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PHAMACOGNOSTICAL AND PHRAMACUETICAL ANALYSIS OF *PHALA GHRITA*- AN AYURVEDIC POLYHERBLE FORMULATION

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ABSTRACT

Infertility is defined as the failure to achieve a pregnancy within one year of regular (at least three times per month) unprotected intercourse. Oligozoospermia i.e. sperm count less than 15 million /ml is one of the causes for infertility. Now a days oligozoospermia and infertility are common problems due to disturb daily routine, disturb food habits and mental stress on account of fast life. *Phala Ghrita* is a commonly used and prescribed Ayurvedic polyherbal formulation in Infertility. In classics, *Phala Ghrita* has been indicated in the management of *Shukra Dosha* and has been attributed as *Ayushyama*, *Paushtika*, *Medhya* and *Pusamvana Karma*. Till date no pharmacognostical and pharmaceutical analysis of *Phala Ghrita* has been carried out. The main aims and objectives of this study to develop the pharmacognostical and phytochemical profile of *Phala Ghrita*. The pharmacognostical study reveals the presence of starch grains of *Ashwagandha*, Tannic contents of *Bibhitaki*, oil resin of *Haridra*, acicular crystal and prismatic crystal of *Manjishtha*, raphides and scalariform vessel of *Shatavari*, stone cell and lignified cell of Tagar, compound starch grain of *Yashtimadhu* Pharmaceutical evaluation showed loss on drying 13% w/w, pH 5.5. HPTLC results showed 8 spots at 254nm and 4 spots at 366 nm.

KEYWORDS: *Phala Ghrita*, pharmacognosy, pharmaceutical analysis, oligozoospermia.

INTRODUCTION

Shukra kshaya (oligozoospermia) is a condition in Ayurveda in which there is deficiency in quality and quantity of *Shukra* responsible for Infertility. Some of the known responsible factor for male infertility are poor semen quality, endocrine inter relationship, testicular function and genetical factors etc.[1] Among these, oligozoospermia contributes as one of the major factor of infertility. Today mental stress, tobacco & alcohol addiction, pollution, faulty eating & clothing habit, change in culture etc. have endangered reproductive capacity of men, leading oligozoospermia (*Ksheena Shukra*) and ultimately to infertility.According to *Sushruta*, due to indulgence in various etiological factors, *Dushti* of *ShukravahaStrotas* takes place which results in diminution of production of *Shukra Dhatu* which is also not up to its mark and is ejaculated in low volume.[2] In classics, *Phala Ghrita*.[3] has been indicated in the management of *Shukra Dosha* and has been attributed as *Ayushyama, Paushtika, Medhya* and *Pusanvana Karma*.

Though *Phala Ghrita* is known drug for *Shukra vaha SrotoDushti*, till date no work has been done to standardise the *Phala Ghrita* through pharmacognostical and Physico- chemical parameters, hence in the present study *Phala Ghrita* was subjected to pharmacognostical and pharmaceutical analysis.

MATERIAL AND METHODS

Collection of the drug

Phala Ghrita ingredients have been collected and prepared from the Pharmacy, G.A.U., Jamnagar. The ingredients and the part of *Phala Ghrita* used are given in Table no1.

Pharmacognostical Evaluation

As per API.[4] raw drugs were identified and authenticated by the Pharmacognosy Laboratory. The identification was carried out based on the organoleptic features and powder microscopy of the individual drugs. Later, pharmacognostical evaluation of *Phala Ghrita* was carried out. *Phala Ghrita* was studied under the Carl Zeiss Trinocular microscope attached with camera, with stain and without stain. The microphotographs were also taken under the microscope.

Method of preparation

Coarse powder of above mentioned drugs in equal quantity will be fried in *Ghrita*, then four times of milk will be added and will be cooked till *Samyaka Sneha Paka* features are attained.

Physicochemical evaluation

Ghrita is analyzed using various standard physicochemical parameters such as Loss on drying[5], PH.[6],water soluble extract[7], and methanol soluble extract[8] as per API at the pharmaceutical chemistry laboratory, IPGT&RA, Jamnagar.

HPTLC STUDY

HPTLC First of all take a drop of sample and diluted with haxen (as per require) then application of the sample at the one end of the precoated plate through linomat V (150 µl/sec) then on the sample zone again applied 7% alcoholic KOH then leave for 10-15 minutes at 60-80ºc in oven. The plate is then developed by the suitable mobile phase in a chromatographic chamber which was previously saturated with the mobile phase. Then after development it is visualized into day light, short UV (254nm) and/or by derivatiza reagent. The Rf value and the colors of resolved bands and fingerprinting profiles are recorded.

OBSERVATION AND RESULTS

Pharmacognostical Evaluation

Organolaptic Character

A low melting Ghrita, greenish yellow in colour with pleasant odour and astringent taste.

Microscopical Characters

Diagnostic characters of *Ghrita* under the microscope are starch grains of *Ashwagandha*, Tannic contents of *Bibhitaki*, oil resin of *Haridra*, mesocarp cell and scleride of *haritaki*, fragments of fibre and cork cell of *Katuki*, oleoresin with cristal, pitted resin of *Kushtha*, acicular crystal and prismatic crystal of *Manjishtha*, raphides and scalariform vessel of *Shatavari*, stone cell and lignified cell of *Tagar*, compound starch grain of *Yashtimadhu* (Plate No. 1, Fig. A-R)

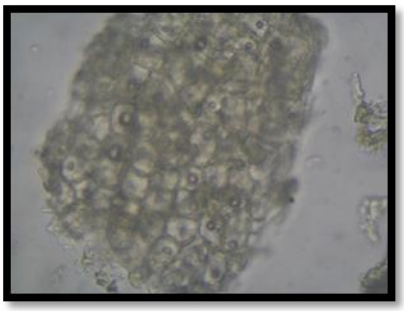
Preliminary Physico Chemical Parameters

Preliminaory Physico Chemical Parameters ie., loss on drying , PH, water soluble extract, alchohole soluble extract, saponification value etc. were properly studied and results are depicted in the Table no. 2

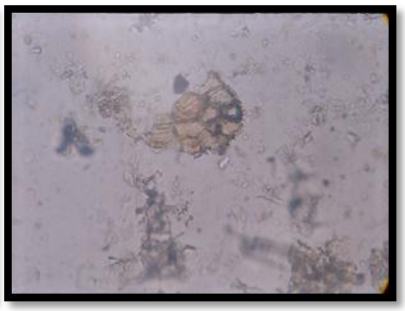
HPTLC Results

HPTLC Results of *Phala Ghrita* showed that 8 spots at 254nm and 4 spots at 366nm. Detailed results are depicted in the Table No. 3

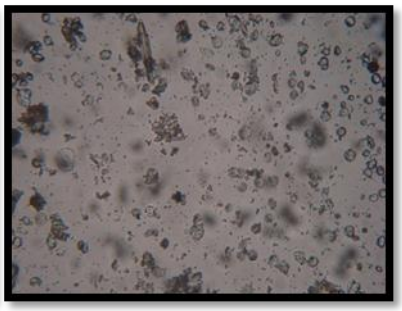
Plate No: 1. Micro Photographs of *Phala Ghrita*



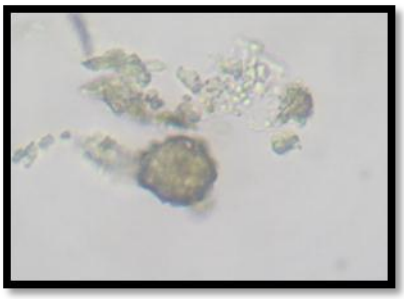
A. Endosperm cells of *Ajmoda*



B.Cork in surface of *Ashwagandha*

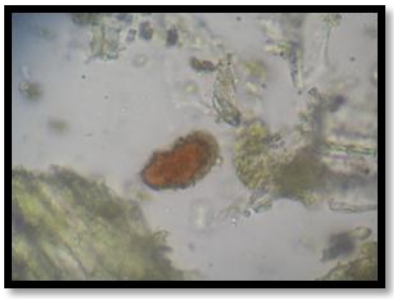


C.Starch grains of *Ashwagandha*



D. rosery crystal of *Bibhitaki*

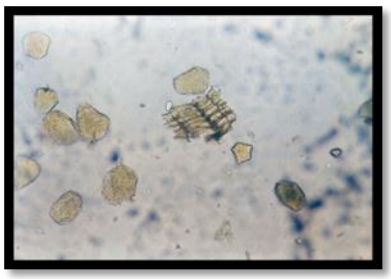
E. Trichome of Bibhitaki



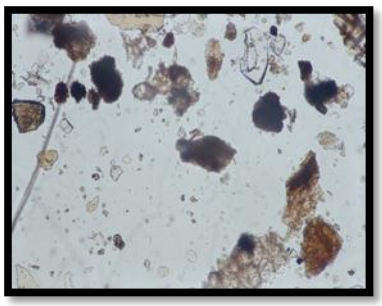
F. Tennin content of *Bibhitaki*

G. oleoresin of Haridra

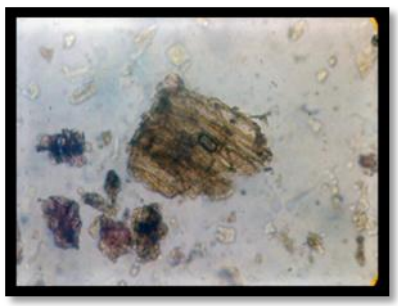
H. Mesocarp cell of Haritaki



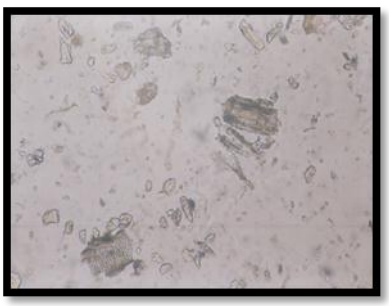
I. Cork of Haridra



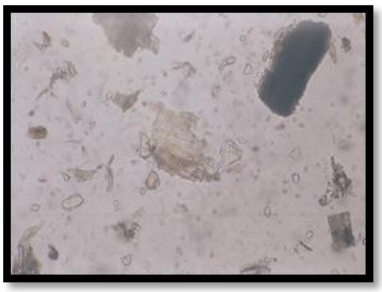
J. Yelowish brown resin of Katuki



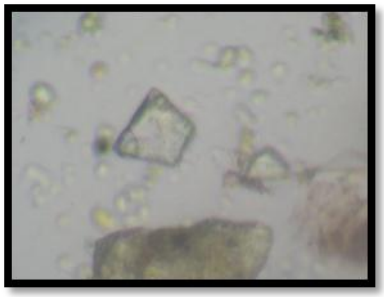
K. Fragments of fiber of Katuki



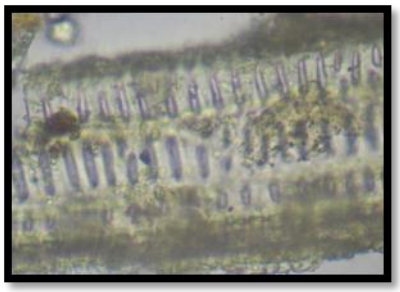
L. Pitted vessels of kushtha



M. Pitted vessels of Kushtha



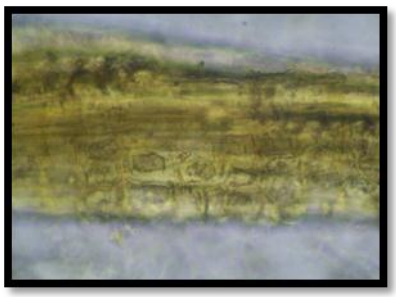
N. Prismatic crystals of Manjishtha



O.Scalariform vessels of Shatavari

P.Raphides of shatavari

Q. Stone cells of Tagar



R. Crystal fibres of Yashtimadhu

Plate N0. 2: HPTLC of *Phala Ghrita*

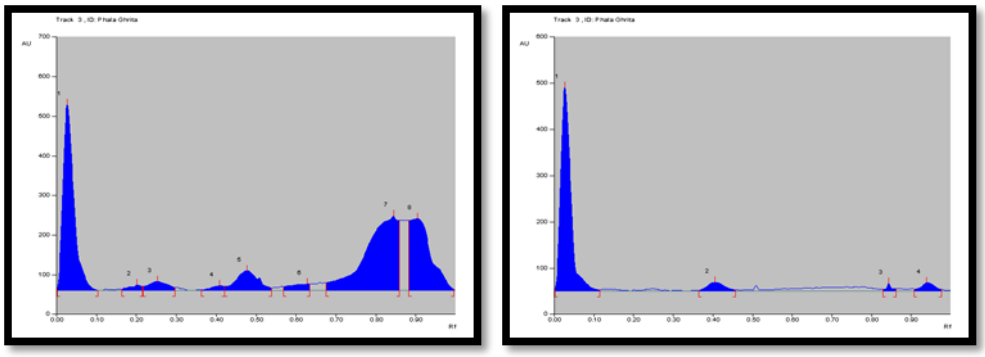


Table 1.Ingradients of *Phala Ghrita*

No.	Drug.	Latin Name	Part Use
1.	*Manjishtha*	*Rubia cordifolia Linn. (Rubiaceae)*	Root
2.	*Tagar*	*Valeriana wallichiDC(Valerianaceae)*	Root
3	*Haritaki*	*Terminalia chebula Retz.*	Fruit
4	*Amalaki*	*Embelica officinalis Gaertn.*	Fruit
5	*Bibhitaki*	*Terminalia belirica Roxb.*	Fruit
6	*Kushtha*	*Saussurea lappa C.B.clarke (Compositae)*	Root
7	*Vacha*	*Acorus calamus Linn. (Araceae)*	Rhisome
8	*Haridra*	*Curcuma longa Linn. (Zingiberaceae)*	Rhisome
9	*Daru Haridra*	*Berberis aristata DC (Berberidaceae)*	Bark
10	*Madhuka*	*Glycyrrhiza glabra Linn.*	Bark
11	*Ajmoda*	*Apium graveolens Linn. (Umbelliferae)*	Seed
12	*Katuki*	*Picrorhiza kurroa Royleex Benth. (Scrophulariaceae)*	Root
13	*Payashya*	*Ipomea digitata Linn. (Convolvulaceae)*	Bulb
14	*Hingu*	*Ferula foetida Regal. (Umbelliferae)*	Gum resin
15	*Ashwagandha*	*Withania somnifera Dunal. (Solanaceae)*	Root
16	*Shatavari*	*Asparagus racemosus willd (Lilliaceae)*	Root
17	*Goghrita*	-	-

In the original reference, *Meda* and *Kakoli* are mentioned, but as these drugs are not available, instead of it two parts of *Shatavari* and *Ashwagandha* will be used.

TableNo.2: Preliminary Physico Chemical Parameters of *Phala Ghrita*

Sr. No	Test	Results
1.	Acid value	3.1868
2.	Specific gravity at 40^0 C	0.9315
3.	Saponification value	195.094
4.	Iodine value	38 to 41
5.	Water soluble extract	9%w/w
6.	Methanol extract	25%w/w
7.	pH	5.5
8.	Refractive index at 40^0 C	1.4690

Table No. 3: HPTLC Results of *Phala Ghrita*

Sample	Detection Condition	No. of spots	Rf value
Phala Ghrita	254 nm	8	0.01,0.20,0.25,0.41,0.48,0.64,0.86,0.94
	366nm	4	0.01, 0.40, 0.86, 0.94

DISCUSSION

Phala Ghrita has been indicated in the management of *Shukra Dosha* and has been attributed as *Ayushyama, Paushtika, Medhya* and *Pusanvana Karma*.

Pharmacognostical evaluation showed that the presence of the drug microscopic characters ie. presence of starch grains of *Ashwagandha*, Tannin contents of *Bibhitaki*, oil resin of *Haridra*, mesocarp cell and scleride of *Haritaki*, fragments of fibre and cork cell of *Katuki*, oleoresin with cristal, pitted resin of *Kushtha*, acicular cells and prismatic crystal of *Manjishtha*, raphides and scalariform vessel of *Shatavari*, stone cell and lignified cell of *Tagar*, compound starch grain of *Yashtimadhu* This showed that the good quality of the finished product. The preliminary physicochemical parameters were within the limits.

CONCLUSION

Preliminary organoleptic features and results of powder microscopy reveal presence of starch grains of *Ashwagandha*, Tannin contents of *Bibhitaki*, oil resin of *Haridra*, mesocarp cell and scleride of Haritaki,fragments of fibre and cork cell of Katuki, oleoresin with crystal, pitted resin of Kushtha, acicular crystal and prismatic crystal of Manjishtha, raphides and scalariform vessel of *Shatavari*, stone cell and lignified cell of Tagar, compound starch grain of *Yashtimadhu*, etc. In preliminary physico-chemical analysis, water-soluble and alcohol-soluble extract, pH, and loss on drying were assessed were within the standard range and HPTLC results of *Phala Ghrita* showed that 8 spots at 254nm and 4 spots at 366nm. As no published information is available on pharmacognostical and physico-chemical profile of *Phala Ghrita*, this preliminary information can be used for reference in future.

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