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EFFECT OF YONIDHOOPANA AND ITS ANTIMICROBIAL ACTIVITY IN STRI ROGA & PRASUTI TANTRA: A REVIEW ARTICLE

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ABSTRACT

Background: Yonidhoopana means the fumigation of vulva and vagina is the special local therapy mentioned in Ayurveda classics in different yonivyapada, sukhprasava and sutika. It is an inseparable part of therapeutics in gynaecological disorders maintain sterilized external and internal environment of genitals. Various dhoopana drugs has been described in Bruhatrayi and Kashyapa Samhita that have Katu, Tikta, Laghu, Ruksha and Ushna properties on heating, get converted into volatile fumes cause dilatation and oxidation of blood vessels and increase tissue perfusion. This antiseptic and sterilised environment of vagina is depicted by analgesic, anti-inflammatory and antimicrobial effect of Dhoopana. Various clinical research work related to yonidhoopana and antimicrobial effect of dhoopana has been conducted. **Materials & Methods:** Ayurvedic Samhita (Bruhtrayi), Kashyapa Samhita and literatures of striroga & prasuti tantra were studied out thoroughly. Original clinical research works, and review articles related to dhoopana were searched through online database search engine like Pubmed online, Researchgate, and Google scholar. Eight articles were selected and concluded. **Discussion & Results:** Yonidhoopana is very effective Sthanika chikitsa in yoniroga chikitsa, sukhprasava and sutikaparicharya due to its krimighna, kandughna, shothahara, vranaropaka, kledashoshaka effect in vulva and vagina. Hence, it is significantly proved in clinical research work of YONIDHOOPANA and antimicrobial dhoopana karma. **Conclusion:** Yonidhoopana

has bacteriostatic action, economical, easy to perform and effective antimicrobial and anti-inflammatory procedure without any harmful effects.

Keywords: Yonidhoopana, Sthanika chikitsa, Yoniroga, Sutika.

INTRODUCTION

Sthanik Chikitsa is the special local therapy mentioned in Ayurveda classics in different yoniyyapada¹(genital disorders), voniroga, santatinirodha² sukhaprasava and for the maintenance of genital health. Different types of Sthanika chikitsa³ are described yonidhawan, yonipichu, vonikalka. vonilepa. voniparisheka. yonipinda, yonivarti, yonidhoopan, ksharakarma, uttarabasti. Dahan-karma is also included as a local procedure by some Acharya. Local treatments possess shamana and shodhana properties according to their prayojana⁴. Dhoopana karma (herbal fumigation) is an important sthanika chikitsa described in Bruhatrayi and Kashyapa Samhita. Since vedic period homa-havana, *yagna*, sterilisation of air by *agnihotra*⁵, sterilisation of house and places around it by dhoopan⁶ is going on traditionally. In Ayurveda classics dhooma and dhoopan these terminologies are used. Dhooma means 'dhoompana' and dhoopana means subjecting any body part to the medicated fumes. *Dhoopana* is an inseparable part of therapeutics, which maintains internal and external environment. It is an important local therapy mentioned both for Swasthya rakshan (Rakshoghna) and Vyadhi chikitsa.

Dhoopana is the method of fumigation using herbal, herbomineral or animal origin drugs to heal vrana, yonivyapada, karnarogas, nasarogas, gudrogas etc. It is also used to disinfect bhesajagara, vranagara, sutikagara, shastrakarmaghruha, kumaragara and to sterilise the asava and arishata. A variety of fumigation drugs are mentioned in Kashyap Samhita Khilsthana and in Bruhatrayi for prevention, combating diseases and purifying environment. Yonidhoopana is also an important kind of dhoopana mentioned in different striroga, prasava and sutika-avastha. Many research studies have been conducted to prove its role in sutikaparicharya, yoniroga, disinfection of wound & its healing, its antimicrobial effect in sterilization of operation theaters, hospital wards etc. Aparajitha

Dhooma Choornam a time tested Ayurvedic fumigation powder has played a role in preventing COVID epidemics in crammed migrant labour camps during lockdown, used for sanitization and shown significant results of air disinfection.⁷

Aim and Objectives:

- 1. To study the role of *yonidhoopana* in different *yoniroga*, *sutika*, *prasuta*.
- 2. To assess the antimicrobial effect of *dhoopana karma* proved in different previous clinical research studies.

Materials & Methods

Different original research articles and clinical trials studies that are published in peer-reviewed journals related to *dhoopana* (fumigation) in *striroga & prasuta*, *vranadushti*, *kranaroga* and fumigation of operation theatres, wards; were searched out and studied thoroughly. *Dhoopana karma* mentioned in different *samhitas* (*Bruhatriya*), *Kashyapa Samhita* and ayurvedic literature of *striroga & prasuti tantra* regarding indication of *yonidhoopana* were studied. *Yonidhoopana* and antimicrobial effect of herbal fumigation mentioned into different clinical trials and *ayurvedic* literature were reviewed and results were concluded.

Dhoopan: Different types of *Dhoopana* drugs

1. On the basis of origin⁸:

"Avum Dhoopa Samutpanna Prajanam Hitkamya / Nirdishtascha Agnidaivtya Jangam Sthavaraashrya //" (K.S.Dh.kalp)

- 1. *Jangama*: Animal origin (Hairs, nails, horns, *sar-panirmoka* etc.) Animal product contains a keratin like structural part that contains sulphur play a key role in disinfection.
- 2. *Sthavara*: Plant origin (*Agaru*, *vacha*, *haridra*, *kustha*, *guggulu nimba etc*.)
- 3. **Minerals**⁹: *Harital & Manahshila*. These are the Sulphur containing compounds.

2. According to Acharva Kashvapa¹⁰: Dhoopa. Anudhoopa, Pratidhoopa.

All these drugs are collected and stored in air-tight containers like earthen pots and glass jars to maintain its original colour and volatile oil contents.

Properties of *Dhoopan* drugs¹¹: Guna: Laghu, Ruksha, Tikshna, Vikasi, Ugragandhi, Voltile; Rasa: Katu, Tikta; Virya: Ushna Vipaka: Katu; Karma: Shothahara, Krimighana, Kandughana, Vranashodhana, Vranaropan, Vedanashamaka; Mahabhoota pradhanya: Akasha, Vayu

Purpose of *Dhoopana*:

- 1. **Rakshoghana karama**¹²: Dhoopan of bhesajagar, kumaragara, sutikagara, Shastra-karam-gruha.
- 2. Vyadhinashana¹³: vranashodhana, vranaropan, kledashoshana, krimihara, danashamak, durgandhahara etc.
- 3. **Sterilization** of *asava* and *arishata*.

Kaala: "Dwiraha karyed dhoopam dashratram atandrita¹⁴"/ (Su.S.) Dhoopan is advised in morning and evening for 10days for 3-5minutes. Amount for **Dhoopan** drug¹⁵ is taken 3-5 grams; resins like guggulu & raal are taken in an amount of 3gms while powdered form is taken as 5gms.

Yonidhoopana: Yoni + Dhoopana means fumigation of vulva and vagina. Yoniodhoopana¹⁶ is a practical procedure in which fumigation of vulva & vagina is performed by medicated and disinfected smoke over the surface of yoni. It is indicated as Rakshoghana and Vyadhi chikitsa in striroga and prasuta. Vagina is preferred as a route of drug delivery due to its large surface area, high vascularity and permeability to absorb the medicated fumes or any medicated drug kept in vagina. Mode of action of Yonidhoopana: Dhoopan drugs with katu-tikta, ushan and aromatic properties when put on fire get converted into volatile medicated fumes. These fumes enter into smallest units of tissues of genital tract (due to sooksham-srotogami), dilates blood vessels and helps in oxidation of blood that leads to adequate tissue perfusion¹⁷. This antiseptic & sterilized environment helps in disinfection of uterine cavity, vagina & vulva; reduces PH & laxity of pubic muscles¹⁸. Thus helps in reducing pain, decreasing vaginal discharge, healing of wound & prevent growth of microorganisms.

Table 1: Indications of *Yonidhoopana* in *Stri Roga*, *Prasuta* and *Sutika*

S.No.	Vyadhi	Dhoopan dravya	Karma	Reference
1.	Yonisrava ¹⁹	Sarla, yava, guggulu, katuk-matsya-ghritasaha.	Sravahara	Ch.Chi 30/120
2.	Yonikandu ²⁰ Shleshmaja yonivyapada Alpasparsha yoni	Bruhatiphala, haridra, daruharidra	Kandughna	Su.U.38/27
3.	Vranaropaka ²¹	Sarshapa, nimbapatra with ghrita & lavana	Vranaropaka	Su.Su.19/28
4.	Garbhanirodhak ²²	Katu-Nimbakashtha	Shukraghna	Y.R.Stri- rogadhikara
5.	Garbhasanga ²³	-Krishnsarpanirmoka, Pinditaka -Bhurjapatra, kalihari, katutumbi, kushtha, sarshapa & snakemolt	Aavipra- durbhava	Su.Sh.10/13 A.S.Sh.2 A.H.Sha.1/86
6.	Vilambita prasava ²⁴ Anagata Prasava ²⁵	Krishansarpanirmoka, Tagar -Bhurjapatradhoom, Shinshpasardhoom	Aavipra- durbhava	Y.R.Sutika- rogadhikara Ch.Sh.8/38
7.	Aprasanga ²⁶ ,	Katukalabu, sarshapa, kritvedhana, sarpanirmoka with katutail Langalimoolkalka -Bhoorjapatra, kanchmani, sarpanirmoka	Gabhashaya sankochaka	Su.Sh.30/23 Ch.Sh.8/41

8.	Nagodara	Dhoopana drugs used in Aprapatana.	Aavipra- durbhava	A.S.Sh.4/21
9.	Sutika ²⁷	Kushtha, guggulu, agru mixed with ghrita	Rakshoghna	K.Khi.11/106
10.	Sutika Vataj jwara (Vepathu ²⁸	Devdaru or Kushtha, guggulu, agru	Rakshoghana	K.Khi.11/106
11.	Kumaragara ²⁹ (for fumigation of cloths, bed sheets)	Yava, sarshapa, atasi, hingu, guggulu, vacha, choraka, vyastha, golomi, jatamanshi, planksha, rohini, sarpanirmoka with ghrita.	Rakshoghna	Ch.Sh.8/61

Dhoopan is also indicated in many yonivyapadas like in Shleshmala, Acharna, Vipluta and Uppluta yonivyapad.

RESULTS & DISCUSSION

Yonidhoopana is indicated in many yonirogas. It plays an important role in sutikaparicharya due to its antiinflammatory, antimicrobial effect both on local site of vulva-vagina and maintains the normal vaginal flora. Different research studies are conducted in various institutes to prove the effect of yonidhoopana drugs.

Table 2: Research Studies regarding Yonidhoopana karma in different Stri Roga & Prasuti tantra.

S.N.	Institute	Author/	Title	Dhoopana drugs	Conclusion
		Year			
1.	Bharati Vidya- peeth Deemed University, Col- lege of <i>Ayur-</i> <i>veda</i> , Pune	Dr. Swati Surendra Mohite; 2013	Determining the efficacy of three <i>Ayurve-dic</i> formulations & <i>Dhoopana</i> (Medicinal Fumigation) in preventing of infections post vaginal delivery with Episiotomy.	Vidanga, Shata- pushpa, Jata- mansi (2gm each) Guggulu (5gms). For 5days daily on episiotomy wound).	91% of cases did not experience any pain during 5days of <i>dhoopana</i> assessed by VAS scale. Episiotomy wound of 99.7% of cases healed without any infections or complications.
2.	Bharati Vidyapeeth Deemed University, College of Ayurveda, Pune	Dr. Vidya Maruti Magar Dr.S.R. Gholap; January 2017	Evaluation of Dhupan Karma in Sutika Pa- richarya.	Kustha, Agru, Guggulu. For 7days on episiot- omy wound.	100% effect on udarshool P<0.05, 80.4% effect in kukshihras P<0.05, 97% effect in yonivranashoola reduction P<0.05. Yonivranashotha grade 0 in 100% patients. Yonivrana approximation in 94% patient was grade 0 (complete). Yonigata raktasrava P<0.05 within range. Vaginal PH reduce from 7.4 to 6.6 with P<0.05. Vaginal temperature raised after dhoopan from 99.3 to 99.6. Average grabhashayahras of 1.25cm/day.
3.	Bharati Vidya- peeth Deemed University, Col- lege of <i>Ayur-</i> <i>veda</i> , Pune	Seema R.Gholap, N.V.Khai- nar; September 2017	Validation of effect of an <i>Ayurvedic</i> therapeutic procedure, <i>Dhashmoolkwath</i> & <i>Dhoopan</i> Fumigation with medicinal herbs	Agaru, Kushtha Guggulu	Patients of puerperal period 2 nd -8 th day postpartum and subjected to <i>dhoopana karma</i> . Vaginal PH decreased 7.2 to 6.5. <i>Dhoopana</i> maintained normal involution of

			during first week of		uterus and episiotomy wound heal-
			puerperium: An open		ing due to antimicrobial, anti-in-
			clinical trial.		flammatory and analgesic action.
4.	S.D.M. Ayurve-	Reeti Yadav,	A Clinical study of	Sarala, Yava,	Patients of sweta pradara got con-
	dic Hospital	Sucheta Ku-	Amalaki choorna	Guggulu	siderable relief in yonisrava,
	Udupi	mari, Su-	(orally) & Saraladi		kandu, maithun asahishnuta, dur-
		prabha Kun-	Yonidhoopana in		gandh, excoriation with P<0.001;
		jbettu;	Sweta pradara w.s.r.		reduction in mutradaha P=0.042
		Jan 2019	to vaginitis.		and reduction in microorganism
					with P<0.001 in Candida albicans
					& gram +ve bacilli P=0.014.
5.	Shri J.G.C.H.S	Shreyes S.	Role of Krishna Sar-	Krishna Sar-	Krishna sarpanirmoka dhoopana
	Ayurvedic Med-	Vandana S.	panirmoka dhoopana	panirmoka	was given in 2 nd stage of labour
	ical College and	Kulkarni,	in prasava (2nd stage	Yonidhoopana in	showed significantly better results
	Hospital,	Jyothi S.	of labour): A Compar-	Dwitiya avastha	compared to control group in the
	Ghataprabha,	Kanagali Yo-	ative study	of prasava (Sec-	duration of uterine contractions &
	Karnataka.	githa Bali		ond stage of la-	interval between uterine contrac-
		M.R.		bour)	tions with statistical significance P
		2020			value < 0.05. (70%) patients deliv-
					ered uneventfully without episiot-
					omy.

Main changes occur during sutika avastha are wounds at placental and genital tract sites along with vata prakop, dhatukshaya, kled-rakta nisruti and agnimandaya³⁰. To avoid severe complications & to regain health after prasava dietary regimen and lifestyle modifications in sutika (sutika swasthvrita³¹) are advised. Yonidhoopan is mentioned as rakshoghana upkarma done for 7-10days in sutika paricharya. Effect of dhoopana are observed in different research studies in sutika paricharya that are reduction in udarshool, involution of uterus, makes yonigata raktastrava sterile, reduction in PH of vagina, episiotomy wound approximation, slightly raised vaginal temperature that helps in reducing pain and promotes healing³². Dhoopana drugs used in fumigation of episiotomy are kustha, agaru, guggulu, vidanga, jatamansi, shatpushpa; have proved their krimighna, vranaropana, shothghna, shoolghna and vimlapana karma.

In another study, effect of Saraladi yonidhoopana in sweta pradar was significant, showing reduction in symptoms itching vulva, white discharge, dyspareunia and foul smell. Dhoopana drugs sarala, yava and guggulu due to their ruksha, laghu, tikshna, ushna,

shothhara, krimihara, shoolaghna, sravahara properties have shown significant results both in subjective symptoms and maintained vaginal flora.

Yonidhoopana by krishana sarpa nirmoka helps in sukhprasava by enhancing smooth and powerful uterine contraction. Biochemical analysis of nirmoka showed presence of nitrates in the form of nitrous oxide when given as *dhoopana* in second stage of labor; it induced relaxation of cervix as well as enhanced reflex uterine contractions, dilated the vagina and relaxed perineum. Dhoopana possibly softened the tissues by making them more susceptible to dilate without tear and helped in sukhprasava. Sarpa nirmoka of 50cm put over heated charcoal in sarava and dhoopana was given to well expose vaginal walls and cervix for 2-3minutes between the uterine contractions. It was given maximum in three sessions depending on progress of labour. Dhoopan drugs with laghu, ruksha, ushan & volatile properties, katu vipaka and ushna veerya produces krimighna, kandughna, kledshoshak, jantughana, vranashodhak & vedanashamak, shothhara effect. So, it is recommended for maintaining genital health and preventing genital tract infections or puerperal sepsis.

Thus, dhoopana shows significant analgesic, anti-inflammatory and anti-microbial action locally at vagina without need of antibiotics & analgesic drugs.³³

Table 3: Some research studies showing Antimicrobial effect of *Dhoopana drugs*

S.N.	Institute	Author/ Year	Title	Dhoopana	Conclusion
				Drugs	
1.	KLE's Shri	Dr. Sumitha	Study of Krimighna	Guggulu,	Dhupa Dhoopana showed remarkable
	B.M.K. Ayur-	L. Dr	effect of "Dhup" An	Ushira,	senstivity against Staphylococcus au-
	veda Maha-	B.S.Prasad;	Ayurvedic dhoopana	Vacha, Rala,	reus, S. abony and E.coli by displaying
	vidyalaya,	Dec 2014	Product as a	Nimba, Arka,	maximum zone of clearance of 3mm,
	Shahpur Bel-		Rakshoghna	Devadaru,	2.6mm and 2mm diameter respectively.
	gaun.		Dhoopana of Sensi-	Loban.	
			tivity method.		
2.	Sumatibhai	Shravani M.	A Comparative	Neem Pan-	Arishta Dhoopana Yoga and Formalin
	Shah Ayur-	Gund, Ram-	study of Arishta	chang powder	were compared on E. coli sprayed glass
	veda Maha-	chandra P.	Dhoopana Yoga &		experimental chambers of 1M3. The col-
	vidyalaya	Babar,	Formalin for their		ony forming units of <i>E.coli</i> by taking
	Malvadi.	Sunanda V.	Antimicrobial Effect		swabs for culture before and after fumi-
		Vanarase,	as a Fumigating		gation (at 30 min, 3 Hours) were noted.
		Rashmi A.	agent on E.coli.		Significant result with P value < 0.05 was
		Kale.			seen in both the groups showing reduc-
		2017			tion of E.coli.
3.	Dr. Harisingh	Sushma	Validation of envi-	Garlic peel,	The airborne bacterial count without fu-
	Gour Central	Bagde Bhaty-	ronmental disinfec-	Turmeric pow-	migation (control) was 75.66 ± 4.93
	University,	walkar,	tion efficiency of	der, Carom	cfu/m3 that got reduced to 21.55 ± 3.34 ,
	Sagar,	Prashant	traditional Ayurve-	seeds, Loban	30.55 ± 8.07 , 30.33 ± 1.2 and 30.66
	Madhya Pra-	Shukla,	dic fumigation prac-		\pm 6.33cfu/m3 upon fumigation with
	desh, India.	Rupesh K.	tices.		garlic peel, turmeric, ajwain and loban
		Srivastava.			powder respectively. In addition, garlic
		May 2019			peel is effective in disinfecting surfaces
					of the drug resistant MPSA bacteria.

In above mentioned antimicrobial studies guggulu, agaru, sarshapa, nimbapatra have shown significant results in disinfection of wound. Garlic peel, turmeric, carom seeds and loban dhoopana have proved their effect in reduction of airborne bacterial count tested independently whereas garlic peel alone is also effective in disinfecting surfaces of drug resistant MPSA bacteria responsible for nosocomial infections. Nimda panchang powder herbal fumigation have shown antimicrobial effect through microbial cell wall breakdown. 10% chloroform extract of neem has antibacterial effect against Staphylococcus aureus and E.coli. Therefore, it can be used in operation theatres, hospital wards and in infected wounds for fumigation. Dhupa dhoopana drugs showed remarkable sensitivity against Staphylococcus aureus, S.abony & E.coli. Aparajita dhooma choorna dhoopana has been proved highly effective against bacteria and fungi just in a day upto 95% and 96% respectively in the area of sterilisation of migrant labour camps in COVID epidemic.

CONCLUSION

Dhoopana drugs having katu-tikta, laghu-ruksha, tikshna-ushna properties and volatile contents proved to be kandughna, kledashoshaka, vranaropaka, shothahara, jantughna, vedanashamaka. Yonidhoopana means fumigation of vulva-vagina has shown significant effect in different genital disorders, sutika, sukhaprasava and improves defence mechanism of female genital tract by maintaining healthy vaginal flora. Various drugs has shown antimicrobial action against E.coli, Staphylococcus aureus, S.bony, Candida albicans. Therefore, yonidhoopana has bacteriostatic action, economical, effective procedure and easy to perform without any harmful effects.

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