



PHARMACEUTICAL AND ANALYTICAL STUDY OF VISHA BILWADI GUTIKA

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ABSTRACT

Visha Bilwadi gutika is a herbal preparation mentioned in Kriya Kaumudi a Malayalam visha treatise. It is indicated mainly in the management of cobra bite. All drugs of this formulation are easily available and its pharmaceutical preparation is also simple. It is prepared by triturating the drugs with aja mutra till it attain into a fine paste and then it is rolled into uniform pills, dried well and stored. In the present study Pharmaceutical work of the formulation was carried out and analysis of Visha Bilwadi gutika was done using HPTLC analysis. HPTLC profile is quite helpful in setting up of standards. Standardization of herbal formulation is essential in order to assess the quality of drugs for therapeutic value. In High performance thin layer chromatography (HPTLC) study of visha bilwadi gutika (ethanol extract) using Toluene: n-hexane: Ethyl acetate (6.0:4.0) visual observation was done under UV light showed 13 spots at short UV, at long and post derivatisation UV shows 11 and 13 spots respectively.

KEY WORDS: Visha Bilwadi gutika, Ayurveda Pharmaceutical, HPTLC

INTRODUCTION

Vati kalpana is a pharmaceutical procedure in which the powder of raw drugs (Herbal or Herbo- mineral) is triturated together with certain juice, decoctions or various liquid media and the medicines are prepared in the form of pills or tablets after the mixture turns into a fine paste¹. Vati Kalpana is a secondary preparation mentioned in Ayurveda Pharmaceutical science. The synonyms of Vati (tablets) are Gutika (pills) and Modaka (Large size pills) and Varti (draggees). These are the names given for vati kalpana on the basis of shape, dose and route of administration. Vati kalpana plays an important role in pharmaceuticals of Ayurveda due to its palatability, easy administration, convenient form for dispensing and transportation. Vati kalpana is widely accepted in present clinical practice because of its accuracy in dosage, longer shelf life & palatability^{2,3}.

Standardization and analysis of the chemical marker of the Ayurvedic and other poly herbal formulation has always been a concern⁴. High-performance thin layer chromatography is one of the sophisticated instrumental techniques based on the full capabilities of thin layer chromatography. The advantages of automation, scanning, full optimization, selective detection principle, minimum sample preparation, hyphenation, and so on

enable it to be a powerful analytical tool for chromatographic information of complex mixtures of pharmaceuticals, natural products, clinical samples, food stuffs etc^{5,6}. HPTLC profile is quite helpful in setting up of standards. Standardization of herbal formulation is essential in order to assess the quality of drugs for therapeutic value. HPTLC offers major advantages over other conventional chromatographic techniques such as choice of detection wavelength, user friendly, rapid and cost effective⁷. Visha Bilwadi gutika is explained in Kriya Kaumudi, a Malayalam toxicology book by Kuttikrishna menon.

The formulation contains all ingredients similar to Bilwadi gutika, with addition of neelini (*Indigofera tinctoria*), eshvari (*Aristolochia indica*) and pata (*Cyclea peltata*)⁸. This formulation is indicated in all vishaja conditions. The main aim and objective of the present study is to prepare the Visha Bilwadi gutika and its analysis through HPTLC method.

MATERIAL AND METHODS

Collection of the raw drugs

The raw drugs were collected from SDM College of Ayurveda and hospital, Teaching Pharmacy Hassan. The raw drugs were authenticated at Department of Dravyaguna, SDMCA, Hassan.

Ingredients and their proportions

SI no	Drug name	Botanical name	Part used	Quantity taken
1	Bilwa	<i>Aegle marmelos</i>	Root	12.5g
2	Surasa	<i>Ocimum santum</i>	Flower	12.5g
3	Karanja	<i>Pongamia pinnata</i>	Fruit	12.5g
4	Tagara	<i>Veleriana wallichii</i>	Root	12.5g
5	Devadharu	<i>Cedrus deodera</i>	Sara	12.5g
6	Haritaki	<i>Terminalia chebula</i>	Fruit	12.5g
7	Vibhitaki	<i>Terminalia bellerica</i>	Fruit	12.5g
8	Amalaki	<i>Embelica officianalis</i>	Fruit	12.5g
9	Sunthi	<i>Zingiber officianale</i>	Rhizome	12.5g
10	Maricha	<i>Piper nigrum</i>	Fruit	12.5g
11	Pippali	<i>Piper longum</i>	Fruit	12.5g
12	Haridra	<i>Curcuma longa</i>	Rhizome	12.5g
13	Daru haridra	<i>Berberis aristata</i>	Bark	12.5g
14	Neelini	<i>Indigofera tinctoria</i>	Root	12.5g
15	Ishwari	<i>Aristolochia indica</i>	Root	12.5g
16	Pata	<i>Cyclea peltata</i>	Root	12.5g
17	Ajamutra	<i>Capra aegagrus hircus</i>		1.300ml

Equipment: Pestle & Mortar (Stone), Spatula, Weighing Machine, Spoon, Beaker, Measuring cylinder, Knife, Cloth

Method of preparation: The ingredients are taken in dry form weighing 12.5g each. They are pounded well separately and powders of each drug were sieved separately through a cotton cloth. Then it was mixed well into a homogenous mixture. Then aja mutra was added till the powder turned wet and Bhavana was done till the mixture turned dry. Thus Bhavana with ajamutra was done for 3 days till subhavittha lakshanas (test of perfectness) were appreciated. Then pills were made of uniform size, dried and stored in air tight container.

Dose: 1 Karsha (12g)

Route of administration: Oral

Test of Perfectness: The paste should turn very fine in consistency and the pills rolled should not develop any cracks

Precautions: All drugs should be taken in dry form to avoid wastage and maintain shelf life of the formulation. The drugs should be sieved through a cloth to obtain fine powder. Sufficient quantity of Aja mutra should be added for appropriate Bhavana. Proper bhavana is needed for incorporation of bhavana

dravya in the product. Care during bhavana has to be taken to avoid spillage and wastage of drugs. Pills should be made of uniform size and dried well to avoid fungal growth.

Bhavana dravya:

Aja muthra used

- 1st day: 600 ml
- Second day: 400 ml
- Third day: 300 ml

Total quantity obtained

- Total gutika obtained: 180 pills

Average weight of a single pill:

1.20g in wet form

Physical characteristic of gutika

- Appearance: Pill form
- Colour: black-brown
- Odour: Smell of aja mutra
- Touch: Smooth
- Taste: *Katu*
- Solubility: Dissolved in water



Powdered Drug



Aja Mutra



Process of Bhavana



Visha Bilwadi Gutika

HPTLC

1g of Visha Bilwadi gutika powder was extracted with 20 ml of alcohol kept for 24hrs for cold maceration then was filtered. 3, 6 and 9µl of the above extract were applied on a pre-coated silica gel F254 on aluminum plates to a band width of 7 mm using Linomat 5 TLC applicator. The plate was developed in n-hexane: Ethyl acetate (6.0: 4.0). The developed plates were visualized in short UV, long UV, and then derivatised with vanillin sulphuric acid and scanned under UV 254nm, 366nm and 620nm. R_f colour of the spots and densitometric scan were recorded.

RESULT AND DISCUSSION

Visha Bilwadi gutika is prepared in three steps. First step was preparing fine powder of drugs. Here total 16 ingredients pounded well, each drug was taken 12.5g each by this way total weight of each sample is 200g. Second step was bhavana with aja mutra till attain subhaviha lakshanas are appreciated. It was done for 3 days. Third step is making pills. Colour of the pounded drugs were greenish, it turns into blackish brown colour because of bhavana dravya. It is having katu taste because most of the ingredients in this formulation having katu rasa. Smell of the formulation is of aja mutra because of bhavana dravya that is used. The gutika was smooth because of indicative that proper bhavana has been carried as it is test of perfection of bhavana.

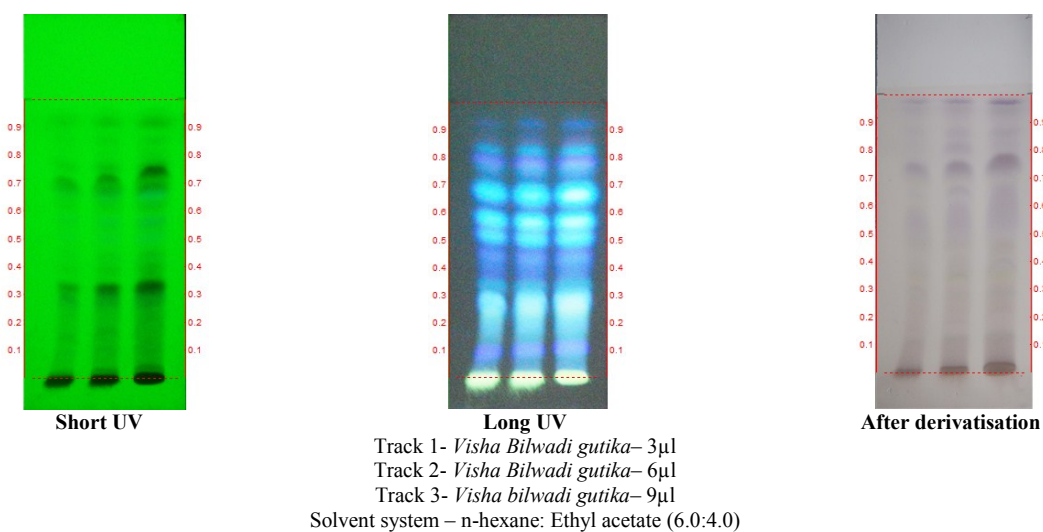
Part C: Result

Figure 1. HPTLC photo documentation of ethanol extract of Visha Bilwadi gutika

Table 1: R_f values of sample of Visha Bilwadi gutika

Short UV	Long UV	Post derivatisation
0.11 (L. green)	0.11 (F. blue)	0.12 (L. purple)
0.19 (L. green)	-	0.20 (L. purple)
-	-	0.24 (L. purple)
-	0.26 (F. blue)	-
0.29 (L. green)	-	0.28 (L. purple)
0.33 (D. green)	0.34 (F. blue)	-
-	-	0.36 (L. purple)
0.39 (L. green)	-	-
-	-	0.41 (L. purple)
-	0.43 (F. blue)	-
0.45 (L. green)	-	0.45 (L. purple)
-	-	0.47 (L. purple)
-	0.51 (F. blue)	-
0.57 (L. green)	0.57 (F. blue)	0.58 (L. purple)
0.63 (L. green)	-	-
-	0.66 (F. blue)	0.66 (D. purple)
0.69 (L. green)	-	-
0.72 (D. green)	-	-
0.76 (L. green)	0.77 (F. blue)	0.76 (D. purple)
-	0.82 (F. blue)	0.82 (D. purple)
0.86 (L. green)	0.86 (F. blue)	0.87 (D. purple)
0.92 (L. green)	0.92 (F. blue)	-

L-light; D-dark; F-fluorescent

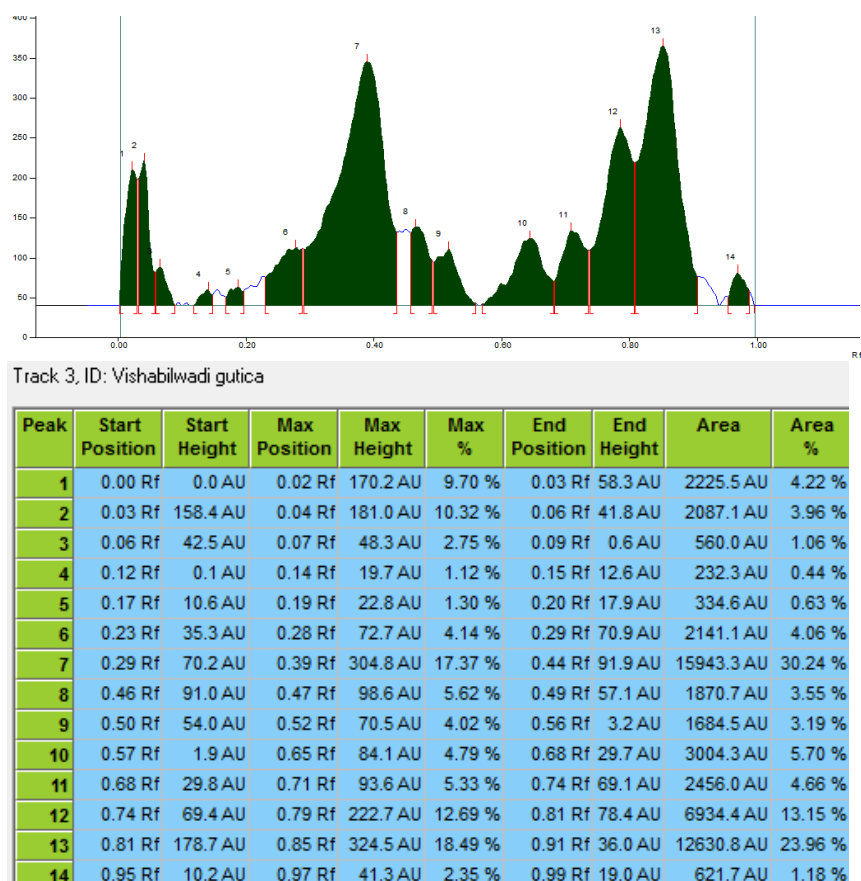


Fig 2a. At 254nm

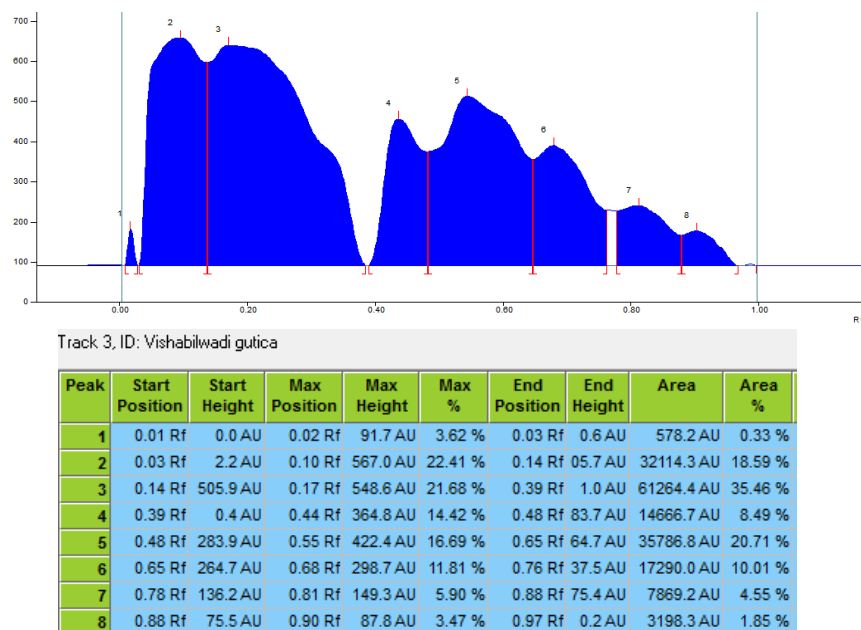


Fig 2b. At 366nm

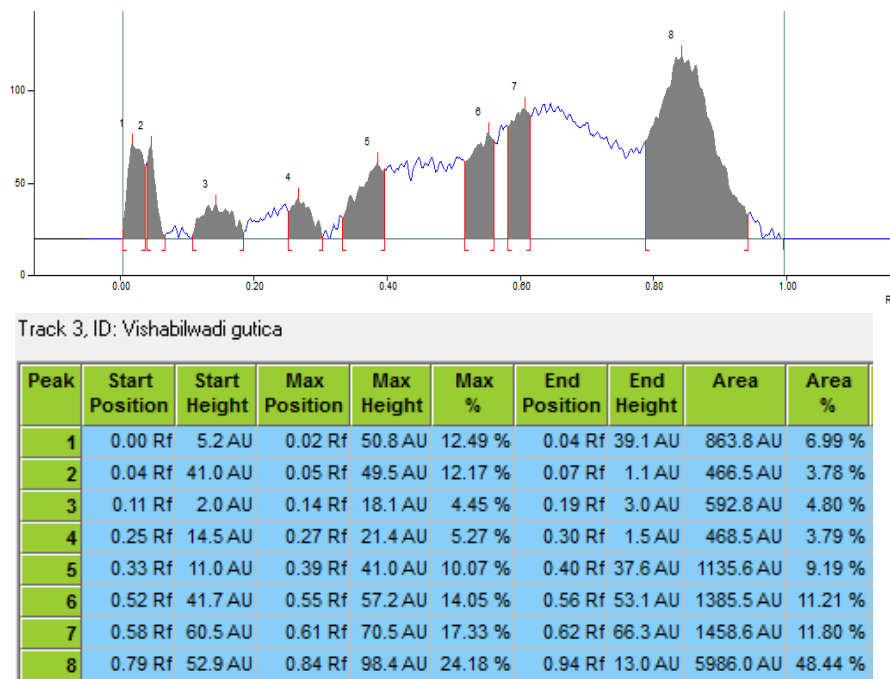


Fig 2c. At 620nm

Figure 2. Densitometric scan of Visha Bilwadi gutika

In High performance thin layer chromatography (HPTLC) study of visha bilwadi gutika (ethanol extract) using Toluene: n-hexane: Ethyl acetate (6.0:4.0) visual observation was done under UV light showed 13 spots at short UV at Rf 0.11, 0.19, 0.29, 0.33, 0.39, 0.445, 0.57, 0.63, 0.69, 0.72, 0.76, 0.86, 0.92. At long UV, chromatogram shows 11 prominent spots at Rf 0.11, 0.26, 0.34, 0.43, 0.51, 0.57, 0.66, 0.77, 0.82, 0.86, 0.92. At post derivatisation shows 13 spots at Rf 0.12, 0.20, 0.24, 0.28, 0.36, 0.41, 0.45, 0.47, 0.58, 0.66, 0.76, 0.82, 0.87

CONCLUSION

Visha Bilwadi gutika is a vati kalpana described in Kriya Kaumudi by Kuttikrishna menon. It is mentioned as an effective formulation in the management of cobra bite. It was prepared by triturating the drugs by using aja mutra as a bhavana dravya. As all the drugs are easily available and it is a simple preparation. It is a simple preparation and hence emphasis in the preparation and usage in other conditions can be carried out. By conducting various studies the drug can be put into clinical applicability. HPTLC was done for the standardization of the gutika. This can be taken as a preliminary standard for the formulation.

REFERENCES

1. Mukesh Ananda chaudari, review of vati kalpana wrs to sharangdharokta vati kalpana, IAMJ, 2017
2. Purnendu pande, SK Mehar, Banamalidas, GC Bhuina, Tablet and Tableting in Ayurveda (Vati kalpanas) a review, IAMJ, 2016.
3. Jayanthi Samantha, Manojit debnath, Pallav khadkar, JN pande, Amalesh Samantha, moulisha Biswas, Indo American journal of pharmaceutical science, 2015
4. Garg.S, Mishra A, Guptha. R, Fingerprint profile of selected Ayurvedic Churnas/preparation an over view, Alternative and integrative medicine, 2013.
5. http://www.camag.com/en/tlc_hptlc/what_is_tlchptlc.cfm, date: 1/3/2018
6. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3658041/>, date: 3/1/2018
7. Garg.S, Mishra A, Guptha. R, Fingerprint profile of selected Ayurvedic Churnas/preparation an over view, Alternative and integrative medicine, 2013.
8. VM. Kuttikrishna Menon, Kriya Kaumudi a Malayalam treatise on Ayurvedic toxicology p274.

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