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PHARMACOGNOSTICAL AND PHARMACEUTICAL ANALYSIS OF KANTAKARYADI KASHAYA- FOR BEEJAKOSHA GRANTHI (OVARIAN CYST)

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ABSTRACT

Kantakaryadi Kashaya is a polyherbal formulation containing various Ayurvedic medicinal drugs and is mentioned in *Sahastra yoga*. *Sahastra Yoga* has Cleary mentioned *Kantakari, Varuna, Agnimantha, Shigru, Shunthi, Punarnava Siddha Kashaya*in context of *Antarvidradhi*. *Granthi* and *Vidradhi* having similar *Dushya* like *Mamsa, Asruk, and Meda*. So, line of treatment *Vidradhi* and *Granthi* can be same. Ovarian cyst thought mostly benign pose a diagnostic dilemma to the gynaecologist as well as to the pathologist. Ovarian cyst is an emerging problem among the women of reproductive age group. Ovarian cysts are seen in all age groups and are subdivided in physiological and pathological cysts.[1] *Kantakaryadi Kashaya* can be a promising formulation in the management of ovarian cyst. In the present study, an attempt has been made to develop pharmacognostical and pharmaceutical standards for *Kantakaryadi Kashaya*. For assurance of quality of herbal compounds pharmacognostical and pharmaceutical analysis should be done. **Methods:** *Kantakaryadi Kashaya* was subjected to microscopic evaluation for pharmacognostical study, physic-chemical analysis like hardness, weight variation, and loss on drying, ash value, acid insoluble extract, pH value, water soluble extract, alcohol soluble extract, and high-Performance thin layer chromatography (HPTLC). **Results:** Pharmacognostical study showed the presence of certain identifying

characters of all of the ingredients of that is *KANTAKARYADI KASHAYA* is *Kantkari, Agnimanth Varun, Shunthi, Punarnava, Shigru*. In pharmaceutical study, preliminary physico-chemical analysis showed that, ash value 09.30%w/w, loss on drying 8.40%w/w, water soluble extract 11.3%w/w, alcohol soluble extract 04.00%w/w. HPTLC analysis showed nine spots in 254nm and seven spots in 366nm. **Conclusion:** Present work was carried out to standardize the polyherbal formulation *Kantakaryadi Kashaya* in terms of its identity, quality and purity. Pharmacognostical and physico-chemical observations revealed the specific characters of all active constituents in the preparation.

KEYWORDS: *Kantakaryadi kashaya,* Pharmacognocy, Pharmaceutics, overian cyst.

INTRODUCTION

Ayurveda has forced upon principles more than any other thing and that is why anything which not described in classics can be understood based on principles. Acharya Charaka has first enumerated all the diseases[2] and then established the fact that diseases are innumerable.[3] This reference encourages and gives the route to explore the newly discovered diseases based totally on four fundamentals i.e. *Prakriti* (root cause), *Adhishthana* (seat), *Linga* (clinical features) and *Ayatana* (etiological factors).After collecting all the references from Ayurveda classics, ovarian cyst can be concluded that it is a disease with multiple etiopathology and mixed symptoms or sometimes asymptomatic. It is a *Sanga* and *Siraja Granthi Pradhana Vyadhi* which is the result of *Avarana* in *Raktavaha, Mamsavaha* and *Medovaha Srotas*. *Acharya Sushruta* has given elaborate description of *Granthi* from its etiopathogenesis classification and its management, but not mentioned about neoplastic swelling of female genital organs, though a reference related to *Granthi* of male genital tract is available.

Samanya Chikitsa includes some common procedures which enhance immunity and make the patient fit for specific type of treatment as well as to bear ultimate consequences of treatment and to have an early relief. It includes various procedures of *Panchakarma* e.g. *Snehana* (*Sarshapa* oil), *Swedana* (*Pinda*), *Vamana, Virechana* & *Basti* etc. By which over-accumulated *Doshas* are expelled and fortified *Sneha* which are *Agni-deepaka, Pachaka* and *Ojo- Vardhaka*. It also includes such kind of Conservative treatment which improve immune mechanism and revert the disease process e.g. *Kanchanara Guggulu* (B.P.44/34-44), *Chandraprabha Vati* (S.S.M.K.), *Triphala Guggulu, Varunshigru Kwatha* etc.have been mentioned in Ayurveda. For the present study, a polyherbal formulation contains same

amount of herbal drug (table no:1) that is *Kantakaryadi kashay* has been selected for present study.

Sahastrayoga has Cleary mentioned *Kantakari, Varuna, Agnimantha, Shigru, Shunthi* and *Punarnava Siddha Kashaya* in context of *Antarvidradhi*. *Granthi* and *Vidradhi* are having similar *Dushya* like *Mamsa, Asruk,* and *Meda*. So, line of treatment *Vidradhi* and *Granthi* can be same. *Kantakaryadi Kashaya* is mentioned in *Sahastra Yoga* for the treatment of *Antarvidradhi. Kantakaryadi Kashya* has *Shothahara, Vedanasthapana, Deepana, Pachana, Garbhashaya-Samkochaka,* and *Raktashodhaka* properties, reduced serum cholesterol (solasodine). It is anti-inflammatory; it is used in difficult labour, constipation.[5]

Active ingredients of *kantakaryadi kashaya* has *ushana,* *Laghu, Tikshana, Snigdha, Madhura, Anulomana, Asmadoshahara, Bhedana, Dipana, Hridya, Pachana, Kaphahara, Rochana, Svarya, Vrishaya Vatahara, Vatakaphapaha* properties[6] *Poonarnava* and *Agnimantha* are an anti-inflammatory agent in inflammatory process.[7] *Poonarnava* and *Agnimantha* are having *Shothahara* property.[8] *Kanchanara Guggulu* with the *Anupana* of *Kantakaryadi Kashaya* works by its *VatakaphaShamaka, Antarvidradhihara, Shothahara, Lekhana,* and *Kaphavatahara, Pachana, Vatanulomana, Strotoshodhana* properties of it. By its Antioxidant, Anticancer and Antimicrobial properties of *Shamana Yoga* acting as free radical scavenger, it might also help to decrease the size of *Beejakosha Granthi*. The combined use of those reduces the *Shotha* from the Ovary. Due to their *Lekhana* properties scrapping of the Cyst occur and remove from *Artavavaha Srotas*. These complete acts blended on *Beejakosha Granthi* and reduce the size &symptoms of *Beejakosha Granthi*.

AIMS AND OBJECTIVES

1. To evaluate raw drugs of *Kantakaryadi Kashaya* for authenticity through various pharmacognostical procedures.
2. To develop the pharmacognostical and phyto-chemical profile of *Kantakaryadi Kashaya.*

MATERIALS AND METHODS

Collection, Identification and Authentication of raw drugs

The raw materials were collected from the pharmacy of Gujarat Ayurved University, Jamnagar. All the raw drugs were identified and authenticated in the Pharmacogonosy

Laboratory, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University Jamnagar.

Preparation of drug

Coarse power of *Varuna Agnimantha, Kantakari, Shunthi, Punarnava, Shigru* mentioned in table no.1 will be taken equal part, then 6 part of water will be added and boiled till 4th part reaming, That remaining quantity of the *Kashaya* will be given to the patient.

Pharmacognostical study

The Pharmacognostical study comprises of organoleptic study and microscopic study of finished product.

Organoleptic study

The Organoleptic characters of polyherbal drugs are very important and give the general idea regarding the genuinity of the sample. Organoleptic parameters i.e. taste, colour, odour and touch of *Kantakaryadi Kashaya* were scientifically studied as per the standard references.[9]

Microscopic study

Kantakaryadi Kashaya was powdered and dissolved with water and microscopy of the sample was done without stain and after staining with phloroglucinol + HCl. Microphotographs of *Kantakaryadi Kashaya* ware also taken under Corl-zeisstrinocular microscope.[10]

Physico-chemical analysis

Kantakaryadi Kashaya was analyzed using various standard physico-chemical parameters. The common parameters mentioned for compressed tablets in Ayurvedic Pharmacopia of India,[11] and CCRAS[12] guidelines are loss on drying, total ash value, acid insoluble ash, pH value, water soluble extract, methanol soluble extra total ash, and water and alcohol soluble extractives.

High Performance Thin Layer Chromatography (HPTLC)

HPTLC was performed as per the guideline provided by API. Methanolic extract of drug sample was used for the spotting. HPTLC was performed using Toluene +Ethylacetate + Acetic acid (7:2:1) solvent system and observed under visible light. The colour and Rf values of resolved spots were noted.

RESULTS AND DISCUSSION

Organoleptic characters of *Kantakaryadi Kashya*

Organoleptic characters contents of ***Kantakaryadi Kashya*** like colour, taste, touch, odor were recorded. The color of ***Kantakaryadi Kashya*** was pale yellow to brown. ***Kantakaryadi Kashya*** contain its charactistic smell and *Katu*, *Tikta* and *Kashaya* taste which is shown in **(Table no-2).**

Microscopic characters identified of kantakaryadi kashaya

Identifying characters of ingredients of *kanakaryadi kashayas* under the microscope were Stone cell on group of *Shigru*, Stone cell in group of *Kantakari*, pitted vessels of *Kantakri*, Fibres of *Varun*, Fibres of *shirgu*, rhomboidal crystal of *varun*, lignified fibre of *agnimanth*, *kankari*, cluser crystal of *varun*.**(Image 1-6)**

Physico-chemical analysis of Kantakaryadi kashay

The *kantakaryadi kashaya* was evaluated for Physico-chemical parameters like Loss on Drying 8.40%w/w, Ash Value 9.3%w/w, Water soluble extract 11.3%w/w, Methanol soluble extract 4%w/w, pH 7(**Table no-3)**

High Performance Thin Layer Chromatography (HPTLC) for *kantakaryadi kashaya*

On performing HPTLC, the chromatogram of *Kantakaryadi Kashaya* showed 09 peaks with maximum R_f values 0.02,0.15,0.21,0.25,0.39,0.51,0.67,0.71,0.85 at short wave UV 366 nm; while at long wave UV 254 nm, the chromatogram showed 7 spots with maximum R_f values 0.02,0.17,0.40,0.46,0.52,0.71,0.85.**(Table No.4)**. Though it was not possible to identify particular chemical constituent from the spot obtained, the pattern may be used as a reference standard for further quality control researches. **(Images: 10-11).**

Table 1: Ingredientsof *kantakaryadi kashaya.*

Drug	Botanical name	Partused	Praportion
Varuna	*Crataevanurvala* Buch.-Ham.	Stem Bark	1 part
Agnimatha	*Premna mucronata*- Roxb.	Stem Bark	1 part
Kantakari	*Solanum surattense* Burm.f.	Whole Plant	1 part
Shunthi	*Zinziber officinalia* Roscose	Rhizom	1part
Punarnava	*Boerhaviadiffusa* Linn.	Root	1 part
Shigru	*Moringapterygosperma* Gaertn.	Stem Bark	1 part

Table 2: Organoleptic analysis of *kantakaryadi kashaya.*

Physical properties	*Kantakaryadi kashaya*
Color	Pale yellow to brown
Odor	Characteristic
Taste	*Kashaya, Katu, Tikta*
Touch	Coarse powder Rough

Table 3: Physico-chemical analysis.

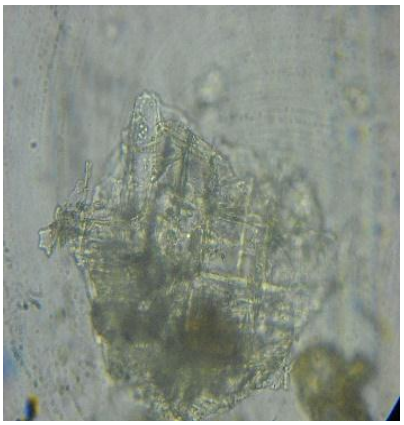
No.	Name of the Test	Value
1.	Loss of drying (at 110^{o}c)	8.40%w/w
2.	Ash Value	9.30%w/w
4.	Water soluble extraction	11.3%w/w
5.	Alcohol soluble extraction	4%w/w
6.	pH value by pH paper	7

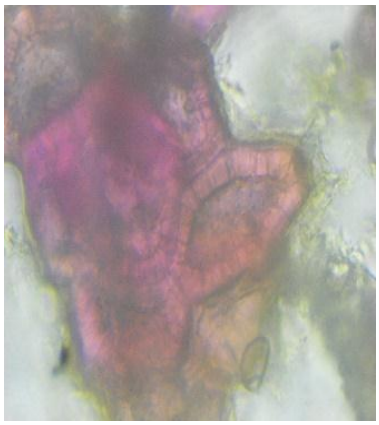
Table 4: High performance thin layer chromatography of *kantakaryadi kashaya.*

Wave length	No. of Spot	Rf value
254 nm	9	0.02,0.15,0.21,0.25,0.39,0.51,0.67,0.71,0.85
366 nm	7	0.02,0.17,0.40,0.46,0.52,0.71,0.85

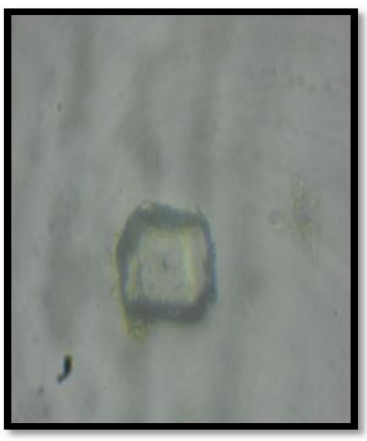
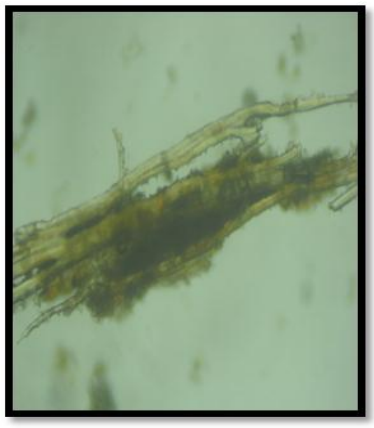
Microphotographs of contents of *kantakaryadi kashaya*

1. Cork cells of *Agnimatha* **2. Stone cells of *Kantakari*** **3. stone cells of *Varun***





4. Fibres of *Varuna* **5. Rhomboidal crystal of *Varuna*** **6. Fiber of *Shigru***

7.Lignified fiber of *agnimantha* 8.Cluster crystal of *varuna* 9.Pitted vessels of *kantakari*

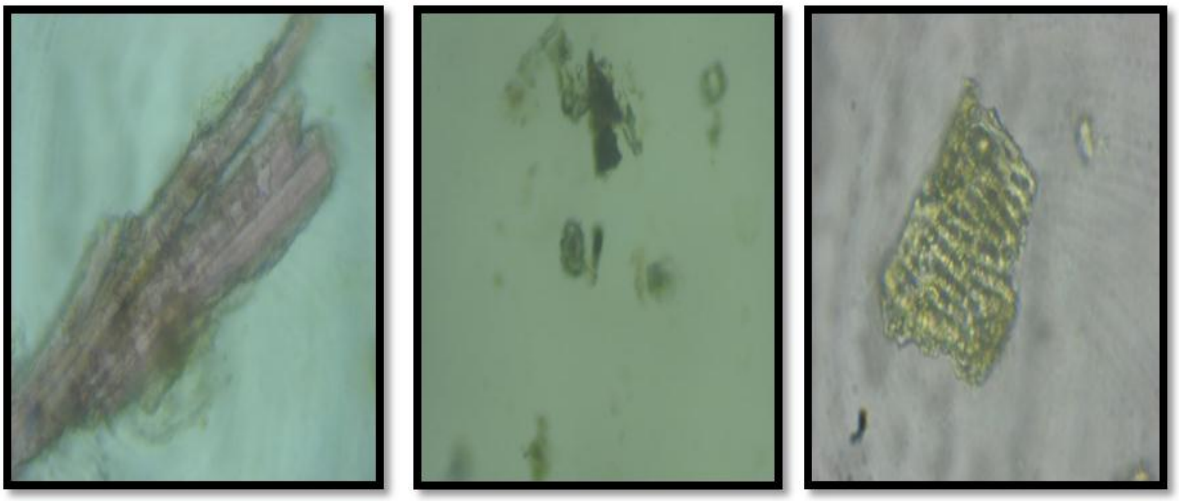
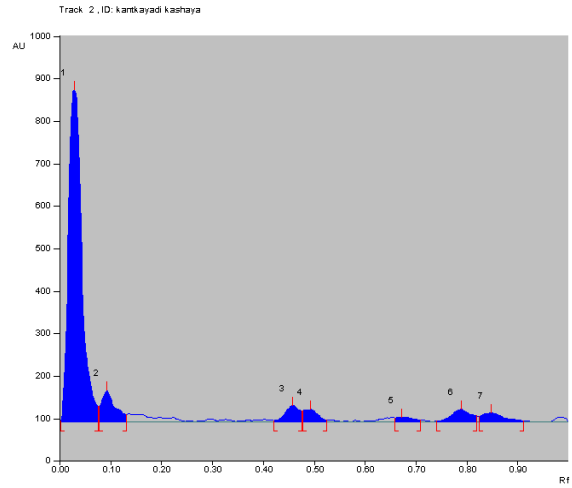
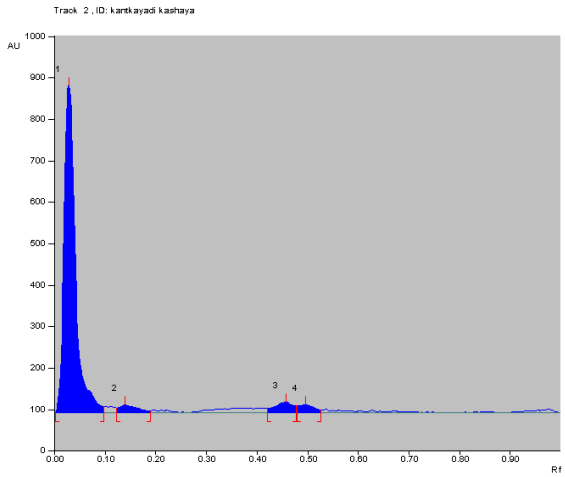


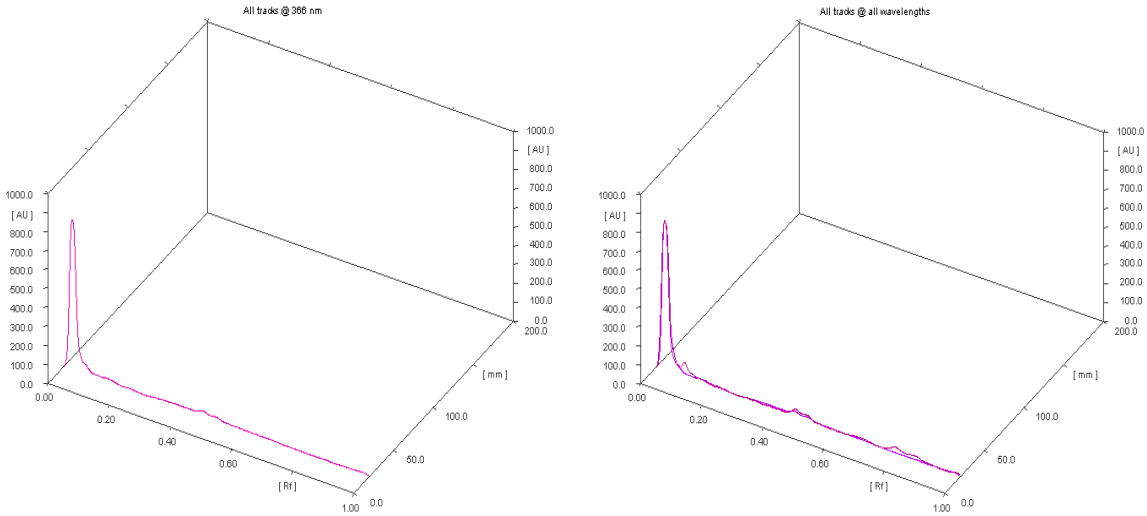
Plate: HPTLC of *kantakaryadi kashaya*



10. Peak display 254nm



11. Peak display 366nm



Peak display 254nm peak display 366nm

CONCLUSION

The *Kantakaryadi Kashaya* has a good potency for treating *Rakta*, *Mansaja* and *Medaja Vikaras* like *Beejakosha Granthi* (Ovarian cyst). In today's era most important is given to standardization of drug for assurance of quality. Keeping this aim in mind current study was planned. The ingredients of *Kantakaryadi Kashaya* were identified and authenticated pharmacognostically. Pharmacognostical study reveal genuineness of drug, as all the characters of ingredients were observed microscopically. Physico-chemical and HPTLC studies inferred that the formulation meets the minimum quality standards as reported in the API at a preliminary level. Additional important analysis will be required for the identification of active chemical constituents of the test drug.

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