Ashvagandhadyarishta* prepared from *madhu* and *guda* as sweetening agents

Research Article

Rakshitha D[1*], Sunil Mandal[2], Gazala Hussain[3], Vinay R Kadibagil[4]

1,2. PG Scholar, 3, Associate Professor, 4. Professor,
Department of Rasashastra and Bhaishajya Kalpana,
Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Hassan, Karnataka, India.

Abstract

Introduction: *Asava* and *arishta* are medicinal preparations mentioned in Ayurvedic texts during which it undergoes a process of fermentation generating alcohol thus facilitating the extraction of the active principles contained in the drugs. *Ashvagandhadyarishta* is a type of *arishta* preparation where *madhu* (honey) is mentioned as *madhura dravya* (sweetening agent) in the formulation. So in this study an attempt is made to prepare *Ashvagandhadyarishta* in two batches by adding *madhu* as *madhura dravya* in one batch and *guda* (jaggery) as *madhura dravya* in another batch and to compare their organoleptic and analytical parameters. Materials and Methods: Study includes two batches of *Ashvagandhadyarishta* preparation followed the method as per Ayurvedic Formulary of India. Observations and Results: Analytical study of both the batches was done and their parameters were compared and analyzed including organoleptic features. Discussion: Both batches differ in the properties of final product as the sweetening agents used are different. *Ashvagandhadyarishta* containing *guda* as *madhura dravya* has greater values of analytical parameters comparatively, infers the influence of components present in *guda*. Conclusion: Change in the analytical and organoleptic characters were observed owing to the changes in the sweetening agents. Further research works has to be carried out to understand the clinical efficacy.

Key Words: *Madhura dravya*, *Arishta*, *Ashvagandhadyarishta,* Fermentation.

Introduction

Asava and *arishta* are medicinal preparations made by soaking the drugs either in powder form or in the form of *kashaya* (decoction) in a solution of sugar or jaggery for a specified period of time, during which it undergoes a process of fermentation generating alcohol thus facilitating the extraction of the active principles contained in the drugs (1). *Ashvagandhadyarishta* is a hydro-alcoholic preparation mentioned in Ayurveda Pharmaceutics. It is a type of *arishta* preparation which is a *rasayana* (rejuvenating) possess greater shelf- life compared to *panchavidha kashaya kalpana* where *madhu* (honey) is mentioned as *madhura dravya* (sweetening agent) in the formulation; indicated in *murcha* (syncope), *apasmara* (epilepsy), *shosha* (cachexia), *unmada* (psychosis), *karshya* (emaciation), *arshas* (piles), *agnimandya* (digestive impairment), *vataroga* (disease due to *vata dosha*) with the dose of 12 to 24ml (2). Usually *guda* (jaggery) is mentioned as *madhura dravya* in most of the *arishta* preparations but in *ashvagandhadyarishta, madhu* is mentioned where both act as self preservative. So in this study an attempt is made to prepare *ashvagandhadyarishta* in two batches by adding *madhu* as *madhura dravya* in one batch and *guda* as *madhura dravya* in another batch and to compare their organoleptic and analytical parameters.

*** Corresponding Author:**
Rakshitha D
PG Scholar,
Department of Rasashastra and Bhaishajya Kalpana,
Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Hassan, Karnataka. India.
Email Id: rakshuammu2626@gmail.com

Materials and Methods

The method of preparation of *ashvagandhadyarishta* followed was Ayurvedic Formulary of India (3). Study includes two batches of *ashvagandhadyarishta* preparation. Batch 1 has *ashvagandhadyarishta* with *madhu* as *madhura dravya* and batch 2 has *ashvagandhadyarishta* with *guda* as *madhura dravya*. Ingredients were procured from local market of Hassan, Karnataka.

Table 1: Ingredients of *Ashvagandhadyarishta*

Sl. No.	Drugs	Part used	Quantity
1	*Ashvagandha* (*Withania somnifera Dunal*)	Root	240g
2	*Musali* (*Asparagus adseendens Roxb*)	Root	96g
3	*Manjishta* (*Rubia cordifolia Linn*)	Root	48g
4	*Haritaki* (*Terminalia chebula Retz*)	Fruit pulp	48g
5	*Haridra* (*Curcuma longa Linn*)	Rhizome	48g
6	*Daruharidra* (*Berberis aristata Dc*)	Stem	48g

7	*Madhuka* (*Glycyrrhiza glabra Linn*)	Root	48g
8	*Rasna* (*Alpinia officinarum Hance*)	Root	48g
9	*Vidari* (*Pureria tuberosa Dc*)	Root	48g
10	*Arjuna* (*Terminalia arjuna W& A*)	Stem bark	48g
11	*Musta* (*Cyperus rotundus Linn*)	Rhizome	48g
12	*Trivrt* (*Operculina turpethum L*)	Root	48g
13	*Swetha sariva* (*Hemedismus indicus R.Br*)	Root	38.4g
14	*Krishna sariva* (*Ichnocarpus frutescens R.Br*)	Root	38.4g
15	*Sweta chandana* (*Santalum album Linn*)	Heartwood	38.4g
16	*Rakta chandana* (*Pterocarpus santalinus Linn*)	Heartwood	38.4g
17	*Vacha* (*Acorus calamus Linn*)	Rhizome	38.4g
18	*Chitraka* (*Plumbago zeylanica Linn*)	Root	38.4g
19	Water taken Reduced to		9.800 l 1.200 l

Ingredients and their quantity were taken same for both the batches of *ashvagandhadyarishta*. Also *prakshepaka dravya* and its quantity were taken same for both the batches but instead of *madhu*, *guda* was taken in batch 2 for the preparation.

Table 2: *Prakshepaka dravya* of *Ashvagandhadyarishta* batch 1 and batch 2

Sl. No.	Drugs	Part used	Quantity
1	*Madhu*		1440g
2	*Dhataki* (*Woodfordia fruticosa Salisb*)	Flower	76.8g
3	*Shunti* (*Zingiber officinale*)	Rhizome	9.6g
4	*Maricha* (*Piper nigrum Linn*)	Fruit	9.6g
5	*Pippali* (*Piper longum Linn*)	Fruit	9.6g
6	*Twak* (*Cinnamomum zeylanica Blume*)	Stem bark	19.2g
7	*Ela* (*Elettaria cardamomum Maton*)	Seed	19.2g
8	*Patra* (*Cinnamomum tamala*)	Leaf	19.2g
9	*Priyangu* (*Callicarpa macrophylla Vahl*)	Flower	19.2g
10	*Nagakesara* (*Mesua ferrea Linn*)	Flower	9.6g

Method of preparation (4)**:**

The drugs were coarsely powdered and prescribed amount of water was added and heated over moderate flame to prepare *kashaya*. After it was reduced to /4th part, the *kashaya* was filtered and strained through a cloth. To batch 1, *madhu* was added after the *kashaya* cooled down along with the *prakshepaka dravya* and *dhataki pushpa*. To batch 2, *guda* was added when the *kashaya* was hot itself for easy dissolution, filtered and then transferred to fermentation vessel and kept in fermentation vessel and *prakshepaka dravya* and *dhataki pushpa* was added. The mouth of the vessel was covered with a lid and then it was examined for commencement of fermentation. The container was kept in a heap of paddy to maintain the constant temperature with the edges sealed. After a period of 20 days, the lid was removed and examined for the completion of fermentation that showed features viz., sunken *prakshepaka dravya*, cessation of effervescence and hissing sound and presence of strong alcoholic odor. Finally it was filtered and stored in a clean closed container.

Fig 1: Ingredients of *Ashvagandhadyarishta*

Fig 2: *Prakshepaka dravya*

Fig 3: *Dhupana dravya*

Fig 4: *Dhataki pushpa*

Fig 5: During preparation

Fig 6: Kept for fermentation

Fig 7: Final product

Observations and Results

Analytical study of both the batches was done by following procedures given in CCRAS protocol (5). Organoleptic and analytical parameters of both the batches were analyzed.

Table 3: Organoleptic parameters of both batches of *Ashvagandhadyarishta*

Sl. No.	Parameters	Batch 1	Batch 2
1	Appearance	Liquid consistency	Thicker consistency
2	Color	Brownish	Brownish
3	Odor	Mild alcoholic odor	Strong alcoholic and *guda* odor
4	Taste	*Kashaya* (astringent) *pradhana katu* (pungent)	*Madhura* (sweet) *pradhana tikta* (bitter)

Table 4: Analytical parameters of both batches of *Ashvagandhadyarishta*

Sl. No.	Parameters	Batch 1	Batch 2
1	pH	3.49	4.47
2	Specific gravity (kg/m^3)	1.1302	1.2252
3	Total Suspended Solids (TSS %)	35	>35
4	Refractive index	1.479	1.541
5	Viscosity (Pa.s)	0.0461	0.1592
6	Alcohol (%)	8	10

Discussion

Ashvagandhadyarishta is a known formulation indicated for *murcha*, *apasmara*, *shosha*, *unmada*, *karshya*, *arshas*, *agnimandya*, *vataroga*. Even though the method followed was same for both the batches, it differs in the properties of final product as the sweetening agents used were different. *Madhu* and *guda* are *madhura* (sweet) *rasa pradhana* but differs in their *gunadikarma*. Batch 1 is *kashaya* (astringent) *pradhana katu* (pungent) due to the *katu* (pungent) *vipaka* of *madhu* where batch 2 is *madhura* predominant in taste because of *madhura vipaka* of *guda* (6). Batch 2 is thicker in consistency due to *snigdha* (unctuous) *guna* of *guda* (7).

Batch 1 is more acidic due to *madhu* as it has pH of 4 while jaggery has pH of 6. Specific gravity, viscosity and total suspended solids are more for batch 2 containing *guda* due to the presence of more components in jaggery (8). Also the particle size present in jaggery has significantly affected on the chemical properties of it (9). Alcoholic percentage is also more in batch 2 as it is rich in sugar percentage; that has undergone more fermentation leading to the release of more alcoholic production (10).

Conclusion

Ashvagandhadyarishta is a hydro- alcoholic preparation mentioned in Ayurveda Pharmaceutics which possesses greater shelf- life compared to *panchavidha kashaya kalpana*. Method of preparation is also easy with the easy availability of drugs. This trial carried out to design *ashvagandhadyarishta* by altering sweetening agents showed difference in both analytical and organoleptic parameters owing to the properties of sweetening agents. *Guda* is a concentrated form of cane juice hence components present in *guda* lead to increase in analytical parameters such as viscosity, total suspended solids, etc. *Gunadikarma* also changes owing to the change in sweetening agents. This has to be confirmed by coming out clinical study which opens the path for taking clinical research on it.

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