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PHARMACOGNOSTICAL AND PHYTOCHEMICAL EVALUATION OF *SAPTAVINSHATIKI GUGGULU* - AN AYURVEDIC POLYHERBAL FORMULATION

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ABSTRACT

Episiotomy is a surgically planned incision on the perineum and the posterior vaginal wall during the second stage of labour. *Saptavinshatiki Guggulu* is a polyhedral formulation which mainly indicated in the skin infection, wound healing and many other disorders. The present work was carried out to standardize the finished product "*Saptavinshatiki Guggulu"* to confirm its identity, quality and purity. Pharmacognostical and phyto-chemical observations revealed the specific characters of all active constituents used in the preparation. The pharmacognostical study reveals the presence of acicular crystals, crystal fibers, Oil globules, group of stone cell, Stone cells with brown content, Prismatic crystals, Sclariform vessels & compound starch grains etc. Pharmaceutical analysis showed that the loss on drying value was 2.1 % w/w, Ash value 14.31 % w/w, water soluble extraction 40.48 % w/w, methanol soluble extraction 24.08% w/w, pH value 5.5, average weight of 20 tablet 566.6mg, hardness of *Vati* 2.5/kg/cm2, decentigration time > 1hour, HPTLC finger printing profile of *Saptavinshatiki Guggulu* revealed 10 spots at 254nm and 4 spots on 366nm.

Keywords: *Saptavinshatiki Guggulu*, Episiotomy wound, Pharmacognosy, Microbial infection, surgical incision.

INTRODUCTION: The woman is considered as one of the most essential factors for the continuity of the human race.

Episiotomy is surgically planned incision on the perineum and the posterior vaginal wall during the second stage of labour[1]. An episiotomy helps to shorten the 2nd stage of labour. It can also decrease trauma to the vaginal tissues. A surgical incision is easier to repair than a spontaneous irregular or extensive tear. Amongst 4 types of episiotomy the preferred one is medio-lateral episiotomy. The episiotomy wound is sutured immediately after 3rd stage of labour under local anaesthesia but there are naturally high chances of infection because perineal region contains both excretory orifices (urinal and faecal), unhygienic conditions of patients, anemia, local hematoma. Infection in episiotomy wound leads to gaping of wound, rarely fistula, or septicemia. Hence it is necessary to take precautions and medications for the promotion of episiotomy wound healing and inhibition of microbial infection.

According to the modern science get advanced with new antibiotic local application and oral antibiotics are advised for wound, but there resistance increases day by day.

Considering all the problems during *Sutikavastha* with *Yonivrana,* pain, edema, abnormal discharge, so it is necessary to give proper treatment and assurance to the patient for *Yonivrana.* Episiotomy wound can be compared with *Saddhyovrana.* So it can be treated as *Sadhyovrana Chikitsa.* The drugs which are selected for the study having the properties of *Vrinashodhana, Ropana, Shoolahara, Anulumana* and *Kapha- Pitta Shamaka.* The contents are easily available & easy to manufacture, effective & economical to the patients.

Saptavinshatiki Guggulu acts on the skin, blood, intestines, rectum, and bones. It mainly used to treat infection, prevent suppuration, and reduce the discharge of pus. When it is used alone, it reduces pus discharge. It speeds up the healing process of fistula, sinuses, wounds, skin lesions and injuries. It is also useful in cases of a productive cough, chest pain, abdominal cramps and pain, anorectal pain, kidney stones, dysuria, worm, flatulence, bloating, chronic fever, ascites, infected wounds etc.

AIM: To evaluate and established the Ayurvedic treatment protocol in the management of episiotomy wound.

OBJECTIVIE:

To evaluate the efficacy of oral administration of *Saptavinshatiki Guggulu* along with local application of *Nimbadi Lepa* in the management of episiotomy wound and compare it with Cap. Amoxicillin and local application of betadine ointment.

MATERIALS AND METHODS

Collection, Identification and authentication of raw drugs:

The raw drugs for the study were procured form the Pharmacy of Gujarat Ayurved University, Jamnagar and which not available in pharmacy purchase from outside. The ingredients were identified and authenticated in the Pharmacognosy laboratory of Institute of Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar.

Table No.1 Ingredients of *Saptavinshatiki Guggulu*

Saptavinshataki Guggulu mentioned in *Yogaratnakara Sadhyovrina Chikitsa*[2]

Sr.no.	***Name***	***Latin name***	**Part used**	**Proportion**
1	*Shunthi*	*Zingiber officinale* Rose	Rhizome	1part
2	*Maricha*	*Piper* nigrum Linn	Seeds	1part
3	*Pippali*	*Piper longam* Linn.	Dry Fruit	1part
4	*Haritaki*	*Terminalia chebula* Retz.	Dry fruit	1part
5	*Vibhitaki*	*Terminalia bellerica*	Dry fruit	1part
6	*Amalki*	*Embellica officinalis*	Dry fruit	1part
7	*Musta*	*Cyprus rotundus*	Root	1part
8	*Vidanga*	*Embelia ribes*	Seeds	1part
9	*Guduchi*	*Tinosphora cordifollia*	Whole plant	1part
10	*Chitraka*	*Plumbago zeylanicam* Vahl	Root	1part
11	*Patola*	*Luffa acutangula*	Leaf	1part

12	*Pippli moola*	*Piper longam* Linn.	Root	1part
13	*Hapusha*	*Juniperus communis* Linn	Root	1part
14	*Devadaru*	*Cedrus devadaru*	Root	1part
15	*Tumbaru*	*Zanthoxylum alatum*	Leaf	1part
16	*Pushkaramoola*	*Inula racemosa*	Root	1part
17	*Chavya*	*Piper retrofractum* Linn.	Root	1part
18	*Vishala(Indrayana)*	*Trichosanthes palmata* Roxb	Seeds	1part
19	*Haridra*	*Curcuma longa*	Rhizome	1part
20	*Daruharidra*	*Berberis aristata*	Rhizome	1part
21	*Gajapippali*	*Scindapsus officinalis*	Fruits	1part
22	*Vidalavana*	Ammonium salt	-	1part
23	*Sovarchallavana*	*Unaqua sodium chloride*	-	1part
24	*Yavakshara*	*Hordeum vulgare* L.	-	1part
25	*Saindhavalavana*	*Sodi chloridium*	-	1part
26	*Guggulu*	*Commiphora mukul*	*Niryasa*	2part
27	*Madhu*	*Mel*	-	*Anupana*

Method of Preparation of *Saptavinshatiki Guggulu*-

There are total 26 ingredients in *Saptavinshatiki Guggulu*. *Shuddha Guggulu* was procured from the market and rest of ingredients procured from the pharmacy of GAU, Jamnagar in the form of fine powder. 10 liter of water is taken in iron vessel and boiled it, after that slowly added the *Guggulu* in it with continuous stirring the mixture. When whole *Guggulu* mixture got paste like *Aveleha* form then fine powder of all the drugs is added into this mixture with continuous stirring and mixed well with the help of edge runner machine. Bolus of mixture was fed to stick making machine and pills were prepared by Pill making machine. Pills were subjected to drying in industrial tray drier for complete drying bellow 700C and packed. After completion of the Pharmaceutical process, *Saptavinshatiki Guggulu* was subjected to analysis.

Pharmacognostical evaluation of ingredients of *Saptavinshatiki Guggulu*

Organoleptic study:

Individual powders were subjected to various sensory characters like colour, taste, odour, and touch**.**

Characters	**Results**
Colour	Blackish
Taste	Sweetest Astringent
Odour	Aromatic
Consistency on Touch	Hard
Shape	Oval
Form	Pills

Powder microscopy:

The powder of respective parts was taken in glass slide covered with cover slip and ob-

served under the Carl Zeiss microscope with stain (Phloroglucinol and Conc. HCl) and without stain, to study the characters. The microphotographs were taken by using Carl Zeiss binocular attached with camera[1]

Physicochemical study:

Saptavinshatiki Guggulu was analyzed by using qualitative and quantitative parameters at Pharmaceutical Chemistry Laboratory, Institute for Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar by using various standard physico-chemical parameters was analyzed through relevant physicochemical parameters. Physical tests like average weight of *Vati*, average diameter, average hardness, disintegration time, loss on drying, ash value and chemical tests like water-soluble extractive, alcohol-soluble extractive, and pH value were conducted[3,4]. High performance thin layer chromatography (HPTLC) is carried out with methanol extract of *Saptavinshatiki Guggulu*[5].

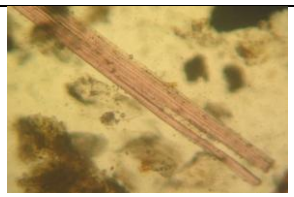
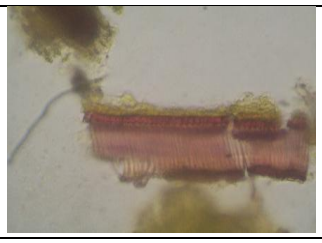
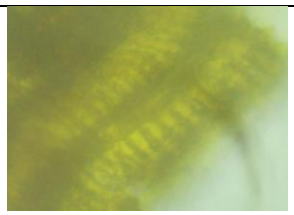
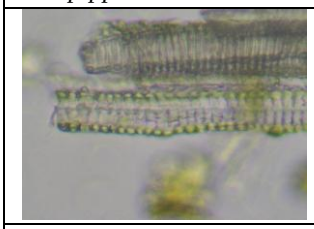
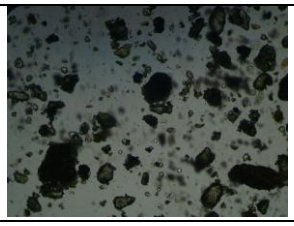
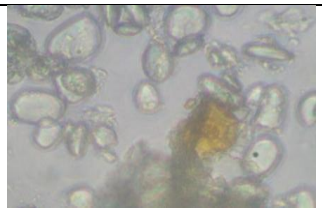
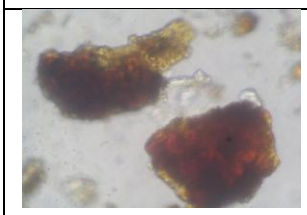
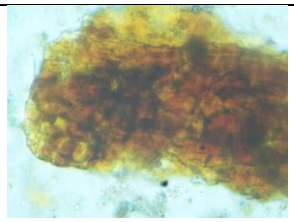
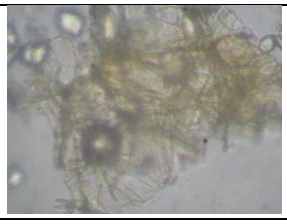
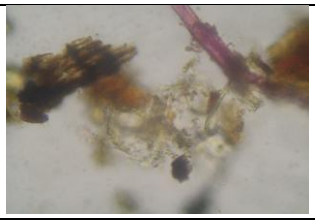
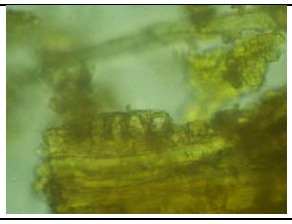
HPTLC

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 pre-coated silica gel GF 60254 aluminum plate by means of Camang Linomat V sample applicator fitted with a 100-µL Hamilton syringe. Chloroform: MeOH (9:1) was used as the mobile phase. After development, densitometric scan was performed with a Camag TLC scanner III in reflectance absorbance mode at UV detection as 254 nm and 366 nm under the control of Win CATS Software (V 1.2.1. Camag). Then the plate was sprayed with vanillin sulfuric acid followed by heating and then visualized in daylight.

RESULTS:

Microscopic Study:

The diagnostic microscopical characters of individual powder are shown in PLATE 1-33 (Figure 1-33) The pharmacognostical study reveals the presence of Annular vessels of *Badipippali*, Fibres and sleroeids *Haritaki*, Pitted scleroids of *Bibitaki*, Group of fibres-*Amalaki*, Acicular crystals of *Badipippali*, Annular vessels of *Haridra*, Annular vessels of *Patola,* Annular vessels *Pippalimoola*, Black debris of *Maricha*, Border pitted vessel of *Chitraka*, Brown content of *Shunthi*, Collenchyma cells of *Guduchi*, coloring matter of *Vidanga*, Cork cells with brown content of *Chavya*, Cork cells with tannin of *Chitraka*, Cork in surface view of *Shunthi*, Cork with tannin content of *Hapusha*, Crystal fiber of *Daruharidra*, Group of stone cells of *Pippali*, Oil globules of *Devadaru*, Silica deposition of *Musta*, Simple starch grains of *Pushkarmoola*, Simple trichome of *Patola*, Spiral vessels of *Vishala* and Starch grains of *Haridra*[6,7,8,9,10,11,12]

		
1.Fibres and scleroeids *Haritaki*	2.Pitted scleroids of *Bibitaki*	3.Group of fibres-*Amalaki*
		
4.Acicular crystals of *Badipippali*	5.Annular vessels of *Badipippali*	6.Annular vessels of *Haridra*
		
7.Annular vessels of *Patola*	8.Annular vessels *Pippalimoola*	9.Black debris of *Maricha*
		
10.Border pitted vessel of *Chitraka*	11.Brown content of *Shunthi*	12.Collenchyma cells of *Guduchi*
		
13.coloring matter of *Vidanga*	14.Cork cells with brown content of *Chavya*	15.Cork cells with tannin of *Chitraka*
		
16.Cork in surface view of	17.Cork with tannin content of	18.Crystal fiber of

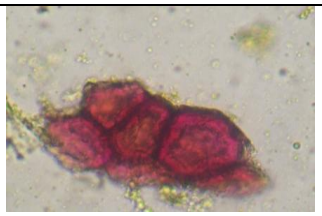
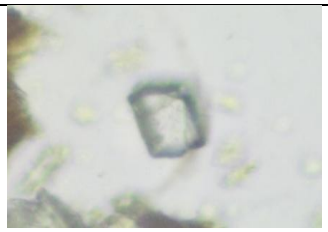
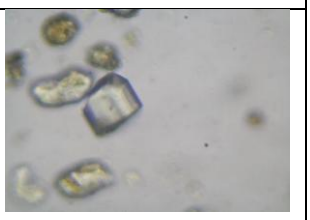
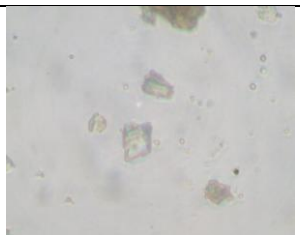
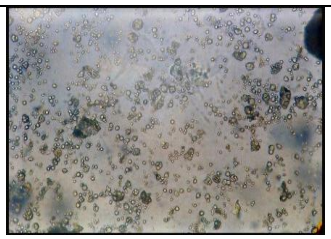
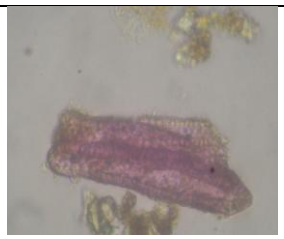
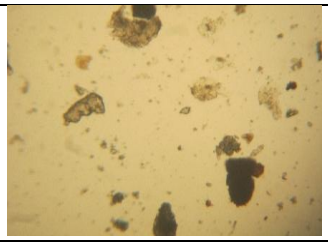
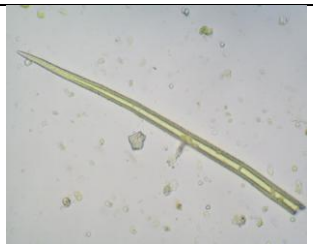
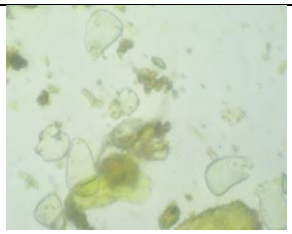
Shunthi	*Hapusha*	*Daruharidra*
		
19.Fibres of *Pippali*	20.Group of stone cells of *Pippali*	21.Oil globules of *Devadaru*
		
22.Phloem fibres passing through medullary rays of *Devadaru*	23.Prismatic crystal *Daruharidra*	24.Prismatic crystal of *Hapusha*
		
25.Prismatic crystals of *Maricha*	26.Sclariform vessels & compound starch grains of *Pippalimool*	27.scleroid of *Vidanga*
		
28.Silica deposition of *Musta*	29.Silica-*Amalaki*	30.Simple starch grains of *Pushkarmoola*
		
31.Simple trichome of *Patola*	32.Spiral vessels of *Vishala*	33.Starch grains of *Haridra*

Table no. 3 Physico-chemical tests

No.	Practical name	*Saptavinshatiki Guggulu*

1.	Weight varying of 20 tablets	Average weight of 20 tablet 566.6mg
2.	Loss on drying (at 110^0C)	2.1 % w/w
3.	Ash Value	14.31% w/w
4.	Water soluble extraction	40.48 % w/w
5.	Methanol soluble extraction	24.08% w/w
6.	pH value by pH meter	5.5
7.	Hardness of *Vati*	2.5/kg/cm2
8.	decentigration time	>1hour

HPTLC study results On analyzing under densitometer at 254 nm, the chromatogram showed 10 peaks. While at 366 nm, the chromatogram showed 4 peaks.

Table 4 : Showing HPTLC peaks

HPTLC	spots	Rf values
254 nm	10	0.02, 0.08, 0.13, 0.15, 0.23, 0.29, 0.60, 0.66, 0.76, 0.81, 0.98
366 nm	4	0.02, 0.13, 0.76, 0.98

Figure 1: (a) Densitogram curve of methanol extract of *Saptavinshatiki Guggulu*

A At 254nm **B At 366**

Figure 2: (a) 3-D Densitogram of *Saptavinshatiki Guggulu*

A At 254 nm **B at 366 nm**

DISCUSSION: Pharmacognostical evaluation showed that the *Saptavinshatiki Guggulu* contains all the ingredients which were observed in the microscopical characters, this shows that the purity and quality of the product. Phytochemical analysis showed that material gains no moisture during storage, so quality of the product is not affected. The obtained values of these tests were found within normal limits which indicate good quality of product. All Physico-chemical parameters of *Saptavinshatiki Guggulu* are Average weight of 20 tablate 566.6 mg, Loss on drying (at 110^0C) 2.1% w/w , Ash value 14.31%w/w , Water soluble extraction 40.48% w/w , Methanol soluble extraction 24.08% w/w. All tests are normal in limit and shows the product is of good quality and better results in the diseases. HPTLC results

showed that the 10 spots at 254 nm and 4 spots at 366 nm.

CONCLUSION

Pharmaogonostical and phytochemical evaluation of *Saptavinshatiki Guggulu* illustrated the specific characters of all ingredients which are used in the preparation. The presence of Annular vessels of *Badipippali*, Fibres, Pitted scleroids of *Bibitaki*, Group of fibres Acicular crystals of *Badipippali*, Annular vessels of *Haridra*, Annular vessels of *Patola*, Annular vessels *Pippalimoola*, Black debris of *Maricha*, Border pitted vessel of *Chitraka*, Brown content of *Shunthi*, Collenchyma cells of *Guduchi*, coloring matter of *Vidanga*, Cork cells with brown content of *Chavya*, Cork cells with tannin of *Chitraka*, Cork in surface view of *Shunthi*, Cork with tannin content of *Hapusha*, Crystal fiber of *Daruharidra*, Group of stone cells of *Pippali*, Oil globules of *Devadaru*, Silica deposition of *Musta*, Simple starch grains of *Pushkarmoola*, Simple trichome of *Patola*, Spiral vessels of *Vishala* and Starch grains of *Haridra* are observed in the ingredients. All the physico chemical parameters like acid value, saponification value, iodine value, refractive index, specific gravity analyzed were within the normal range. All the results showed the quality of the preparation is standard. Further studies may be carried out on it. On the basis of observations made and results of experimental studies, this study may be beneficial for future researchers and can be used as a reference standard in the further quality control researches

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