



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

International Journal of Current Research
Vol. 10, Issue, 06, pp.70414-70417, June, 2018

INTERNATIONAL JOURNAL
OF CURRENT RESEARCH

RESEARCH ARTICLE

EVALUATION OF VALLI PANCHMOOLA THROUGH HYDRO SUSPENSION METHOD – NEW TECHNOLOGY

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ARTICLE INFO

Article History:

Received 08th March, 2018

Received in revised form

15th April, 2018

Accepted 19th May, 2018

Published online 30th June, 2018

Key words:

Cellular constituents,

Hydro suspension,

Microscopy,

Valli panchmoola.

ABSTRACT

Background: Suspension microscopy is a scientific way to observe the suspended matter in three parts. Concept arises from fresh *Hima* preparation. Normally any liquid preparation forms many layers after keeping sometime, with different qualities. Each and every layer consist different physical form, chemical form, organoleptic form and also at the micro level. Hydro suspension preparation forms different layers. If improper mixture is taken, Scientifically there may be a loss of active constituents in lower and upper layered mass i.e. tannins, oils, fibers, etc.

Objectives: Scientifically, the light weighted dusting particles occupy a top most upper layer, the heavy particles settled down at the bottom layer. The consumer consumes only the middle portion. There may be a loss of many cellular constituents. To overcome from this, the problem creates new concept of Hydro suspension microscopy to know the constituents which are present in the different layers.

Method: 5 g of both the compositions were taken individually and soak in 50 ml water in a measuring cylinder for 24 hrs in undisturbed condition. The next day, with the help of dropper, the microscopy of three different layers i.e. upper, middle and lower layers from both the compositions were done.

Result: Rhomboidal, Cluster and Rosette type of crystals, cork in surface view, etc. in upper layer. Middle layer shows annular vessel, parenchyma cell, etc. and lower layer shows collenchyma cells, simple fibre, etc.

Conclusion: Most of the constituents are settled down and very less portion of the drug is present at the middle and upper portion. In the microscopic study, the quantity of brown content, fibres and starch grain was high at the lower portion. The crystals and vessels were present at the upper and middle portion.

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Citation: Urvi B. Ashani and Dr. Harisha C.R. 2018. "Evaluation of valli panchmoola through hydro suspension method – new technology", *International Journal of Current Research*, 10, (06), 70414-70417.

INTRODUCTION

Ayurveda describes many group of drugs under the heading *Mishrakavarga* based upon either certain pharmacognostical or pharmacological properties such as *Triphala* (group of three fruits), *Trikatu* (group of three pungent herbs), and *Panchatikta* (group of five bitters herbs) for therapeutic applications. *Valli panchmoola* (Roots/Rhizome/Stolone of five climbers), one of these *Mishrakavarga* groups, is the combination of roots/rhizome/stolone of five climbers viz. *Vidarikanda*, *Sariva*, *Guduchi*, *Haridra* and *Meshshringi* (Sharma Priyavrata and Sharma, 2009). In *Ayurveda* there are different types of formulations viz. *Churna*, *Vati*, *Gutika*, *Hima*, *Phanta*, *Kwatha*, *Avaleha*, etc. which are made up of either single or combination of many raw drugs.

In case of *Hima kalpana* drug should be soaked in water and have to keep in undisturbed condition for few hours. Then it should be filtered or decanted and the liquid part is being used for medication (*Madhyamakhandra*, 2005). While doing pharmacognosy of this type of preparation it is found that some chemical and cellular constituents as well as secondary metabolites are not being found in final form as the preparation has been prepared by soaking and filtering or decanting. In pharmacognostical evaluation all formulations or preparations can be authenticated and identified as such. But it is difficult regarding *Hima*, *Phanta*, *Kwatha*, etc. So the concept arises of suspension microscopy from fresh *Hima* preparation. Suspension microscopy is a scientific way to observe the suspended matter in three different layers. Normally any liquid preparation forms many layers after keeping sometime, with different qualities. Each and every layer consist different physical, chemical and organoleptic characters also at the pharmacological and clinical level.

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A



B



C



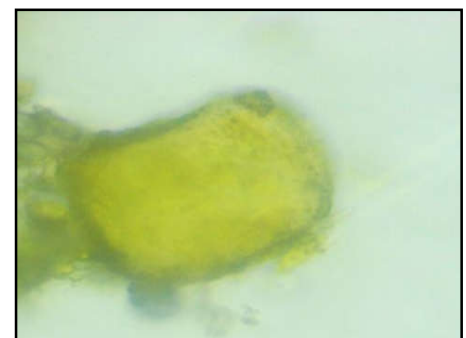
D



E



F



G



H

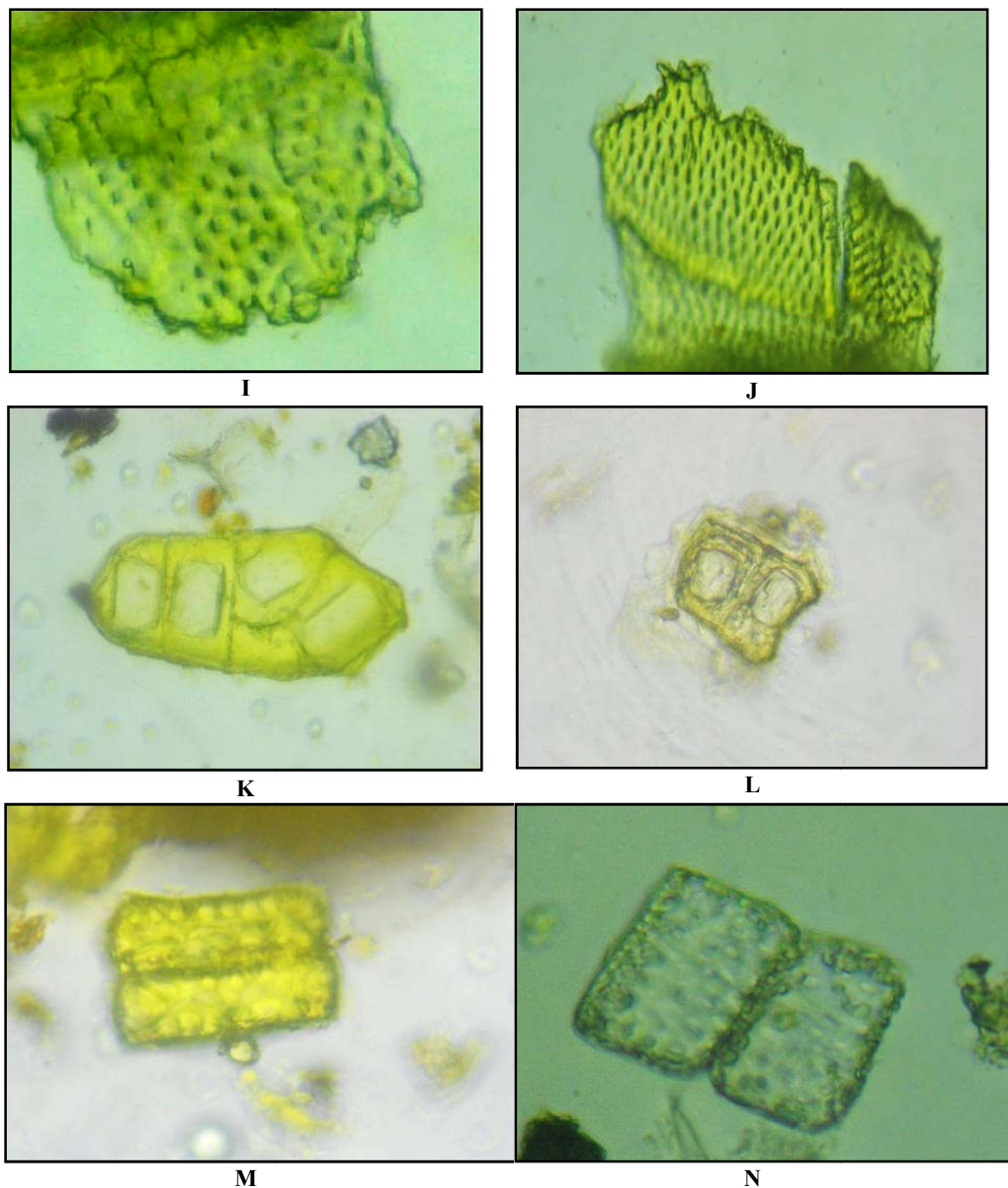


Figure 2.

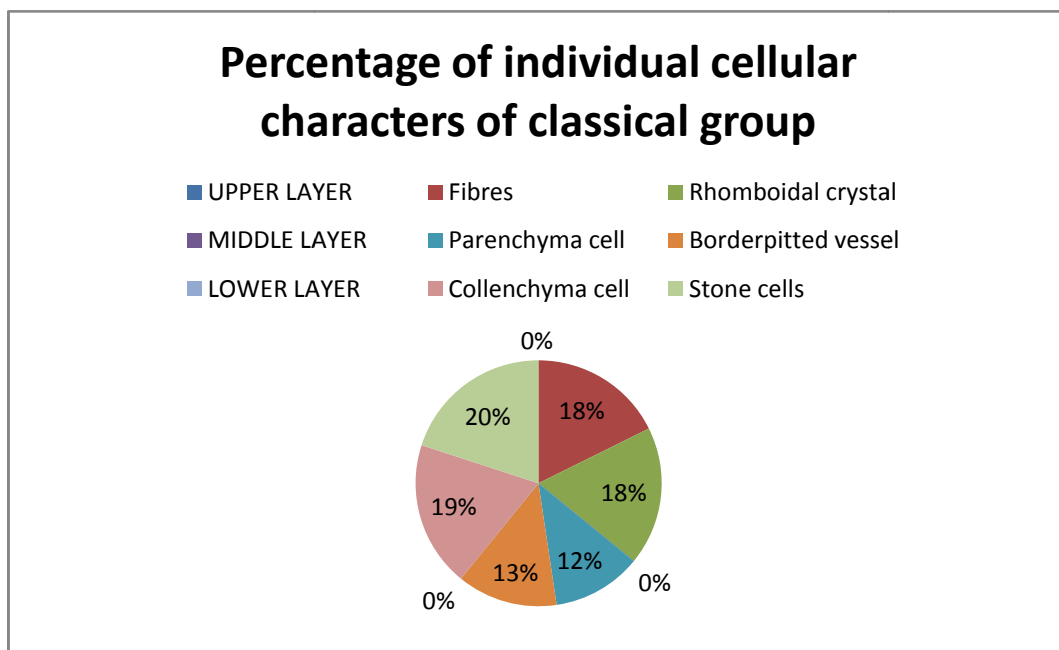


Figure 2.

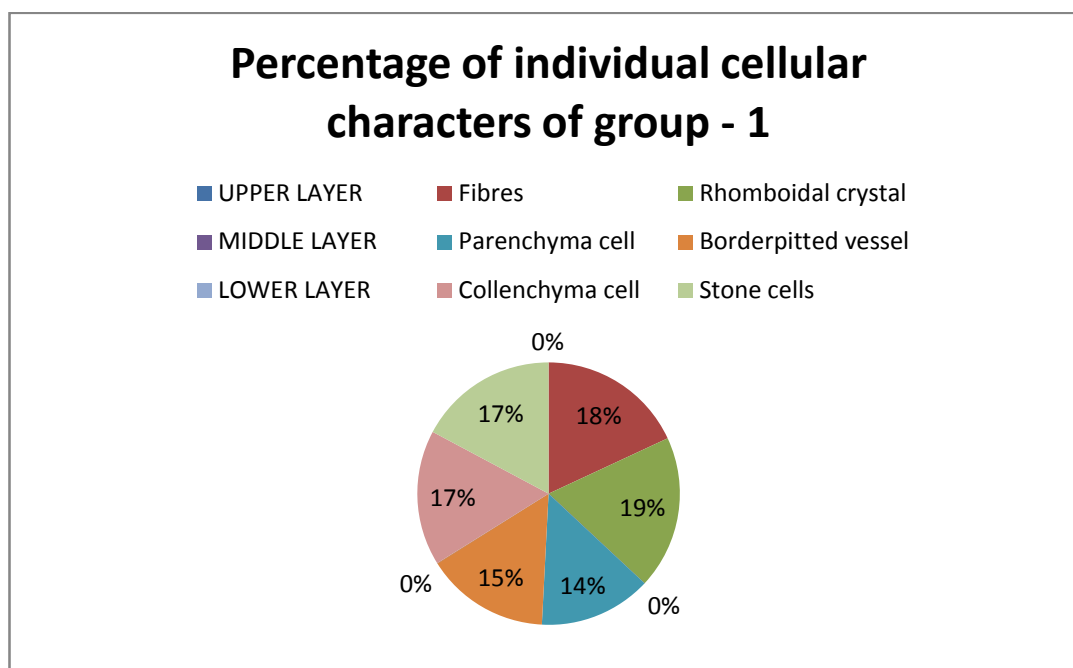


Figure 3.

MATERIALS AND METHODS

Requirements: Test tubes, Measuring cylinder, Beaker, Distilled water, both the composition samples i.e. classical group and Group - 1, glass rod and dropper.

Common ingredients:- <i>Vidari kand (Pueraria tuberosa DC)</i> , <i>Sariva (Hemidesmus indicus R. Br.)</i> , <i>Guduchi (Tinospora cordifolia L.)</i> , <i>Haridra (Curcuma longa L.)</i>	
Classical group (C.G.)	Common ingredients + <i>Meshashringi (Gymnema sylvestre R. Br.)</i>
Group - 1	Common ingredients + <i>Meshashringi (Damia extensa R. Br.)</i>

Observation and Results: 5 g of both the compositions were taken individually and soak in 50 ml water in a measuring cylinder for 24 hrs in undisturbed condition. The next day, with the help of dropper, the microscopy of three different layers i.e. upper, middle and lower layers from both the compositions were done. After 24 hrs of soaking the material, the color of the water was changed in the dark brown and the three layers were clearly observed.

Table 1. Suspension Microscopy

Layers	Characters	
	Classical Group	Group - 1
UPPER LAYER		
1. Fibers	+	++
2. Rosette crystals	+	++
3. Rhomboidal crystal	+	++
4. Cluster crystal	+	++
5. Cork in surface view	+	++
MIDDLE LAYER		
6. Parenchyma cells	+	+
7. Annular vessel	+	+
8. Border pitted vessel	+	++
LOWER LAYER		
9. Starch grains	++	+
10. Collenchyma cells	++	+
11. Tannin content	++	+
12. Oil globule	++	+
13. Stone cells	++	+

Present = '+' and highly present = '++'

The observed characters from suspension microscopy are mentioned in Table no.1 (Fig. 1) Estimation of concentration of individual cellular characters of classical group showed 18% fibres and rhomboidal crystal, 12% parenchyma cells, 13% border pitted vessel, 19% collenchyma cells and 20% stone cells (Fig.1-A,C,E,G,I,K,M respectively) Where in group - 1; 18% fibres, 19% rhomboidal crystal, 14% parenchyma cells, 15% border pitted vessel, 17% collenchyma cells and stone cells(Fig.1-B,D,F,H,J,L,N) (Fig. 2 and 3).

Discussion and conclusion on Hydro-Suspension Multi Layered microscopy

From the observation and results, it can be clearly stated that most of the constituents are settled down and very less portion of the drug is present at the middle and upper portion. Each and every chemical and cellular constituents and secondary metabolites have their own pharmacological and clinical outputs. In the microscopic study, the quantity of brown content, collenchyma cells, oil globules and starch grain were high at the lower portion. The crystals and vessels were present at the upper and middle portion. It is suggested that while preparing *Hima* or any liquid preparations should be taken as such or without filtration.

Conflict of Interest: Declared none.

Findings: No funding.

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