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PHARMACOGNOSTICAL AND PHARMACEUTICAL EVALUATION OF *ASHWAGANDHADYA GHRITA* - A COMPOUND AYURVEDIC FORMULATION

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ABSTARCT

Karnanada is termed as tinnitus in modern medical literature: ringing in the ear causing great distress and emotional handicap. Tinnitus can lead to something more than a nuisance to the patient. Tinnitus is one of the most common and most prevalent ailments which we come across in our daily medical practice. Most studies agree that about one out of every 10 adults has tinnitus. It tends to be more common in those people who are working in noisy atmosphere. *Vata –Rakta* dominant *Tridosha* are the pathological factors in the disease of *Karna -Nada.* The treatment regimen is *Ghritapana, Rasayana, Avyayama, Ashirasnana, Brahmacharya, Akatthana.* The present study was carried out to standardize the finished product Medhya rasayana to confirm its identity, purity and quality. The presence of simple and compound grain with hilum, stained starch grain, pitted parenchyma with fibre, pitted vessels, cork, cortex, phloem, centrally wide vessels, xylem vessels, fibers, xylem parechyma & medullaryrays, xylem vessels, fibre, parenchma etc were the characteristic features of observed in microscopy of drug. Physico chemical analysis shows referactive index at 40^0 C is 1.47, specific gravity at room temp.at 32^o C is 0.9144, acid value is 1.47, iodine value is 16.7, saponification value is 243.69. High Performance Thin Layer Chromatography (HPTLC) at 254 nm and 366 nm resulted into 7& 3 spots respectively.

KEYWORDS: *Ashwagandhadya ghrita, Karnanada,* Pharmacognosy, Pharmaceutics, HPTLC.

INTRODUCTION

While describing *Karna Rogas*, *Aacharya Sushruta* has explained about *Karnanada.*[1] Vitiated *Vata Dosha* either entering into other channels by *Vimarga Gamana* or encircled by *Kaphadi Doshas (Sangam)* in *Sabdavaha Shrotas* (Auditory canal), produces different types of sounds in the ear like that of *Bheri*(cuttle drum sound), *Mrudanga*(roaring sensation), *Shankha*(ringing sensation) etc. is known as *Karnanada.*[2] *Acharya Yogaratnakara*[3] *and Vagbhata*[4] have described common etiological factors of *Karna Rogas* like swimming, picking or probing of external auditory canal, improper instrumentation during the examination and treatment, hearing (high frequency) loud sounds, injury to head.

As per modern science tinnitus is difficult to diagnose and treat. Low dose of tranquilizers, relaxation, bio-feedback, hearing aid and masker; in one unit; are used to reduce tinnitus. But all these give temporary relief and the recurrence rate is high. Every treatment aspect mentioned for tinnitus in *Ayurveda* is found to be economical and free from side effects compared to the present synthetic preparations which have the potential to cause side effects.Thus, the treatment adopted for *Karna-Nada* in modern system of medicine have not been satisfactory. *Ghrita* having *"Samskarasya Anuvartanatva"*[5] property when processed with *Vatashamaka* drugs and having *Rasayana Guna* become the best line of treatment for *Karnanada.* Hence, *Ashwagandhadya Ghrita* was selected. Ashwagandhadya Ghrita contains *Ashwagandha Kalka, Go Ghrita, Go Dugdha, Ashwagandha Kwath. Ashwagandha* possess the properties like; *Tikta, Kshaya(Rasa), Laghu* and *Snigdha (Guna), Ushna(Virya*) and *Katu(Vipaka*) alongwith pharmacological actions like *Vata Shleshmahara, Balya*, *Rasayana*. By many researches its analgesic, antipyretic, anti-inflammatory activity is proven.Its root powder showed barbiturate hypnosis potentiation effect and decrease locomotive activity in rats (Singh et al., 1979). This drug provided significant relief in symptoms of anxiety (Singh R.H. et al.). It prevents degenerative changes occurring at cellular level. By this we can prevent *Badhirya* also which is complication of *Karnanada.* So due to this *Ashwagandhadya Ghrita* has been selected.

❖ The Pre-clinical studies of Ashwagandhadya Ghrita have already been carried out; in which standardization, pharmaceutical, pharmacological studies and also clinical observations on healthy volunteers were done. To maintain the therapeutic activity of the drug standardization is very much necessary. prevent degenerative changes occurring at cellular level. By this we can prevent *Badhirya* also which is complication of *Karnanada.*

MATERIALS AND METHODS

Drug Material

Raw drug materials were collected from the pharmacy of Gujarat Ayurveda University. The ingredients and the part used are given in table no 1.

Methods of preparation of Ashwagandhadya Ghrita

Ashwagandha Ghrita

Ashwagandha Kwatha –16 part (52 litres)

Ashwagandha Kalka – 1/6 part (2.1 kg)

Water – 13 litres

Milk (*Go – Dugdha*) – 13 litres

Go – Ghrita – 4 part (13 kg)

Preparation of *Aswagandhadya Ghrita*

All the ingredients were taken in above amounts. Water was added to *Ashwagandha* for preparation of decoction, soaked for four hours, heated on mild to moderate flame till the volume was reduced to one fourth. It was then filtered with muslin cloth to obtain the *Kwatha*. *Ghrita* was taken in a stainless steel vessel and heated mildly to remove any moisture. *Ashwagandha Kalka* was added.It was then thoroughly stirred while adding *Kwatha* and *Go Dugdha*. Then it was heated with constant stirring maintaining the temperature between 80º and 90º during the first hour of heating. Heating was continued for three hours and then stopped and allowed to stand overnight. Heating was again started on next day while keeping a watch over the subsidence of froth (*Phena Shanti*) and the *Kalka* was constantly checked for formation of *Varti* (*Madhyama Paka Lakshana*). Heating was stopped when *Varti* was formed and froth subsided. *Varti* was tested for absence of crackling sound. *Ghrita* was filtered while still hot (approx. 80º) through a muslin cloth and allowed to cool. After that, the *Ghrita* was packed tightly in glass containers to protect from light and moisture.

Therapeutic benefits of *Aswgandhadya Ghrita*

This medicinal *Ghrita* is effective in checking all types of *Vata* diseases. It devlops fat (*Mamsa Vivardhanam*) in the body and equips the users with great aphrodisiac power (*Vrishya*).[6]

Pharmacognostical study

Raw drugs were identified and authenticated by the Pharmacognosy laboratory, I.P.G.T&R.A., Jamnagar. The identification was carried out based on the morphological features, organoleptic features and microscopic study of the individual drugs was studied under the microscope attached with camera, with stain and without stain. The microphotographs were also taken under the microscope.

Physicochemical Evaluation

Ashwagandhadya Ghrita was analyzed by using standard qualitative and quantitative parameters, HPTLC was carried out after making appropriate solvent system with Methanolic extract of *Ashwagandhadya Ghrita* at the Pharmaceutical Chemistry lab, I.P.G.T. & R.A. Gujarat Ayurveda University, Jamnagar.

OBSERVATION AND RESULTS

Organoleptic Evaluation

Various parameters of the material such as colour, odour, touch and taste of the *Ashwagandhadya Ghrita* were observed and recorded. Touch were analyzed with the help of *Darshana, Sparshana, ghrana and Rasana Pareeksha* mentioned in Ayurveda. (By sensory obsertabletons). Results were mentioned in the Table no.2.

Microscopic study

The powder microscopy of *Ashwagandhadya Ghrita* confirmed the presence of simple and compound grain with hilum, stained starch grain, pitted parenchyma with fibre, pitted vessels, cork, cortex, phloem, centrally wide vessels, xylem vessels, fibers, xylem parechyma & medullaryrays**,** xylem vessels, fibre, parenchma etc were the characteristic features of observed in microscopy of drug.(Plate No.1)

Physico-chemical Analysis

Physico-chemical analyses were carried out by following the parameters. Physico‑chemical analysis like referactive index at 40^0 C is 1.47, specific gravity at room temp.at 32^o C is 0.9144, acid value is 1.47, iodine value is 16.7, saponification value is 243.69. Results were mentioned in the table no. 3.

High Performance Thin Layer Chromatography (HPTLC)

HPTLC was carried out after making appropriate solvent system with Methanolic extract of *Ashwagandhadya Ghrita*. On performing HPTLC, visual observed *Ghrita* on under UV light showed few spots but on analyzing under densitometer at 254 nm and 366 nm it resulted into 7 and 3spots respectively. Results of HPTLC are given in Table no. 4 and densitogram is shown in plate 2.

DISCUSSION

Pharmacognosy and pharmaceutical evaluation of *Ashwagandhadya Ghrita* was performed which is a potent medicine in the management of *Karnanada*. In physiochemical analysis; referactive index at 40^0 C is 1.47, specific gravity at room temp.at 32^o C is 0.9144, acid value is 1.47, iodine value is 16.7, saponification value is 243.69, Though the groundwork requisites for the standardization of *Ashwagandhadya Ghrita* are covered in the current study, additional important analysis and investigations are required for the identification of all the active chemical constituents of the test drug to substantiate the clinical efficacy.

Table No. 1. Contents of Drugs (*Ashwagandhadya ghrita)*.

(*Chakradutta*:*Vrishya, Mamsavivardhan, Shloka* 214)[7]

No.	Sanskrit name	Latin name / English name	Part
1	*Ashwagandha Kalka*	*Withania somnifera* (Linn.)	1
2	*Go Ghrita*	*Cow Ghee*	4
3	*Go Dugdha*	*Cow Milk*	16
4	*Ashwagandha Kwath*	*Withania somnifera* (Linn.)	16

Table 2: Organoleptic Characters of *Ashwagandhadya Ghrita.*

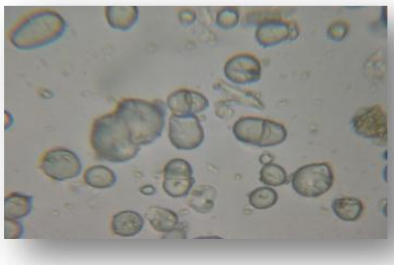
Sr. No.	Characters	Observed characters of *Ashwagandhadya ghrita*
1	Colour	Creamish yellow
2	Odour	Aromatic
3	Taste	Astringent with piercing nature
4	Touch	Lubricative

Table 3: Physico-chemical analysis of *Ashwagandhadya Ghrita.*

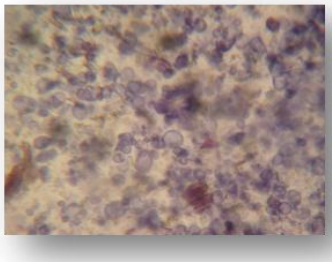
Sr.no	Parameters	*Ashwagandhadya Ghrita*
1	Refractive Index at 40^0 C	1.47
2	Specific Gravity at 32^o C	0.9144
3	Acid Value	1.47
4	Iodine Value	16.7
5	Saponification Value	243.69

Table 4: Results of HPTLC of: Solvent system *Ashwagandhadya Ghrita* – Toluene: Ethyl acetate: Acetic Acid (7:2:1)

Wave Lengths	Short UV (254nm)	Long UV (366nm)
No of Spots	7	3
Max. Rf value	**0.01**, 0.13, 0.29, 0.58, 0.65, 0.84, 0.91	**0.01**, 0.83, 0.95

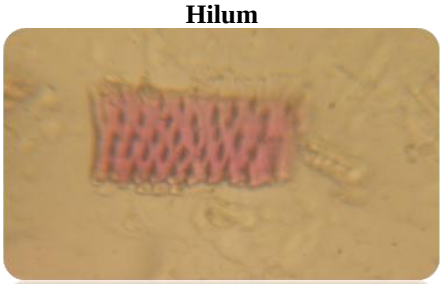


Simple And Compound Grain With Hilum

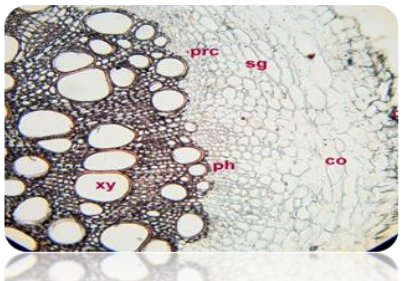


Stained Starch Grain

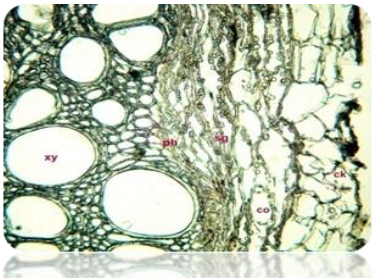
Pitted Parenchyma With Fibre



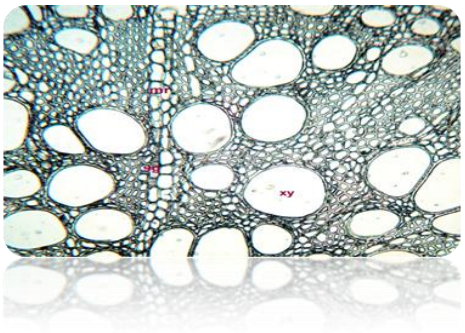
Pitted Vessels



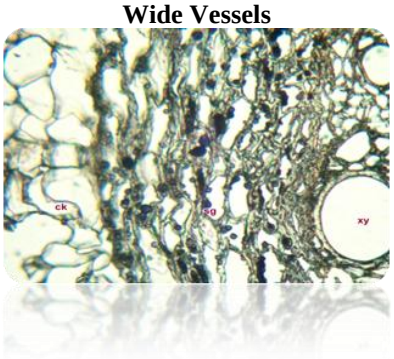
Cork, Cortex, Phloem, Centrally Wide Vessels



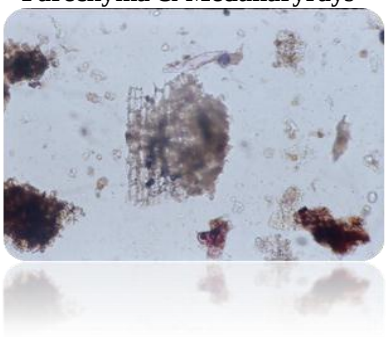
Xylem Vessels, Fibers, Xylem Parechyma & Medullaryrays



Xylem Vessels, Fibre, Parenchma,Medullary Rays

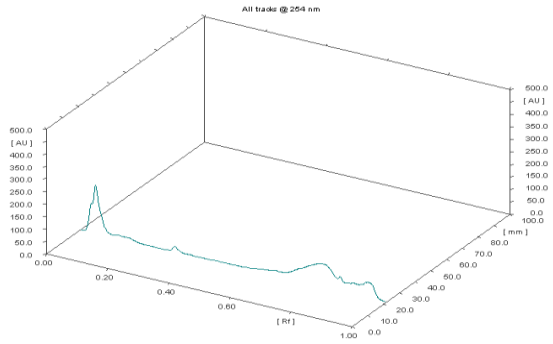


Cork ,Cortical Par.Cells Embededwith Starch Grain

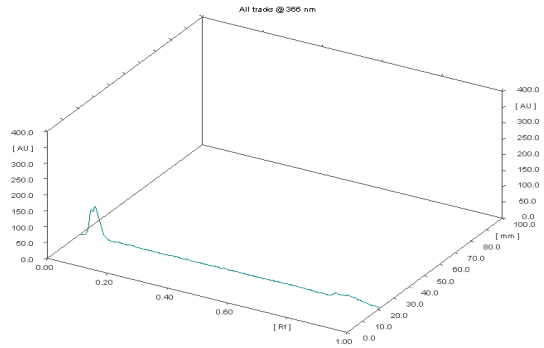


Cork In Surface

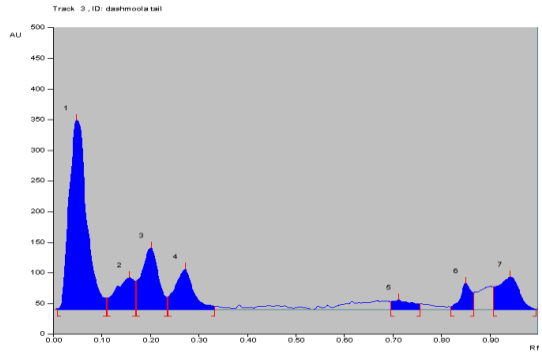
Plate No. 1: Microscopic characters of *Ashwagandhadya Ghrita*,



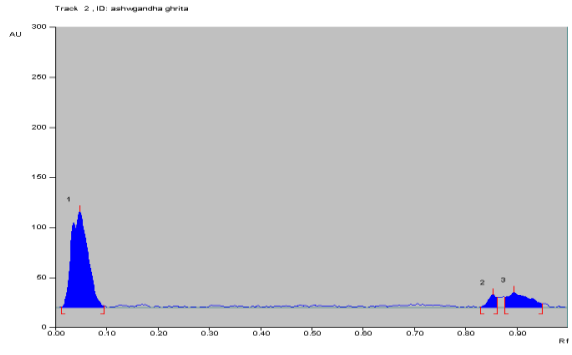
3D Graph: 254nm of Ashwagandhadya Ghrita



3D Graph: 366 nm of Ashwagandhadya Ghrita



Chromatographic Results (Peak display) of Ashwagandhadya Ghrita at Short ultra violet (254 nm)



Chromatographic Results (Peak display) of Ashwagandhadya Ghrita at Long ultra violet (366nm)

Plate No. 2: HPTLC evaluation of *Ashwagandhadya Ghrita*.

CONCLUSION

Pharmacognostical study findings confirm that all characters were found in ingredient drugs of *Ashwagandhadya Ghrita*. The physicochemical analysis are inferred that the formulation meets maximum qualitative standards and all the parameters discussed here may be used as identifying tools for the quality assessment of *Ashwagandhadya Ghrita*. Thus Outcome of the study may be taken as standard references for the further studies.

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