



PRELIMINARY PHARMACEUTICO ANALYTICAL STUDY OF *ASHWAGANDHADI* SYRUP – A POLY HERBAL FORMULATION

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ABSTRACT

Background: *Ashwagandha* (*Withania somnifera*) is one of the important and popular herb in Ayurvedic classics known for *Balya* and *Rasayana* effect. Owing to its multiple therapeutic benefits present study has been undertaken to formulate as health promoter supplement into Syrup dosage form by taking *Ashwagandha* as main ingredient along with the addition of other herbs like *Guduchi* (*Tinospora cordifolia*) which possess hepatoprotective activity, *Shunti* (*Zingiber officinale*) with immunomodulatory and anti-inflammatory effect and *Sariva* (*Hemidesmus indicus*) with *Deepana* and *Vishahara* action. **Aim:** To prepare *Ashwagandhadi* Syrup as per the general method of preparation of Syrup. **Materials and Methods:** *Ashwagandhadi* Syrup was prepared as per adopted general method of preparation of Syrup. **Result:** Final yield of *Ashwagandhadi* Syrup was 420ml with 33.33% loss. Temperature maintained between 90-100^o C throughout the preparation. Total time duration taken for *Ashwagandhadi* Syrup was 1 hr 40 min. Preliminary physico-chemical study revealed observed values of pH 5.78, Viscosity 1.231mili Poise, Specific Gravity 1.6 and Total solids 48.21% . Final product had acceptable product characteristics.

Key words- *Ashwagandha*, *Withania somnifera*, Polyherbal Syrup, *Ayurveda*, Pharmaceutical study, Preliminary analysis

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INTRODUCTION

Healthy immune system plays a vital role in maintaining the health by protecting the body against the disease-causing pathogens. According to World Health Organization (WHO) about three third of the world population relies upon traditional remedies (mainly herbs) for health care of its people [1].

The Ayurvedic system of medicine is one of the oldest systems of medicine and includes various ethno pharmacological activities such as immune stimulation, tonic, neurostimulation, anti-aging, anti-bacterial, anti-viral, anti-rheumatic, anti-cancer, apoptogenic etc[2].

Rasayana is a branch of *Ayurveda* which is mainly aims at the prevention of disease and enhancing the quality of life with longetivity. The herbs with *Rasayana* property reputed to promote physical and mental health, improve the defense mechanism of body and enhance longetivity.

Syrup preparations are one among the liquid dosage forms accepted by all age groups from children to old age people. Syrup preparations having advantages like easy administration, palatability and product acceptance.

Considering these factors an attempt is made to prepare a polyherbal syrup formulation using the *Rasayana* drugs mentioned in our Ayurvedic classics. The herbs include

Ashwagandha, *Guduchi*, *Shunti*, *Sariva*, along with the *Prakshepa* drugs *Ela*, *Twak*, and *Patra*.

In the recent studies *Ashwagandha* (*Withania somnifera*) is proved to possess immuno-modulation [3] effect. *Guduchi* (*Tinospora cordifolia*) is already known to possess *Jwaraghna*[4]and Hepatoprotective [5] action. *Shunti* (*Zingiber officinale*) is indicated in *Aruchi*[6], *Shwasa*[7] etc conditions. The drug *Sariva* (*Hemidesmus indicus*), is known for the *Jwarahara karma*[8]. Using these ingredients in the present study an attempt has been made to prepare polyherbal formulation in the form of Syrup.

AIM AND OBJECTIVES

- To prepare *Ashwagandhadi* Syrup.
- To carryout Physico- chemical analysis of *Ashwagandhadi* Syrup

METHODS AND MATERIALS

Study design:

Present study is pharmaceutical and analytical study. Pharmaceutical study includes step wise methodology of the *Ashwagandhadi* Syrup preparation and Analytical study includes the physical and chemical analysis of the formulation.

Raw drug source:

The raw drugs required for the preparation of *Ashwagandhadi* Syrup (Table No.1) was

procured from Alva's Pharmacy, Mijar, after proper authentication from Dept. of *Dravyaguna Vignana*, Alva's Ayurveda Medical College., Moodbidri. Karnataka.

The preparation of *Ashwagandhadi* Syrup done at *Rasa Shasthra* and *Bhaishajya Kalpana* Departmental laboratory, Alva's Ayurveda Medical College., Moodbidri, Karnataka.

Analysis of formulation carried out at research Lab at ATMA Research centre, Alva's Ayurveda Medical College., Moodbidri, Karnataka.

I. Pharmaceutical Preparation of *Ashwagandhadi* Syrup:

Table No. 1: Formulation composition of *Ashwagandhadi* Syrup:

S. No.	Name of the Ingredient	Botanical name	Family	Part used	Qty (parts)	Quantity taken
		<i>Kwatha Dravya</i>				
1.	<i>Ashwagandha</i>	<i>Withania somnifera</i> (L) Dunal.	Solanaceae	Root	1 part	140g
2.	<i>Guduchi</i>	<i>Tinospora cordifolia</i> , Miers.	Menispermaceae	Stem	½ part	70g
3.	<i>Shunti</i>	<i>Zingiber officinale</i> Roscoe	Zingiberaceae	Rhizome	½ part	70g
4.	<i>Sariva</i>	<i>Hemidesmus indicus</i> R.Br	Asclepiadaceae	Root	¼ part	35g
5	Water for decoction Reduced to				8 parts 1/4 th	2520ml 630ml
6	Sugar candy	<i>Saccharum officinarum</i>	Poaceae	Stem	66%	416g
		<i>Prakshepa Dravya</i>				
7	<i>Tvak</i>	<i>Cinnamomum zeylanica</i> Blume.	Lauraceae	Stem bark		10g
8	<i>Ela</i>	<i>Elettaria cardamomum</i> . Maton	Zingiberaceae	Seeds	Total ¼ parts	10g
9	<i>Patra</i>	<i>Cinnamomum tamala</i> Nees and Ebern	Lauraceae	Leaves		10g

Method of Preparation

➤ All the ingredients taken in specified

➤ quantity in coarse powder form (sieve no. 44.)

- Specified quantity of water was taken in a SS vessel. Ingredients S.No. 1 to 4 were added one by one and boiled the contents over mild fire.
- When the contents got reduced to 1/4th it was filtered through Cora cloth.
- Specified quantity of powdered *Khanda Sharkara* was added to the filtrate and boiled over mild fire with continuous stirring until the mixture attained 1-2 thread consistency.
- Then the flame was turned off and then the *Prakshepaka* dravyas (S.No. 6-8) were added and mixed thoroughly, after a while again the contents are filtered again and later allowed to self-cool. The final product was stored in airtight bottles.



Fig. No. 1 to Fig -9 : Preparation of *Ashwagandhadi* Syrup

Analytical study

The basic analysis of formulation *Ashwagandhadi* Syrup was carried out for

Organoleptic Characteristics and physical analysis. Results are depicted in Table No. 2 and 3

Table No. 2: Organoleptic characteristics of *Ashwagandhadi* Syrup

S.No.	Description	Results
1	Colour	Brown
2	Odour	Characteristic
3	Taste	<i>Madhura, Katu</i>
4	Consistency	Liquid

Table No. 3: Physico-Chemical analysis of *Ashwagandhadi* Syrup

S. No.	Description	Results
1	Viscosity	1.231 mili poise
2	pH	5.78
3	Specific gravity	1.6
4	Total Solid content (%)	48.21

DISCUSSION

Sharkara preparation is convenient dosage form having nutritional and health benefits and appreciated by all age groups due to their palatability. Present study is an attempt to formulate polyherbal syrup preparation *Ashwagandhadi* Syrup comprising ingredients *Ashwagandha*, *Guduchi*, *sariva* and *Shunti* as major ingredients having *Rasayana*, *Balya*, *Deepana* action with *Twak*, *Patra* and *Ela* as *Prakshepa Dravya*.

Ashwagandha is one of the major ingredient in *Ashwagandhadi* syrup. As per available

scientific data *Ashwagandha* is a real potent *Rasayana* (regerative tonic) due to its pharmacological actions like anti-stress, neuroprotective, antitumor, anti -arthritic, analgesic and anti -inflammatory etc^[9]. The biologically active chemical constituents of *Withania Somnifera* include alkaloids(isopelletierine, anaferine, cuseohygrine, anahygrine ,etc),steroidal lactones (withanolides, withaferins) and saponins^[10].

Guduchi is known to possess *Jwaragna*, *Rasayana*, and hepatoprotective activity. Isolated chemical compounds such as cordifolioside A and syringin of *guduchi* are reported as immunomodulating agent in the clinical study^[11]. In recent years zinger has been found to possess biological activity s, such as Anti oxidant^[12], Anti inflammatory^[13], Anti microbial^[14] activities. The rich phytochemistry of ginger includes components that scavenge free radicals produced in biological systems. For the purpose of energy production, some free radicals which generated during the process of oxidation are essential^[15]. *Sariva* possess Anti pyretic activity^[16] Anti inflammatory activity^[17]. Anti oxidant activity^[18], Hepatoprotective activity^[19]

Twak Patra and *Ela* are the *Prakshepa dravya* used in the formulation. The preservative

action of the *Prakshepa dravya* like *Twak* , *Patra Ela* etc due to their anti microbial property which can be appreciated both in primary and secondary formulations [20]. *Prakshepa dravya* contribute acceptable odor, colour and taste for the product.

The pharmaceutical part in the study includes the stepwise preparation of the product, where the observations and the findings were noted from the commencement till the attainment of the final product.

During the preparation of *Ashwagandhadi* Syrup, first the coarse powders of the *Kashaya Dravya* (*Ashwagandha*, *Guduchi*, *Shunti* and *Sariva*) was prepared. 8 parts of water was added and decoction was reduced to 1/4th proportion as per classical method of preparation. Mild to moderate flame was maintained throughout the process. The decoction was brownish in colour and slightly more viscous due to presence of starch content in *Guduchi*. Total duration taken for preparation of decoction was 1 hr 40 mins. The consistency of the decoction was slightly thick. The recommended percentage of sugar required for Syrup preparation was 66% therefore sugar candy was added in the prescribed quantity in powdered form to the prepared decoction to facilitate easy dissolution. The *Paka siddhi Lakshana* of syrup like, attainment of 1-2 thread consistency,

non-spreading of syrup content when little quantity of syrup dropped into bowl of water, observed after 30 minutes. The fine powders of *Prakshepaka* drugs were added after the preparation of syrup in slight luke warm state and stirred properly. Later the mixture was once again filtered. The intention of adding fine powders was to extract the volatile principle of the ingredients into syrup media. The contents were filtered in order to prevent the sedimentation of fine powders in the final product.

Total duration taken for preparation of *Ashwagandhadi* Syrup was 1 hr 40 mins. Final yield of Syrup was 420ml with 33.33% loss. The loss was due to filtering twice to avoid the sedimentation of fine powders and also due to thick consistency of *syrup* few percentages wastage was found. As the thickness of Syrup was found to slightly thicker, it is suggested to take 16 times water while preparing the decoction to achieve desired proper syrup consistency.

Ashwagandhadi syrup is brownish in colour possessing characteristic odour and taste. Basic physical analysis was carried out for the Syrup and results are depicted in Table No. 2 and 3. The pH of the Syrup was found to 5.78. pH value indicates relative value of hydrogen ion concentration in the solution compared with that of the standard solution that represents the relative acidity or alkalinity of

the solution. The pH value of the syrup indicates it is alkaline. The viscosity of the syrup was found to be 1.231 mili poise which is quite high lead to the thicker consistency of the syrup. The specific gravity of syrup was 1.6. Total solid percentage was 48.21. Total solids refer to the residue obtained when the prescribed amount of preparation dried to constant weight under specified condition. The soluble content determines the number of constituents in a given sample of the drug. The results of physico - chemical analysis found to be in the acceptable range.

CONCLUSION:

The present work is an attempt to formulate the polyherbal preparation into Syrup dosage form. The pharmaceutical procedure adopted for trial formulation *Ashwagandhadi* Syrup found to be convenient for product acceptance. The pharmaceutical and analytical profile of formulation provides baseline guidelines for further updation of the dosage form.

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