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Research Article

PHARMACOGNOSTICAL, PHYTOCHEMICAL AND HPTLC PROFILE OF *VAYASTHAPANA GANA CHOORNA* AND *VAYASTHAPANA GHRITA*- A POLY-HERBAL COMPOUND

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ABSTRACT

Menopausal syndrome is a grouping of signs and symptoms associated with menopause. In Ayurveda, menopause is referred to as *'Rajonivrutti'* (and menopausal syndrome as *Rajonivruttianubandhaja vyadhies*). Menopause's long-term risks include osteoporosis, cardiac problems, and Alzheimer's disease. **Aims and objective:** To study the Pharmacognostic, Phytochemical and HPTLC of *Vayasthapana Gana Choorna* and *Vayasthapana Ghrita.* **Material and methods:** Pharmacognostic, phytochemical and HPTLC of *Vayasthapana Gana Choorna* and *Vayasthapana Ghrita* have been carried out as per standard protocol. **Result:** *Vayasthapana Gana Choorna* showed the presence of mesocarp, asicular crystals, stone cells, scleroids, brown content, starch grains, colencyma cells, rhomboidal crystals, pitted vessels, parenchyma cells, simple trichome. Phytochemical parameters showed refractive index 1.3660, specific gravity 0.913, acid value 1.285, iodine value 212.1085 and in HPTLC, Methanol extract of *Vayasthapana Ghrita* at 254nm showed 6 spots and at 366nm 2 spots whereas in methanol extract of *Vayasthapana Gana Choorna* at 254nm 5 spots and in 366nm 4 spots were present. **Conclusion:** The applied pharmacognostic and HPTLC method has been shown to be selective, linear, precise and accurate. The method will be useful for quality control of the raw material and pharmaceutical preparations.

INTRODUCTION

'Menopause' is formed by Greek term '*Menos*' (month) and '*Pausis*' (cessation). Menopause is a natural condition occurring between 45 and 55 years of age. Menopause at the end of reproductive life is the permanent stoppage of the menstrual system owing to lack of follicular activity. Unusual times, hot flushes, sweats at night, vaginal dryness and moods, these are all common signs of menopause. The long-term risks of menopause include osteoporosis, cardiac problems, Alzheimer's disease etc. Menopause is called *'Rajonivrutti'* in Ayurveda (and menopausal syndrome as *Rajonivruttianubandhaja vyadhies*). Menopausal symptoms in Ayurveda, which arise as a normal and progressive ageing consequence, are seen as imbalances of the *Dosha* [*Vata*, *Pitta*, *Kapha*] and *Dhatukshaya*[1]. The incidence of menopause increases rapidly after the age of 41 years. By the age of 48-49 years, two third of women are in menopause [2]. As per the projected figures by 2026, the menopause population in the age group 40-60 in India is estimated to be about 103 million[3].

As women complete the transition to menopause, an estimated 85% report more than one symptom and makes visit to health care providers [4]. Menopausal phase is characterized by aggravation of *Vata,* altered action of *Pitta* and *Kaphakshaya*. *Acharya* considered it as a sign of *Jara,* which result in gradual depletion of *Dhatus, Upadhatus* and ultimately *Ojas.* Due to *Jaraavastha, Vatavardhana* causes dominance of *Raja* and *Tama guna* resulting in *Grahana, Dharana, Vijnanahani* and *Manovaha srotodushti.*

Present work was carried out to standardize and evaluate the pharmacognostical as well as to analyze the physico-chemical properties of *Vayasthapana Gana Choorna* and *Vayasthapana Ghrita*.

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AIM AND OBJECTIVE

To study the Pharmacognostic, Phytochemical and HPTLC of *Vayasthapana Gana Choorna and Vayasthapana Ghrita.*

MATERIAL AND METHODS

Drug Material: All the raw drugs were obtained from Pharmacy of Gujarat Ayurveda University, Jamnagar. The ingredients and the part used are given in (Table 1).

Table 1: *Vayasthapana gana* [C.Sutra 4/18]

No	Name of Drug	Botanical name (Latin name)	Part used	Part
1.	*Guduchi*	*Tinospora cordifolia* wild	Dry Stem	1
2.	*Haritaki*	*Terminalia chebula* Retz.	Dry Fruit	1
3.	*Amalaki*	*Emblica officinalis* Gaertn.	Dry Fruit	1
4.	*Rasna*	*Pluche alanceolata C.B.*Clarke	Dry Root	1
5.	*Aparajita*	*Clitoria ternetia* Linn.	Dry *Panchanga*	1
6.	*Jivanti*	*Leptadenia reticulate W&A.*	Dry Leaf & Stem	1
7.	*Shatavari*	*Asparagus racemosus* Willd.	Dry Root	1
8.	*Mandukparni*	*Centella asiatica* Linn.	Dry *Panchanga*	1
9.	*Shalparni*	*Desmodium gangeticum* D.C.	Dry *Panchanga*	1
10.	*Punrnava*	*Boerhaavia diffusa* Linn.	Dry *Panchanga*	1

Method of Pharmacognostical Evaluation

Raw drugs were identified and authenticated by the Pharmacognosy lab, ITRA, Jamnagar. The identification was carried out based on the morphological features, organoleptic parameters and transverse section microscopy of the individual drugs. For pharmacognostical evaluation, drugs studied under the Carl zeiss trinocular microscope attached with camera, with stain and without stai[5]. The microphotographs were also taken under the microscope.

Method of Physico-chemical Evaluation

Vayasthapana Gana Choorna and Vayasthapana Ghrita were analysed by using HPTLC after making appropriate solvent system with methanolic extract of *Vayasthapana Gana Choorna and Vayasthapana Ghrita* at the Pharmaceutical Chemistry lab, ITRA, Jamnagar. Presence of more moisture content in a sample may create preservation problem hence loss on drying was also selected as one of the parameters. Water soluble extract, methanol soluble extract [6], pH [7], ash value [8], refractive index [9], specific gravity [10], acid value [11], saponification value [12], iodine value [13] were selected as the parameters. Organoleptical parameters [14], physico-chemical analysis [15], investigations were carried out by following standard procedure. High Performance Thin layer chromatography (HPTLC) studies were carried out with acid hydrolysed methanolic extract on pre-coated silica gel GF 60254 aluminium plate as 5mm bands, 5mm apart and 1cm from the edge of the plates, by means of a Camag Linomate V sample applicator fitted with a 100µL Hamilton syringe. The mobile phase used was Tolune:Ethylacetate:Ethylacetate (7:2:0.5) The plates were developed in Camag twin trough chamber (20 x 10 cm2) and spots were detected in short U.V. (254 nm), long U.V (366nm). Camag Scanner II (Ver. 3.14) and Cats software.

RESULT AND DISCUSSION

Pharmacognostic Profile

Vayasthapana Gana Choorna showed the presence of *Guduchi, Haritaki, Amalaki, Rasna, Aparajita, Jivanti, Shatavari, Mandukparni, Shalparni, Punrnava.* Microscopically character of *Amalaki* showed Mesocarp cells; Asicular crystal of *Shatavari*; Stone cells, Scleroids cells and Brown content of *Haritaki*. Starch grains and colencymatous cells of *Guduchi*; Rhomboidal crystals and pitted vessels of *Jivanti*; Asicular crystal of *Punarnava*; Asicular crystasl of *Rasana*; Parenchyma cells of *Mandookparni*; Lignified pitted vessels of *Punarnava*; Simple trichome of *Aparajita* and many more are depicted in (Figure 1)

Organoleptic Character

The organoleptic character of *Vayasthapana Gana Choorna* was performed and the results are depicted in table 2.

Table 2: Organoleptic character of *Vayasthapana Gana Choorna & Vayasthapana Ghrita*

Character	*Vayasthapana Gana Choorna*	*Vayasthapana Ghrita*
Color	Light green	Light green
Odour	Characteristic	Like *Ghrita*
Taste	Bitter	Bitter
Touch	Fine Powder	Sticky

Physico-chemical Parameters

The physico-chemical parameters of *Vayasthapana Gana Choorna* and *Vayasthapana Ghrita* were performed and the results are depicted in table 3.

Table 3: Physiochemical Parameters of *Vayasthapana Ghrita & Vayasthapana Gana Choorna*

Parameters	*Vayasthapana Ghrita*	*Vayasthapana Gana Choorna*
Refractive index	1.3660	-
Specific gravity	0.913	-
Acid value	1.285	-
Saponification value	212.1085	-
Iodine value	25.58	-
Loss on drying (% w/w)	7.93	4.2574
Ash Value (% w/w)	5.45	20.37
Water soluble extract (% w/w)	28.60	12.87
Methanol soluble extract (% w/w)	21.8	15.69
pH value by pH paper	8	6

HPTLC Study

On performing HPTLC, visual observation under UV light showed few spots but on analysing under densitometer much more was observed and Methanol extract of *Vayasthapana Ghrita* at 254nm, the chromatogram showed 6 spot and at 366nm 2 spot whereas in Methanol extract of *Vayasthapana Gana Choorna* at 254nm 5 spot and in 366nm 4 spot were present and Rf is being depicted in the Table 4. (Figure 2)

Table 4: HPTLC of *Vayasthapana Gana Choorna* and *Vayasthapana Ghrita*

Extract	Solvent System	Wave length	Number of spot	Max Rf Value
Methanol extract of *Ghrita*	Tolune:Ethylacetate: Ethylacetate (7:2:0.5)	245 nm	6	0.06,0.22,0.27,0.31,0.72,0.88
		366 nm	2	0.06,0.88
Methanol extract *Choorna*	Tolune:Ethylacetate: Ethylacetate (7:2:0.5)	254 nm	5	0.06,0.26,0.36,0.47,0.76
		366 nm	4	0.06,0.35,0.48,0.82

CONCLUSION

Nowadays, the interest in study of natural products is growing rapidly, especially as a part of drug discovery programs. From the HPTLC studies, it has been found that methanolic extracts contain not a single compound but a mixture of compounds and so it is established that the pharmacological activity shown by them are due to the cumulative effect of all the compounds in composite. The applied HPTLC method has been shown to be selective, linear, precise and accurate. The results meet the guidelines of the International Conference on Harmonization (ICH) for validation of pharmaceutical assays of drug products and are comparable with those published. The method will be useful for quality control of the raw material, extracts and pharmaceutical preparations.

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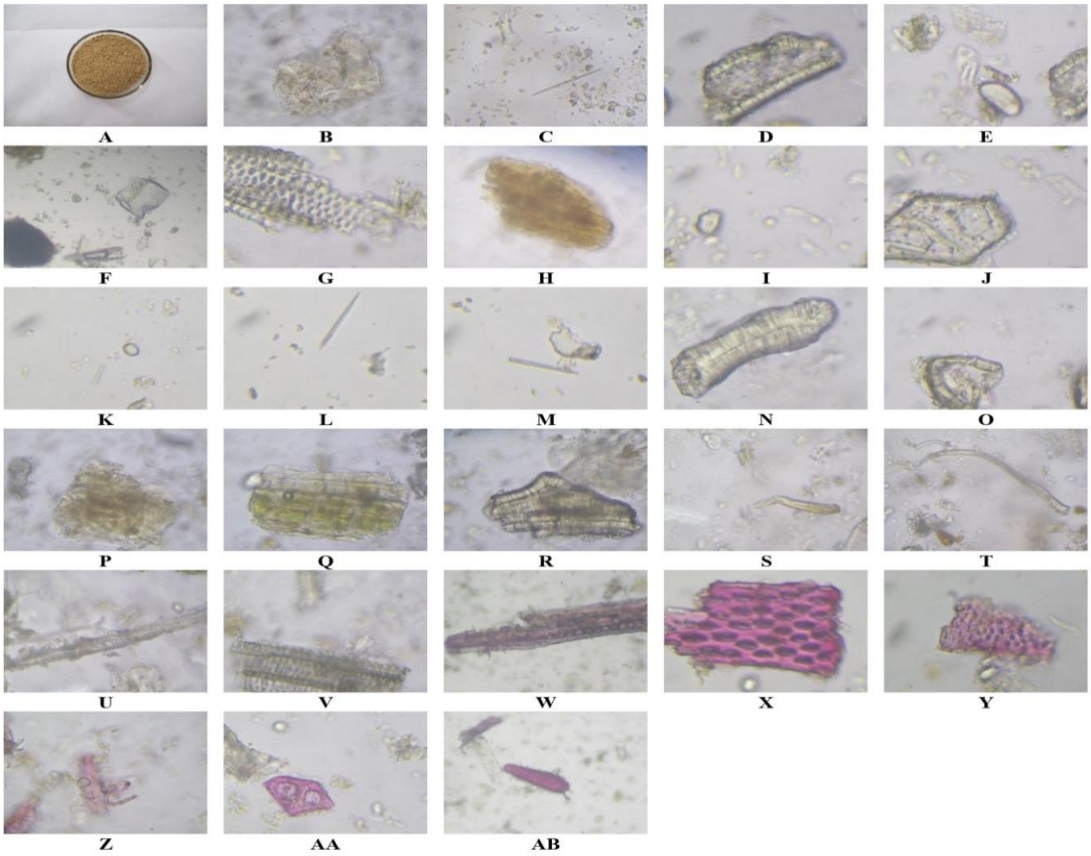
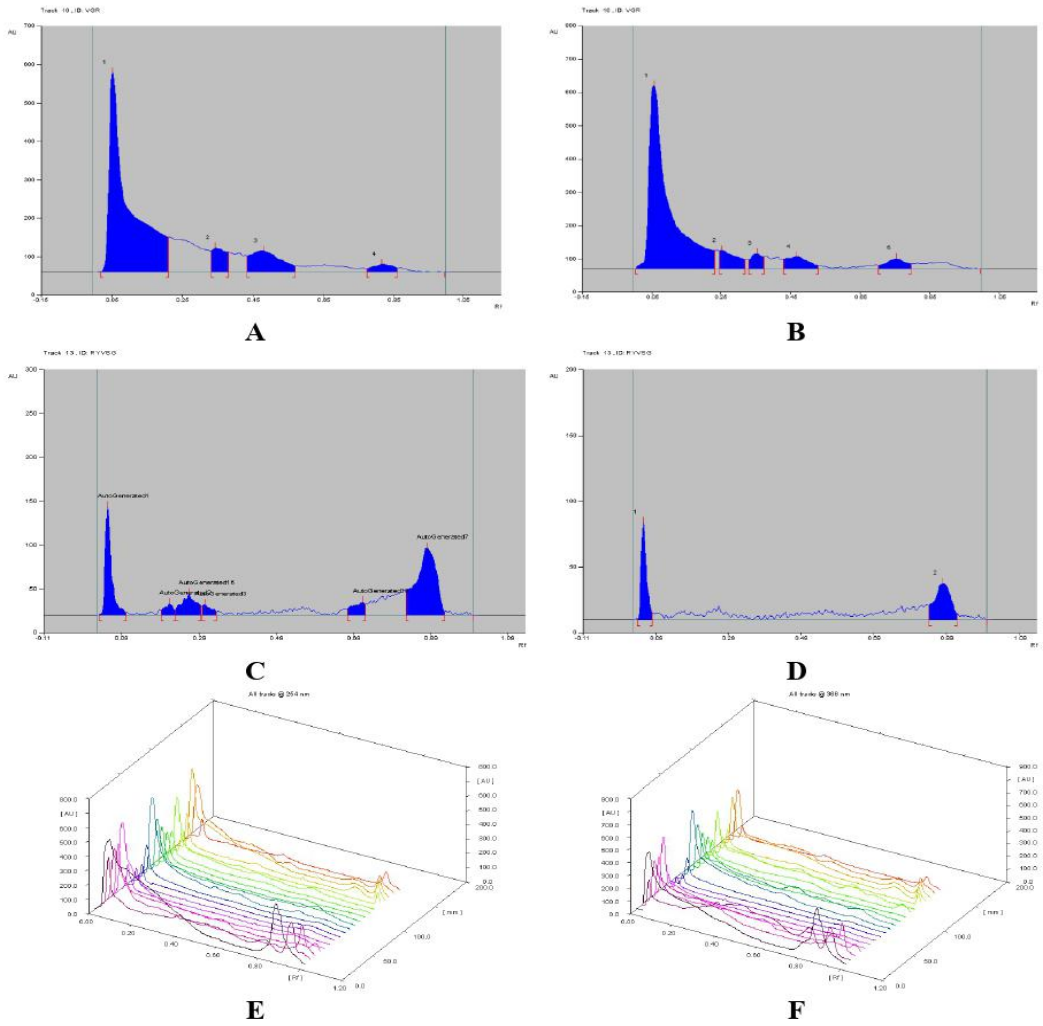
Figure 1: Pharmacognostic profile of *Vayasthapana Gana Choorna*



A:*Vayasthapana Gana Choorna;* **B:** Mesocarp cells of amalaki; **C:** Asicula crystal of satavari; **D:** Stone cell of haritaki; **E:** Starch grains of guduchi; **F:** Pitted vessels of jivanti; **G:** Silica grain of guduchi; **H:** Pitted vessels of jivanti; **I:** Brown content of haritaki;**J:** Rhomboidal crystal of jivanti and colencym cell of Guduchi; **K:** Starch grains of jivanti; **L:** Asicular crystal of Punarnava; **M:** Asicular crystal of Rasana; **N:** Scleroids cells of Haritaki; **O:** Stone cells of Jivanti; **P:**Parenchyma cells of Mandookparni; **Q:** Epidermal cells of Shalparni;**R:** Scleroids of Amalaki; **S:** Simple trichome of Aparajita; **T:** Trichome of Shalparni;**U:** Fibers of Jivanti; **V:** Pitted vessels of Punarnava; **W:** Crystal fibers of jivanti; **X:** Lignified pitted vessels of Guduchi; **Y:** Lignified pitted vessels of Punarnava;**Z:** Spiral Vessels of Mandookparni; **AA:** Lignified collencyma cells of guduchi; **AB:** Lignified stone cells of jeevanti

Figure 2: HPTLC profile of *Vayasthapana Gana Choorna and Vayasthapana Ghrita.*



A: Densitogram of *Vayasthapana Gana Choorna* 254 nm; **B:** Densitogram of *Vayasthapana Choorna*366 nm; **C:** Densitogram of *Vayasthapana Ghrita* 254 nm; **D:** Densitogram of *Vayasthapana Ghrita 366* nm; **E:** Spectral comparison of *Vayasthapana Gana Choorna;* **F:** Spectral comparison of *Vayasthapana Ghrita*