

**A SYSTEMIC COMPARATIVE STUDY ON PHYTOCHEMICAL AND PHARMACOGNOSTICAL STUDY OF VATSNABH, PROCESSED IN TWO DIFFERENT MEDIA W.S.R. SHODHAN****Dr. Imran***

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ABSTRACT Aconitum ferox Wall ex Seringe root, also known as vatsanabh mula, has the poisonous alkaloid aconitine as its main active ingredient. Vatsanabha's medicinal capabilities are improved through shodhan processes, which also lessen its toxicity and turn it into medication. Media like Gomutra (cow urine), Godugdha (cow milk), and Ajadugdha (goat milk) have been cited in Ayurvedic literature for Shodhan processes of Vatsanabha. This study focuses on the impact of two Shodhan techniques of Vatsanabha Mula employing cow's urine and milk (Gomutra and Godugdha), respectively, on HPLC quantification of aconitine while using raw roots as the control. HPLC chromatogram modifications attest to the Shodhan procedure's impact on Vatsanabha. Peaks were seen in the HPLC study at retention time 30.1. In the samples purified using cow's urine as opposed to cow's milk, the areas under the curve were smaller, indicating denaturation of some component following purification. So, in terms of harmful alkaloids, Vatsanabha mula cleansed by Gomutra (cow's urine) may be considered a better technique of purification.

KEYWORDS : Vatsanabha Mula, Alkaloids, Shodhan, HPLC, Aconitine**INTRODUCTION**

Vatsanabha is described as a tuber poison (Kanda Visha) in the ancient Sushruta samhita and has four types. Aconitum ferox, the most popular aconite-based medicinal plant, is a therapeutically effective plant in Ayurveda, and its roots are widely utilized in several traditional formulations.¹ Thus, numerous ancient writings of Ayurveda Rasashastra outlined shodhan techniques of Vatsanabha root that were intended to lessen the harmful effects of the medicine without sacrificing its pharmacological qualities but instead to enhance therapeutic value.²

The Visha (poison) becomes Amrita (nectar) after rational administration, according to Ayurvedic treatises.³ When taken as directed, poison increases vigor and treats and prevents illnesses and senility.⁴ It enhances the positive or negative characteristics of whatever it is taken with. It balances the three Doshas (the three fundamental bodily energies: Vata, Pitta, and Kapha), is nourishing, and promotes semen production.⁵ An activity of Vatsanabha is described as a heart tonic and a source of power in one of the classic Rasashastra texts. Vatsanabha is recommended for conditions like fever, ear pain, skin problems, etc.⁶ As a result, the poisonous aconite alkaloids hydrolyze into less dangerous benzyaconine and aconine derivatives.⁷

AIM & OBJECTIVES

To carry out Shodhan of Vatsnabh roots by two different methods mentioned in Ras Tarangini following Standard Operative Procedures (SOP).

METHODOLOGY

Source of collection were authentic local market dealer of herbal raw drugs. Drug were authenticated by the P.G. Dept. of Dravya guna and RS& BK. Drug were standardized according the criteria mentioned in API I vol.II by some authorized laboratory to conduct tests. Vatsanabha Root were purified according to the method mentioned in Ras Tarangini Chapter 24/23,24,25. Whole procedure was conducted in the department of RS&BK under the supervision of guides and co guides of the study.

EQUIPMENTS

Two stainless steel circular plates, a stainless-steel vessel used as a Dola yantra, a stainless-steel rod, a length of cotton thread, a measuring cup with a 1 L capacity, a piece of muslin cloth measuring, a stainless-steel spatula, a digital scale, and a clay pot.⁸

SHODHANAPROCESS

For each Shodhana Procedure, two distinct media (cow's milk and cow's urine) were used in separate batches.

VATSNABHA'S SHODHAN PROCEDURE, EMPLOYING COW'S URINE AS A MEDIUM

In a clay pot with one litre of cow's urine in it, 100 g of clean, dried Vatsanabha roots were chopped into pea-sized pieces and left for three

days. In April, the pot was maintained on a patio that received lots of sunlight. Fresh cow pee was added in the mornings of each day to replace the old.⁹ The roots were cleaned with water on the fourth day, the outer cortical layers were peeled off, and the finished result was once again washed in warm water.¹⁰ The finished result was labeled as Shodhit Vatsanabh (purified Vatsanabha in cow urine), and the pieces were sun-dried and placed in an airtight glass container.¹¹

VATSNABHA'S SHODHAN PROCEDURE, EMPLOYING COW'S MILK AS A MEDIUM

Vatsanabha roots weighing 100 g were cleaned, dried, and cut into pea-sized pieces. With the use of a steel rod (Dolayantra), these components were tied into a poultice and suspended in the middle of a steel pot. Cow's milk was added to the container to fully submerge the poultice.¹² Then, it was cooked for three hours at 100°C on an LPG stove. The amount of milk was continuously raised above the level of the poultice by adding boiling, hot milk as needed. The Vatsanabha fragments were later removed and given a hot water wash.¹³ The roots' outer cortical layers were pulled off. The Vatsanabha pieces were properly dried in the sun before being stored in an airtight glass container as Shodhit Vatsanabh (purified Vatsanabha in cow milk).¹⁴

PREPARATION OF STANDARD SOLUTIONS

Aconitine was weighed precisely at 10.0 mg, and 5.0 mL of Methanol HPLC Grade was used to dissolve it. 5 minutes of sonication. It is used it for HPLC analysis after filtering it with a 0.22-micron syringe.

PREPARATION OF SAMPLE SOLUTIONS

Ashuddha Vatsanabha (raw, unpurified Vatsanabha roots), Shodhit Vatsanabha roots (purified in cow urine), and Shodhit Vatsanabha roots (purified in cow milk) were all three samples, and each was pulverized individually using a mechanical grinder and put through mesh no. 60.

The Following Process Was Used To Create

- Ashuddha Vatsanabha (raw, unpurified Vatsanabha roots)
- Shodhit Vatsanabha (purified in cow urine)
- Shodhit Vatsanabha (purified in cow milk).

10.0 grams of precisely weighed material was placed to a 500 ml iodine flask. It received 100 cc of Methanol and refluxed for two hours. I concentrated it to a maximum of 10 ml after filtering it in an evaporating dish. 10% of this 25 mL sulphuric acid solution was added after it had been well shaken and filtered. Strong ammonia solution was used to make it alkaline. 20 mL of chloroform were used to extract this solution three times. gathered every layer of chloroform, and dried it with evaporation. This was dissolved in methanol and produced up to a volume of 5 ml, which was then utilized for HPLC analysis.

CHROMATOGRAPHIC (HPTLC) CONDITIONS

HPLC System	Shimadzu UFLC Modular
Stationary Phase	C18
Column Temperature	38°C

Filtering System	0.22 μ syringe filter
Run time	58 min
Sample Application Volume	20 μ L
Mobile Phase (MP)	Phosphate Buffer (pH 3.5): Tetrahydrofuran
Flow Rate	1.2 mL/min
Wavelength	238 nm
Mode of Separation	Gradient

OBSERVATION & RESULT

Sample	Aconitine Std.	Ashuddha Vatsanabha (Raw non purified Vatsanabha roots)-	Shodhita Vatsanabha (purified in cow urine)	Shodhita Vatsanabha (purified in cow milk)
Weight in mg	5.0 mg	912 mg	978 mg	939 mg
Rt	30.1	30.1	30.1	30.1
Area Under Curve	1756435	1896545	1587665	1456345
Assay (%)	---	0.0245	0.00198	0.0178

DISCUSSION

Throughout the Ayurvedic literatures, Vatsanabha is advised against before internal usage. This should only be administered sparingly, in accordance with the recommended Shodhana technique (purification or detoxication), under the suitable circumstances, and with the appropriate patients. When administered internally for therapeutic purposes, refined aconite is said to be superior to its crude cousin due to the Shodhana processes used for its purification's detoxifying capacity.¹⁵ But these studies don't explain why different chemicals are used in purification, and they also don't explain why one of the procedures stated is better than the others. The penetrability of any liquid where it is dipped is increased by breaking Vatsanabha roots into little pieces.¹⁶

Due to its natural acidity, cow urine may aid in minimizing the harmful effects of poisonous alkaloids. It is advisable to replace the urine solution every morning since it is possible that these harmful substances will disintegrate and leak out in solution. In the case of cow urine or cow milk, keeping the dipped medicine in the sun or boiling it may aid in the dissolving of hazardous compounds that are soluble in water or fat into the resultant solution.¹⁷ But unless it is proven scientifically, this explanation is only a guess. As a peak at Rt 30.1 was observed in each of the three samples, this HPLC quantification research clearly demonstrates the existence of one common component, aconitine, in all three samples.¹⁸ This indicates that Aconitine is not entirely denatured by any Shodhana method, and Aconitine also contributes to the medicinal or therapeutic effects of Vatsanabha roots.¹⁹

CONCLUSION

According to the results of this study, both Shodhan techniques lower the aconitine content of Vatsanabha Mula by decreasing the area under the curve and the HPLC assay of the sample. However, in the Shodhit Vatsanabha (purified in cow urine) and Shodhit Vatsanabha (purified in cow milk) samples, respectively, the area under the curve decreased from 1896545, 1587665 and 1456345, and the assay (%) decreased from 0.0245, 0.00198 and 0.0178, showing denaturation of some component following Shodhana. According to the findings of this study, cow's urine (Gomutra), rather than cow's milk (Godugdha), is a superior extraction medium for the Shodhana process of Vatsanabha Mula when it comes to the hazardous alkaloid aconitine.

Conflict Of Interest - Nil

Source Of Support - NONE

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