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Pharmacognostical & Pharmaceutical Evaluation of *Apamarga Mula Yonivarti*

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ABSTRACT

Background: *Achyranthes aspera* belonging to Amaranthaceae family has widely used medicinal purposes. It is distributed throughout the tropical world. Seed, root, leaf, whole plant can be used for medicinal purpose. *Apamarga* plants are having abortifacient activity as n-butanol extract is having contraceptive efficiency in researches. Acharya Vrindamadhava has told if women keeps the *Apamarga mula* in her *yonis* then she will have *Sukhprasava*.

Aim: The present study aims at pharmacognostical & pharmaceutical evaluation of *Apamarga mula yonivarti*.

Material & Method: *Apamarga mula yonivarti* is studied for its macroscopical and microscopical characters. Microscopical studies include cell structure and their arrangement, physicochemical parameters include pH, loss on drying, water soluble extract, ash value, alcohol soluble extract, HPTLC.

Result: The pharmacognostical study showed border pitted vessel, cork in surface view, pollen grain of honey, prismatic crystal, septate fibre, starch grains. The pH value of *Apamarga mula yonivarti* was 5, Water soluble extract was 20.75 %w/w, Loss on drying was 8.33 %w/w, alcohol soluble extract was 79.83% and High Performance Thin Layer Chromatography (HPTLC) at 254nm and 366nm showed 11 & 3 spots respectively.

Conclusion: The pharmacognostical and pharmaceutical screening of *Apamarga mula yonivarti* showed quality of preparation was standard.

KEYWORDS

Prasava, *Varti kalpana*, *Apamarga mula*, HPTLC



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INTRODUCTION

Pharmacognostical Standardization is the only source to prevent the unscrupulous commercial practice of adulterating and substituting the genuine herbal drugs¹. *Achyranthes aspera* belonging to Amaranthaceae family has widely used medicinal purposes. It is distributed throughout the tropical world. Seed, root, leaf, whole plant can be used for medicinal purpose. Acharya Vrindamadhav has described to keep *Apamarga mula* in *Yonimadhya* for *Sukhaprasava*². Physicochemical parameters are the important characteristic of a drug and with the help of this; we can detect the extent of adulteration as well as establish the quality and purity of the drug.

Morphologically-*Apamarga* (*Achyranthes aspera* Linn.) from the family Amaranthaceae, is a stiff, erect, 0.3-0.9m high herb, found throughout India up to 900m, commonly as a weed. Root (*Mula*) is cylindrical tap root, slightly ribbed, 0.1-1.0cm in thickness, gradually tapering, rough due to presence of some root scars. Secondary and tertiary roots present, yellowish-brown; odour, not distinct³. For the clinical study of action of *Apamarga mula* in prasava, the fine powder of the drug is mixed with madhu forming *varti*. This

yonivarti is then subjected to Pharmaceutical & Pharmaceutical studies.

MATERIALS AND METHODS

Collection, Identification and Authentication of raw drugs

The roots of *Apamarga* were obtained from the botanical garden of Gujarat Ayurved University, Jamnagar. The ingredient as summarized in Table 1 were identified and authenticated in the Pharmacognosy laboratory, Institute for Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar.

Table 1 Ingredients of *Apamarga mula yonivarti*

Drug	Botanical name	Part used	Quantity
1. Apamarga	<i>Achyranthes aspera</i> Linn.	Root (fine powder)	3gm
2. Madu			q.s.

Method of Preparation of *Apamarga mula yonivarti*

The dried roots of *Apamarga* were made into fine powders and sieved through a mesh of 16 microns to obtain the fine powder. *Apamarga mula* powder were packed in air tight packets weighing 3gm of drug in each packets. The *yonivarti* was prepared spontaneously by mixing 3gm of *Apamarga mula* & quantity sufficient madhu under aseptic conditions. The *yonivarti* was inserted in posterior fornix of vagina of labor patient with the cervical dilatation of 3cm or more.



Pharmacognostical evaluation of *Apamarga mula yonivarti*

Organoleptic study:

Powder was subjected for various sensory characters like colour, taste, odour, touch & were carefully noted⁴.

Microscopic study:

The sample of *Yonivarti* was taken on a glass slide covered with cover slip and observed under the microscope with stain (Phloroglucinol and Conc. HCl) and without stain, to study various characteristics. Microphotographs were taken by using Carl Zeis Trinocular microscope attached with a camera⁵.

Physicochemical study:

Apamarga mula yonivarti analyzed by using qualitative and quantitative parameters at Pharmaceutical Chemistry Laboratory, Institute for Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar by using various standard physico-chemical parameters such as Loss on drying, water soluble extract, alcohol soluble extract, Ash value and pH⁶.

HPTLC (High Performance Thin Layer Chromatography):

Instrument used was CAMAG make HPTLC with WINCATS 1.4.3 software and Linomat 5 sample applicator. The stationary phase used was HPTLC plate's silica gel 60 F254 and mobile phase was

Toluene: Ethyl Acetate (9:1). The sample was prepared in methanol, and 2 μ l sample was applied as 8 mm band for each spot. The plate was visualized under short and long ultraviolet (UV) radiations and density of the separated spots was recorded using scanner III. The plate was sprayed with vanillin-sulphuric acid reagent and observed in daylight. The Rf values were recorded⁷.

RESULTS AND DISCUSSION

Organoleptic characters

The above are summarized in Table 2.

Table 2 Organoleptic characters of *Apamarga mula yonivarti*

Drug	Colour	Odour	Touch
<i>Apamarga mula yonivarti</i>	Yellowish brown	Not distinct	Soft, easily breaks

Microscopic Study

Microscopic evaluation was conducted by dissolving *Apamarga mula yonivarti* in the distilled water and studied under microscope. The diagnostic microscopical characters seen are border pitted vessel, cork in surface view, pollen grain of honey, prismatic crystal, septate fibre, starch grains shown in Plate-1.

Physicochemical tests

Physicochemical results are as in Table 3

HPTLC study results

Methanolic extract of *Apamarga mula yonivarti* was spotted after analyzing under demonstrator. At 254 nm the chromatogram



showed 11 peaks and at 366nm chromatogram showed 3 peaks. Three dimensional densitogram (3D) at 254 and 366nm showed comparative R_f values of sample in Table 4, Plate 2 & 3.

Table 3 Physicochemical analysis of *Apamarga mula yonivarti*

Sr. No.	Characters	<i>Apamarga mula yonivarti</i>
1.	Loss on drying(at 110°C)	8.33% w/w
2.	Ash Value	14.36% w/w
3.	Water soluble extract	20.75% w/w
4.	Methanol soluble extract	79.83% w/w
5.	pH value by pH meter	5

Table 4 HPTLC findings at 366nm and 254nm UV light (Methanol Extract)

Wavelength	Spots	Max. R_f value
At 254 nm	11	0.03, 0.10, 0.16, 0.51, 0.53, 0.67, 0.73, 0.82, 0.85, 0.93, 0.98
At 366 nm	3	0.03, 0.10, 0.73

DISCUSSION

Pharmacognostical evaluation showed that the *Apamarga mula yonivarti* contains all the ingredients, which were observed in the microscopical characters, this shows the purity and authentication of the product. Phytochemical analysis showed no gain of moisture during storage, thus product quality is unaffected. The obtained tests values were within normal limits indicating

good quality of product. On Pharmaceutical analysis, loss on drying value was 8.33 %, w/w Ash value 14.36%, w/w water soluble extraction 20.75 %, w/w methanol soluble extraction 79.83%. All tests were within limit. HPTLC results showed 11 spots at 254nm and 3 spots on 366nm.

CONCLUSION

Pharmacognostical and phytochemical evaluation of *Apamarga mula yonivarti* illustrated the specific characters of ingredients which are used in the preparation. The result showed the quality of the preparation was standard.

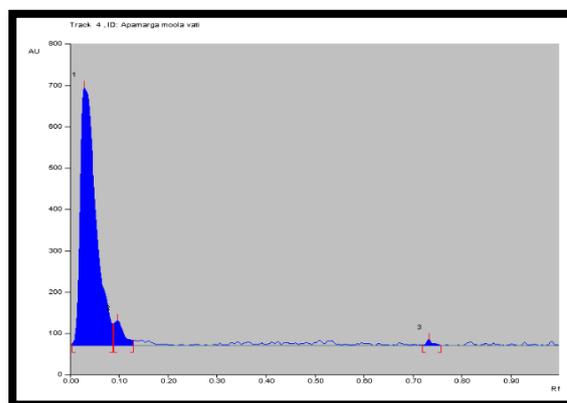
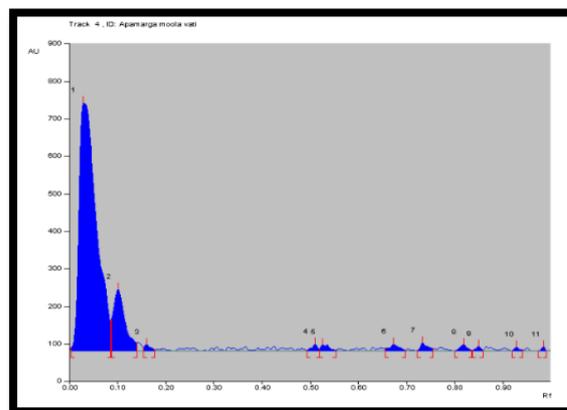


Plate 2 Densitogram of *Apamarga mula yonivarti* at 254 and 366nm Plate 3. 3-D dimensional HPTLC (3D) Densitogram at 254nm and 366nm

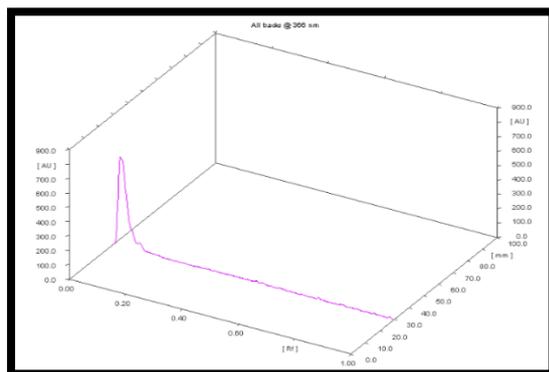
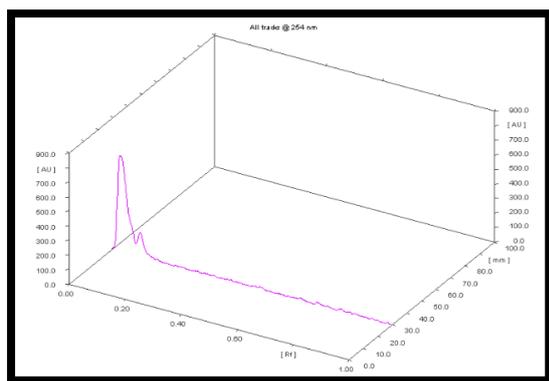


Plate 3 3-D dimensional HPTLC (3D) Densitogram at 254nm and 366nm



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