

CLINICAL EFFICACY OF FERMENTATIVE MEDICINAL FORMULATIONS (ASAVA-
ARISHTA) - A REVIEWRahul K Shingadiya^{1*}, Suhas A Chaudhary², Prashant Bedarkar³, B J Patgiri⁴, P K Prajapati⁵^{1,3,4,5}Dept. of Rasa Shastra & Bhaishajya Kalpana Including Drug Research, Institute for Post Graduate Teaching & Research In Ayurveda, Gujarat Ayurved University, Jamnagar, India²Dept. of Kaumarbhritya, Institute for Post Graduate Teaching & Research In Ayurveda, Gujarat Ayurved University, Jamnagar, India.

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ABSTRACT

Background- *Asava* and *Arishta* are one of the most popular dosage forms of Ayurvedic medicaments due to their long shelf life, quick action and high therapeutic effectiveness. Various clinical studies have been carried out at department of RS & BK of IPGT & RA to evaluate clinical efficacy of *Asava-Arishta* in different diseases. **Aim-** Present study is aimed to compile such available research works. **Objectives-** Total 15 completed research works were found on clinical aspect of *Asava-Arishta* on five major diseases such as Benign prostate hypertrophy (*Paurush granthi shotha*), Mal absorption syndrome (*Grahani*), Bronchial Asthma (*Tamaka Shvasa*), Anaemia (*Pandu*) and Skin disorders (*Kushtha*). **Result-** All the *Asava-Arishta* taken for the studies were found to be effective and clinically safe in related diseases. **Conclusion-** Classically prepared *Asava Arishta* are more efficacious than prepared with modified methods. Effect of *Asava Arishta* is more prone towards the diseases in which *Mandagni* is involved.

KEY WORDS: *Arishta*, *Asava*, *Ayurveda*, Fermentative medicinal formulation, *Shirisharishta*, *Kanakabindvarishta*, *Sandhana kalpana*, Self generated alcohol.

INTRODUCTION

Ayurveda the dynamic and progressive science has enlightened the path to serve the humanity suffering from diseases. It offers various herbal and herbo-mineral as well as single and compound dosage forms for prevention and treatment of threatening diseases. Selection of a dosage form depends upon maximum possible extraction of the active components required for diseased condition of the patient.^[1] *Asava* and *Arishta*, the main products of *Sandhana*^[2] *Kalpana* are well-known from *Vedika* Period^[3] and quite popular among Ayurvedic physicians. They prove more beneficial in the treatment of many diseases as it is having medicinal as well as nutritive value.^[4] Compare to other preparations it is having longer shelf life, quick absorption and maximum bioavailability.^[5] The basic material required for this dosage form includes *Drava dravya* (liquid media), *Madhura dravya* (sweetening agents), *Prakshepa dravya* (condiments), and *Sandhana dravya* (fermenting agents).^[6] The self generated alcohol plays an important role in making these preparations more superior from pharmaceutical as well as therapeutic point of view.^[7] The properties of both the solvents like water and alcohol are achieved in the *Asava-Arishta* reparation. The solubility of proteins, colouring matters, gums,

anthraquinon derivatives, most alkaloidal salts, glycosides, sugars and tannins are instilled by mixture of alcohol and water. It also dissolves enzymes, water soluble vitamins, many organic acids, most organic salts and small proportion of volatile oils.^[8]

Self generated alcohol promotes rapid absorption of constituents, quick in action, prevents growth of moulds and bacteria and increase shelf life. Presence of sugar and *Prakshepa* increase palatability.^[9] This *kalpana* is also utilizing multitude of *samskara*.^[10] In nutshell, it fulfils all the desired characteristics of desirable medicinal dosage form.

In these studies, most popular formulations of *Asava-Arishta* for particular diseases are found evaluated like *Kutajarishta* for *Grahani*^[11], *Vasakarishtha* and *Shirisharishta* for *Tamaka Shvasa*^[12], *Dhatirarishta* for *Pandu*^[13], *Khadirarishta* and *Kanakabindvarishta* for *Kushtha*^[14], etc. Present study is an attempt to compile clinical efficacy of *Asava-Arishta* in these available research works.

MATERIAL AND METHODS

Works related to clinical efficacy of *Asava-Arishta* carried out in the department of *Rasa shastra* and *Bhaishjya kalpana* including drug research under IPGT and RA, Gujarat Ayurved University, Jamnagar at PhD and PG levels during 1959 – 2015 were compiled and screened to provide the guidelines for further research works in management of different diseases such as Benign prostate hypertrophy (*Paurush granthi shotha*), Mal absorption syndrome (*Grahani*), Bronchial Asthma (*Tamaka Shvasa*), Anaemia (*Pandu*) and Skin disorders (*Kushtha*).

Observations

On Benign prostate hypertrophy (*Paurush granthi shotha*)

Jha C B et al, MD (Ayu), 1974^[15]

In this study, effect of *Mahayavanala Arishta* was evaluated in *Paurush granthi shotha*. Total 18 patients were treated, in which 72.22% got marked relief while 11.11% and 16.67% got moderate and mild improvement respectively. *Mahayavanala Arishta* was found to be comparative more efficacious than *Mahayavanala Kwatha* on comparing results with previous study (Manikeri HK et al ^[16]).

On Mal absorption syndrome (*Grahani*)

Sharma N. K et al, MD (Ayu), 1981^[17]

Total 20 patients were treated into two groups. In group A 30ml *Vidangarishta*^[18] was prescribed once a day with equal quantity of water after meal for 4 weeks. In group B 1 gm of *Vidanga*^[19] *churna* (powder of *Embelia ribes* Burm.f.) was prescribed thrice a day after meal for 4 weeks. In group C Metronidazole 400mg thrice a day was prescribed as control group for 10 days. Significant result was found in cardinal symptoms in *Vidangarishta* treated group.

Pathak R. M et al, MD (Ayu), 1981^[20]

In this study, Total 18 patients of *Grahani* were treated in 3 equal Groups. In group A 30 ml *Takrarishta*^[21] was prescribed thrice a day with equal quantity of water for 4 weeks. In Group B Ingredients of *Takrarishta* in powder form were given with *Takra* (buttermilk) with same dose and duration. In group C *Panchamrita parpati*^[22] was prescribed 500mg thrice a day with equal quantity of water for 4 weeks. Maximum result was found in group B (66.67% Marked and 33.33% moderate) followed by group A (50% Marked and 50% moderate) and group C (33.33% Marked and 50% moderate and 16.67% mild).

Satyanarayana B et al, MD (Ayu), 2000^[23]

In this study, efficacy of *Kutajarishta*^[24] and *Kutajavaleha*^[25] was evaluated in the management of *Grahani*. 12 patients were treated with *Kutajarishta* while 08 patients were treated with *Kutajavaleha*. 20ml *Kutajarishta* was prescribed thrice a day with equal amount of water after meal for the duration of 21 days. In *Kutajarishta* group, statistically highly significant ($P < 0.001$) result was found in cardinal symptoms.

Abhyavarana Shakti (Eating capacity) and *Jarana Shakti*^[26] (Digestive capacity) were found highly significantly increased and significant increase was also observed in body weight. In total effect of *Kutajarishta*, 25% of the patients got complete remission while 50% and 25% of the patients got marked and moderate improvement respectively. In compare to *Kutajavaleha*, *Kutajarishta* found better in relieving signs and symptoms of *Grahani*.

Lakhani R et al, MD (Ayu), 2002^[27]

This study was conducted to compare the clinical efficacy of *Jirakadyarka*^[28] and *Jirakadyarishta*^[29] in *grahani*. Total 16 patients were randomly divided in two equal groups. *Jirakadyarishta* was prescribed 20 ml thrice a day with equal amount of water after meal for the duration of 21 days. In *Jirakadyarishta* group, statistically highly significant ($P < 0.001$) results was found in cardinal symptoms. 50% moderate improvement and 50% mild improvement were found in group treated with *Jirakadyarishta*. Comparatively, *Jirakadyarka* was found better than *Jirakadyarishta* in relieving signs and symptoms of *Grahani*.

On Bronchial Asthma (*Tamaka Shvasa*)

Kulkarni S et al, MD (Ayu), 2001^[30]

In this study, efficacy of *Vasakasava*^[31] and *Vasakarishtha*^[32] were evaluated in 24 patients of *Tamaka Shvasa*. *Vasakasava* and *Vasakarishtha* were advised in the dose 20 ml thrice a day with water, for duration of 21 days. Both formulations were showing statistically significant result in the symptoms like *Shvasakastata*, wheeze, crepitation and Rhonchi and Significant decrease in the haematocrit values like ESR, Neutrophils and Eosinophil count. Overall effect of therapy showed that marked improvement was more (57.14%) in *Vasakarishtha* treated group followed by 28.57 % and 14.28% as moderate and mild improvement respectively; while in *Vasakasava* treated group 30.0% patients were markedly improved, 50.0% were moderately improved and 20.0% were having mild improvement.

Jarsania A et al, MD (Ayu), 2003^[33]

This study was aimed to evaluate the efficacy of *Bharangiguda Avaleha*^[34] and *Bharangyadi Arishta* in the treatment of *Tamaka Shvasa*. Among 30 patients, 14 were treated with *Bharangyadi Arishta* and rest 16 were treated with *Bharangiguda Avaleha*. *Bharangyadi Arishta* was prescribed 20ml twice a day with equal quantity of water for duration of 30 days. Both the formulations had shown statistically highly significant results on cardinal symptoms. Overall 7.14% marked improvement, 57.15% moderate improvement and 35.71% mild improvement was observed in *Arishta* group. Comparatively *Bharangiguda Avaleha* had more significant effect in treating the disease *Tamaka Shvasa* than *Bharangyadi Arishta*.

Murlidhar R et al, MD (Ayu), 2004^[35]

In present Study, Total 19 patients were treated in 3 different Groups of *Shirisharishta*^[36]. *Shirisharishta*-1 prepared as per classical general guide lines, *Shirisharishta*-2 prepared with the process modification as said by Acharya Gopurarakshita and *Shirisharishta*-3 prepared with the process modification discretely practiced in Kerala. Six patients in group A were administered with *Shirisharishta*-1, 20 ml twice a day for 30 days, six patients in group B were administered with *Shirisharishta*-2, 15 ml twice a day for 30 days and Seven patients in Group C were administered with *Shirisharishta*-3, 20 ml twice a day for 30 days. Overall 78.35%, 78.46% and 66.74% reduction was found in the cardinal and associated symptoms in group A, group B and group C respectively. *Shirisharishta*-1, prepared according to classics (Bh. Rat 72/72-75) had been proclaimed to be most successful in treating *Tamaka Shvasa* as it exhibited consistent results in most of the parameters.

Gandhi P et al, MD (Ayu), 2005^[37]

The study was planned to compare the efficacy of three dosage forms of *vasa* in *Tamaka Shvasa*. In group A *Vasa Avaleha*^[38] (9 pts), in group B *Vasa Ghrita*^[39] (6pts) and in group C *Vasa Arishta*^[40] (6pts) were prescribed.

Vasa Avaleha showed marked improvement (77.77%) followed by *Vasa Arishta* (33.33%). Comparatively, *Vasa Avaleha* showed better *Shvashara* effect than *Vasa Arishta*, While *Vasa Arishta* showed better results than *Vasa Ghrita*.

Jaiswal M et al, MD (Ayu), 2007^[41]

Total 48 patients were treated in three different Groups. Group A (n=15) was treated with *Shirisharishta* prepared with *Twaka* (Bark) whereas Group B (n=15) and Group C (n=18) were treated with *Shirisharishta* prepared from *Kastha* (sap wood) and *Sara* (Heartwood) respectively. In each group similar dose pattern 20ml twice a day with equal quantity of water was adopted for 28 days. All the groups had shown highly significant to significant results on frequency, intensity and duration of *Shvasa*. Effect on the *Kasa*, *Kapha sthivana* and *Pinasa* were also highly significant (P<0.001) for all the three groups. A most important result was found on the intake of allopathic medicine as emergency drug. It was highly significant in Group C, significant in group A and insignificant in Group B. Overall Group C (*Sara*) had shown more percentage of marked improvement i.e. 20.00% and 53.33% of moderate improvement while Group A (*Twaka*) had shown 50.00% moderate improvement and Group B (*Kastha*) had shown very less percentage of moderate improvement i.e. 28.57%. Clinically *Shirisharishta* prepared by *Sara* was found better.

Jaiswal M et al, PhD (Ayu), 2009^[42]

Total 64 patients were treated with *Navina* (Freshly prepared-group A) and *Purana* (1 year old- group B)

Shirisharishta. Overall 20.31% moderate and 59.38% mild improvement was observed. 20ml *Shirisharishta* was prescribed twice a day with equal quantity of water after meal for 4 weeks. Both the groups had shown highly significant results on almost all cardinal symptoms. But comparatively *navina* was found slight better.

Anaemia (Pandu)**Madavi S et al, MD (Ayu), 2009^[43]**

The study was planned to evaluate efficacy of *Dhatryarishta*^[44] prepared with *Swarasa* and *kwatha* but pharmaceutically *kwatha* batch was failed^[45], so classically prepared *dhatryarishta* was taken to evaluate its effect on *pandu*. 20ml *dhatryarishta* was prescribed to 15 enrolled patients twice a day with equal quantity of water after meal for 4 weeks. Statistically highly significant results were found on Serum Iron (5.83%), while significant results were found in T.R.B.C (2.37%), T.I.B.C. (2.65%) and Transferrin percentage (3.45%). Overall 66.67% moderate improvement, 25% marked improvement and 8.33% mild improvement was found.

Skin Disorders (Kushtha)**Dhruve K et al, MD (Ayu), 2007^[46]**

In this study, total 25 patients of *Kushtha* were treated by randomly divided into two groups. Group A was treated with *Khadirarishta*^[47] prepared by sugar, while group B was treated with *Khadirarishta* prepared by jaggery. In both groups, 40ml dose was prescribed once a day with equal water after meal for 28 days. 50% of patients got markedly improvement in group B, followed by 40% and 10% moderate and mild improvement respectively. These data for the patients of group A were 26.66%, 53.33% patients and 10.00% respectively. *Khadirarishta* prepared by jaggery had been considered as more efficacious than *Khadirarishta* prepared by sugar.

Dhruve K et al, PhD (Ayu), 2010^[48]

Study was conducted to evaluate the efficacy of *Kanakabindvarishta*^[49] in the management of *Vicharchika* (Eczema). In group-A 34 patients were treated with *Kanakbindvarishta* prepared by classical method and in group-B 33 patients were treated with *Kanakbindvarishta* prepared by adding yeast. In both groups, 20 ml dose was prescribed twice a day after meal for 28 days. In group A and group B, complete remission was found in 9.09% and 3.03% of patients respectively. 39.09% and 9.09% of patients got marked improvement, while moderate improvement was seen in 36.36% and 39.39% of patients respectively. 9.09% of patients got mild improvement in group A while 3.03% patients found unchanged in Group B. They concluded that *Kanakbindvarishta* prepared by classical method group is more effective than *Kanakbindvarishta* by yeast added method.

Shingadiya R et al, MD (Ayu), 2015^[50]

This study was conducted to evaluate the efficacy of *Savarnakara Yoga*^[51] in *Lepa* and ointment forms and

Kanakabindvarishta in the management of *Shvitra* (Vitiligo). Among 52 patients, 24 were treated with *Savarnakara Lepa* for local application (group A) and 28 Patients were treated with *Savarnakara* ointment for local application (group B). In both group internally *Kanakabindvarishta* - 20ml with equal quantity of water was given twice a day for the duration of 2 months and 1

month follow up. In Group A and group B 20.83% and 17.86% moderate improvement, 75% and 60.71% mild improvement and 4.17% and 14.29% patients was found unchanged respectively. In Group B 7.14% of patient showed marked improvement and none of patient showed complete remission in both groups.

Tables

Table 1: Comparative clinical efficacy of Asava-Arishta with other dosage forms

No	Name of Asava-Arishta	Other Dosage forms	Comparative Better efficacy	Disease
1	<i>Mahayavnal Arishta</i>	<i>Mahayavnal Kwatha</i>	<i>Mahayavnal Arishta</i>	<i>Paurush Granthi Shotha</i>
2	<i>Vidangarishta</i>	<i>Vidanga Churna</i>	<i>Vidangarishta</i>	<i>Grahani</i>
3	<i>Takrarishta</i>	<i>Panchamrita parpati</i>	<i>Takrarishta</i>	<i>Grahani</i>
4	<i>Kutajarishta</i>	<i>Kutajavaleha</i>	<i>Kutajarishta</i>	<i>Grahani</i>
5	<i>Jirakadhyarishta</i>	<i>Jirakadhyarka</i>	<i>Jirakadhyarka</i>	<i>Grahani</i>
6	<i>Bharangyadi Arishta</i>	<i>Bharangyadi Avaleha</i>	<i>Bharangyadi Avaleha</i>	<i>Tamaka Shvasa</i>
7	<i>Vasa Arishta</i>	<i>Vasa Avaleha</i>	<i>Vasa Avaleha</i>	<i>Tamaka Shvasa</i>
8	<i>Vasa Arishta</i>	<i>Vasa Ghrita</i>	<i>Vasa Arishta</i>	<i>Tamaka Shvasa</i>

Table 2: Comparative clinical efficacy of Asava-Arishta prepared with different methods

No	Name of Asava-Arishta	Classical Method	Modified Methods	Comparative better efficacy
1	<i>Shirisharishta</i>	<i>Bhaishjya Ratnavali 72/71-73.</i>	Fed-batch method and method of Gopurakshita	Classically Prepared
2	<i>Shirisharishta</i>	By using <i>Sara</i>	By using <i>Kwatha</i> and <i>Twaka</i>	Classically Prepared
3	<i>Dhatirisha</i>	By using <i>Swarasa</i>	By using <i>Kwatha</i>	Classically Prepared
4	<i>Khadirarishta</i>	By using Jaggery	By using Sugar	Classically Prepared
5	<i>Kanakabindvarishta</i>	By using <i>Dhataki Pushpa</i>	By using Yeast	Classically Prepared

DISCUSSION

On review of Ayurvedic literature, it is found that *Asava* and *Arishta* are said to be used in two different ways; one as a medicine and the other as an *anupana* (vehicle) of different medicines or food. [52] Acharya Sushruta has described 27 *Asava-Arishta* used as an *anupana*. [53] where it helps the medicine in getting desired action and thus enhances the property of drug. [54] As a medicine, it works on vitiated *Agni* by its properties like *Laghu*, *Vyavayi*, *Ushna*, *Tikshna*, *Sukshma*, *Amla*, *Aashu*, *Ruksha*, *Vikasi* and *Vishada*. [55] Fundamental principal of Ayurveda says that vitiated *Agni* is the root cause of all the diseases. [56] *Arishta Kalpana* is such *Kalpana* that can either eliminate the excess *dosha* or palliate *dosha* besides improving the *Agni*. Thus, *Asava-Arishta* has a great potential to treat many diseases.

In classics, total 226 *Asava Arishta* are found. (Charaka Samhita 36, Sushruta Samhita 21, Ashtang Samgraha 23, Ashtanga Hridaya 13, Chakradatta 05, Gada Nigraha 60, Sharangdhara Samhita 13, Bhaishjya Ratnavali 43 and Yoga Ratnakara 12) In four most ancient classics (Charaka Samhita, Sushruta Samhita, Ashtang Samgraha

and Ashtanga Hridaya) maximum indications of *Asava Arishta* are found for several diseases such as *Panduroga* (39), *Grahani* (35), *Kushtha* (37), *Shotha* (29), *Arsha* (32) and *Prameha* (29); which shows that effect of *Asava Arishta* is more prone towards these diseases. [57]

Among the comparative clinical studies, *Asava Arishta* had found more effective than other dosage forms such as *Kwatha*, *Churana*, *Parpati* and *Ghrita*, while dosage forms like *Avaleha* and *Arka* had found more efficacious than *Asava-Arishta*. *Mahayavanal Arishta* has shown more relief than *Kwatha* in BPH. *Kutajarishta* found better in *Grahani* than *Kutajavaleha*. *Vasa Arishta* showed better results than *Vasa ghrita*. But *Jirakadyarka* was found better than *Jirakadyarishta* in *Grahani*, may be due to the presence of active principle in volatile contents of *Jiraka* which was extracted in *Arka Kalpana*. [58] *Bharangyadi Avaleha* and *Vasa Avaleha* found better than their *Arishta* forms in *shvasa*, as *Avaleha* form is more effective in *Shvasa* due to its more localized effect through *lehya* properties. (Table 1)

Alcoholic preparations and their actions are innumerable depending upon the ingredients, their combinations and the method of preparation. In these research works, various modified methods were found adopted with the aim to get better efficacy and better convenience. They all found effective in relieving signs and symptoms of diseases. However, it is observed that classically prepared *Asava-Arishta* had shown better effect than *Asava Arishta* prepared with modified methods. Murlidhar et al and Jaiswal et al had found that *Shirisharishta* prepared with classical method was clinically better than modified methods. As *Shirish Sara* is described in nine *Asava yoni* (Sources) by Charaka^[59], it found better than *Kastha* and *Twaka*. Madavi et al found that modified method was not successful in preparation of *Dhatrishta*, which itself prove the importance of classical method. Similarly Dhruve K et al had found better result in classically prepared *Kanakabindvarishta* than yeast added method. As it is found established that *Dhataki* flower is an essential component of *Asava-Arishta*, not only for initiation of fermentation, but for enhancing clinical efficacy as well.^[60] (Table 2)

Maximum works have been carried out on *Tamaka shvasa* and *Grahani*. It is mentioned in classics that the drug administered for the treatment of *Shvasa*, should be able to overcome *Vata* and *Kapha* for immediate and symptomatic relief but should also pacify the *Pitta* for a permanent or quasi permanent relief.^[61] Moreover quick action, acceptance of patient with respect to palatability and long shelf life is also important in selection of dosage form. *Asava-Arishta* is the *Kalpana* fulfilling the above requirements by eliminating or palliating the excess *Dosha* besides improving the *Agni*. Similarly it is very useful in the disease such as *Grahani*, *Kushtha* and *Pandu* in which vitiation of *Doshas* and *Agni* are the root causes.

As *Asava Arishta* comes under *Madhya Varga*^[62] (Alcoholic Preparations), it may cause some adverse effect like burning sensation, heaviness etc if prepared or prescribed in improper manner.^[63] It should also prescribe in such dose that would not cause intoxicated movement of eye balls and perversion of mental activities.^[64] In any of these studies no any adverse effects of *Asava Arishta* were reported. Hence all studies support the potential and safety of the dosage form-*Asava Arishta* in management of various diseases. In these researches certain limitations were also observed, but their results may prove milestone for further well designed long term studies covering larger population.

CONCLUSION

In nutshell, all *Asava Arishta* were found to be effective in various diseases eg. Benign prostate hypertrophy (*Paurush granthi shotha*), Mal absorption syndrome (*Grahani*), Bronchial Asthma (*Tamaka Shvasa*), Anaemia (*Pandu*) and Skin disorders (*Kushtha*) and also found clinically safe as no events of adverse drug

reaction were reported during treatment period. It is concluded that classically prepared *Asava Arishta* are more efficacious than prepared with modified methods. Effect of *Asava Arishta* is more prone towards the diseases in which *Mandagni* is involved.

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