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ANALYSIS OF *VAMANAYOGA* (A POLYHERBAL COMPOUND FORMULATION) THROUGH PHYSICO-CHEMICAL AND HPTLC STUDY

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ABSTRACT

Background: *Vamanayoga (a fix mixture of vamak-dravyas)* is commonly used in Ayurvedic *Panchakarma* therapeutics for *Vamana* procedure since centuries to treat pathological conditions like Lipid disorders, Skin disorders, Metabolic syndromes, Obesity etc. *Vamanayoga* is routinely prescribed one among compound poly herbal formulation containing *Madanaphalapippali, Vacha, Saindhava, Madhu* as an ingredient for *Vamana* (Therapeutic Vomoting). **Method:** In current work, *Vamanayoga* was evaluated for their organoleptic, physico-chemical and HPTLC analysis. **Results and Conclusion:** Results obtained in physico-chemical parameters of *Vamanayoga* are within limit mentioned by Ayurvedic Pharmacopoeia of India. HPTLC profile of *Vamanayoga* showed differentiation in number of spots.

KEYWORDS: Ayurveda**,** Chromatograph, HPTLC**,** Physicochemical analysis, *Vamanayoga.*

INTRODUCTION

Quality control for safety and efficacy of herbal products is of paramount importance.[1],[2] Quality can be defined as the status of a drug that is determined by identity, purity, content, and other chemical, physical, or biological properties, or by the manufacturing processes. Quality control is a term that refers to processes involved in maintaining the quality and validity of a manufactured product. In Ayurveda, the analytical techniques have always been mentioned to understand the quality of the end product. Different qualitative parameters to judge genuine plant identification, preparation are described in Ayurvedic classics and having scientific evidence, they are not efficient to provide quantitative information. However, qualitative and quantitative analysis of drugs by using the modern techniques and instruments of the science is of supreme importance in order to justify their acceptability in modern system of medicine.

Different chromatographic analysis is routinely used and plays an important role in the quality control of complex herbal medicines. High performance thin layer chromatography (HPTLC) can provide an electronic image of the chromatographic fingerprint and a densitogram to detect the presence of marker compounds in a plant sample. The advantage of HPTLC in the analytical testing of herbal products is that it provides positive identification as well as visualization of the separated fractions of the sample component and helps in quantitative, qualitative analysis with the same system. *Madanaphala (Randiadumetorum), Vacha (Acoruscalamus), Saindhava (Sodiichloridum), Madhu (Mal depuratum).* Root bark, root, stem and leaves of these herbs have high medicinal value. *Vamanayoga* is commonly used as drug of choice for *Amana* Procedure. So, current study is intended to evaluate *Vamanayoga* through physico-chemical and HPTLC analysis.

MATERIALS AND METHODS

Preparation of *Vamanayoga:* 6gms *Madanaphala* seed powder, 2gm *Vacha* powder, 5gm *Saindhava* are mixed gently with Honey with sufficient quantity that they can make a *Lehya* form is prepared.

Ingredients of *Vamanayoga* are summarized at Table 1.

Analytical study

Vamanayoga was subjected to organoleptic and physico-chemical parameters in order to develop analytical profile. Organoleptic characteristics like colour, odour, touch and taste were carried out. [Table 2] Physico-chemical analysis like loss on drying at 110°C.[3] pH value.[4] ash value.[5] water soluble extractive.[6] methanol soluble extractive,[7] A CAMAG (Switzerland) HPTLC system equipped with a sample applicator Linomat V was used for application of samples. In HPTLC profile, Chloroform: Methanol (9:1) was selected as solvent system. CAMAG TLC Scanner 3, Reprostar and Wincats 4.02 were used for scanning the plates. CAMAG twin through glass chamber was used for developing the plates. The developed plate was visualized under visible day light, short UV (254 nm),

long UV (366 nm) and after spraying with vanillin‑sulphuric acid reagent and again observed in daylight. The Rf values were recorded.

Instrumental Conditions

Application mode: Camag Linomat V, development chamber: Camag twin trough chamber, plate: Precoated Silica Gel GF254 plate, chamber saturation: 30 min, development time: 30 min, development distance: 10 cm, scanner: Camag scanner III**,** detection: Deuterium lamp and mercury lamp, data System: Win CATS software.

RESULTS AND DISCUSSION

Organoleptic characters

Vamanayoga has organoleptic characters like sweetish taste, Smoothtouch, brown colour and sweet odour. This sweetish taste is due to honey used in the preparation of *Vamanayoga.*

Physico-chemical parameters

Vamanayoga was used for physicochemical investigations by standard procedure adopted by Ayurvedic pharmacopoeia of India. Very low value of loss on drying is indicative of presence of very little amount of moisture. *Vamanayoga* is semisolid dosage form. Material absorbs moisture during the storage. Moisture will lead to the activation of enzymes to the proliferation of living organism in conjunction with a suitable temperature. Hence, moisture contents may affect the quality of the drug. Ash value is observed to be 8.864% w/w. Low ash value which indicates high percentage of organic contents. Very low value of loss on drying is indicative of presence of very little amount of moisture. Acid insoluble ash, water soluble extractive and methanol soluble extractive of *Vamanayoga* is observed to be 0.348% w/w, 69% w/wand 68.3%w/w respectively. [Table 3].

Chromatographic study

In HPTLC, in short UV-254 nm, maximum 7 spots were observed in *Vamanayoga.* Similarly in long UV-366nm, maximum no. of spot were observed in *Vamanayoga* are 6 in number. [Table 4] Nature of adsorbed components, if with different polarity, then total number of components and respective Rf values also differs. In short, nature of different matrix modulates both the studied parameters. Results obtained in current study are almost similar with earlier research work.[8] It provides strong evidence about minimum batch to batch variation.

Table 1: Ingredients of *Vamanayoga*

Sr.No.	Drugs	quantity
1	*Madanaphalapippali Churna* (Randia dumatorum)	6 gms
2	*Vacha* (Acorus calamus)	2 gms
3	Saindhava (Rock salt)	5 gms
4	Makshika (Honey)	30 gms

Table 2: Organoleptic characters of *Vamanayoga*

Sr.No.	Characters	Results
1	Colour	Brown
2	Odour	Sweetish
3	Taste	Sweetish salty
4	Touch	Smooth

Table 3: Physico-chemical profile of *Vamanayoga*

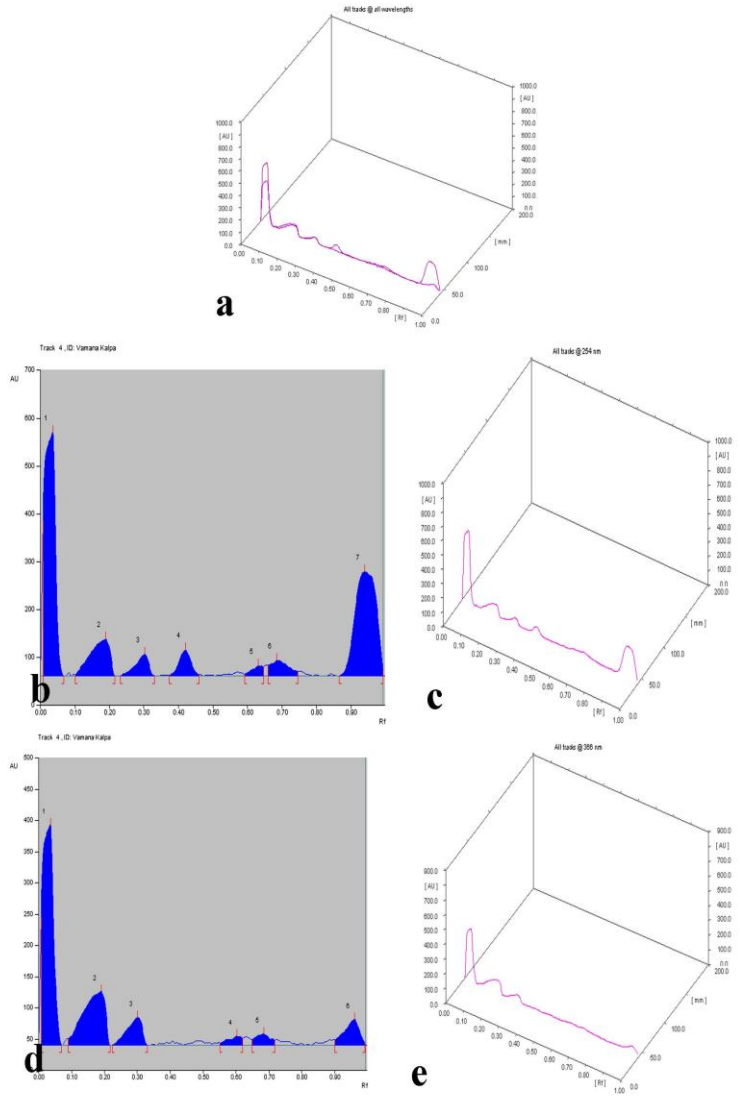
Sr. No.	Test	Results
1	Loss on Drying	10.159% w/w
2	Ash Value	8.864% w/w
3	Acid insoluble ash	0.348% w/w
4	Water soluble extract	69% w/w
5	Methanol soluble extract	68.3%w/w
6	pH	3.5

Table 4: Chromatographic results of *Vamanayoga*

Conditions	Number of spots
	Vamanayoga
Short ultra violet (254 nm)	7
Long ultra violet (366 nm)	6

Table 4: Chromatographic results of *Vamanayoga*

Conditions	***Vamanayoga***
Short ultra violet (254 nm)	0.04, 0.19, 0.30, 0.42, 0.63, 0.69,0.94
Long ultra violet (366 nm)	0.04, 0.19, 0.30,0.60, 0.68, 0.96



CONCLUSION

Results obtained in physicochemical parameters of *Vamanayoga* are within limit mentioned by Ayurvedic Pharmacopoeia of India. HPTLC profile of *Vamanayoga* showed differentiation in number of spots. This profile can be used for the identification of the medicinally important formulation of *Vamanayoga*. Present work can be considered as the first step towards identifying the followed methods through HPTLC analysis. This is a preliminary analysis and exact nature along with the characterization is to be carried out.

LEGENDS

Fig 1: (a): Densitogram of *Vamanayoga* b) Chromatographic results of *Vamanayoga* at Short ultra violet (254 nm), (c) Chromatographic results of *Vamanayoga* at Short ultra violet (254 nm), (d) Chromatographic results of *Vamanayoga* Long ultra violet (366 nm), (e) Chromatographic results of *Vamanayoga* Long ultra violet (366 nm).

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