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, sukhrasava 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 antisectic 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 (Bruhatraj), 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, sukhrasava 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), yoniroga, santatinrodha2 sukhasprasava and for the maintenance of genital health. Different types of Sthanika chikitsa3 are described yonidhawan, yoniparishka, yonipichu, yonikalka, yonilepa, yonipinda, yonivarti, yonidhoopan, kshararakarma, uttarabasti. Dahan-karma is also included as a local procedure by some Acharya. Local treatments possess shaman 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 agnihotra5, 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 ‘dhoopamana’ 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 (Rakhshoghna) 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, shastrakarmagrhrula, kumaragara and to sterilise the asava and arishata. A variety of fumigation drugs are mentioned in Kashyap Samhita Khilthana 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.

**Dhoopana**: Different types of Dhoopana drugs

1. **On the basis of origin**8:
   - “Avum Dhooopa Samutpanna Prajanam Hittkamya / Nirdishtascha Agnidaivtya Jangam Sthavaraashrya /” (K.S.Dh.kalp)
     1. **Jangama**: Animal origin (Hairs, nails, horns, sarpanirmoka etc.) Animal product contains a keratin like structural part that contains sulphur play a key role in disinfection.
     2. **Sthavara**: Plant origin (Agru, vachaa, haridra, kushtha, guggulu nimba etc.)
     3. **Minerals**8: Harital & Manahshila. These are the Sulphur containing compounds.
2. According to Acharya Kashyapa\textsuperscript{10}: 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 drugs\textsuperscript{11}: 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\textsuperscript{12}:** Dhoopan of bhesajagar, kumaragara, sutikagara, Shastra-karam-graha.

2. **Vyadhinashana\textsuperscript{13}:** For vranashodhana, vranaropan, kledashoshana, krimihara, vedanashamak, durgandhahara etc.

3. **Sterilization** of asava and arishata.

**Kaala:** “Dwiraha karyed dhoopam dashratram atan-drita\textsuperscript{14}/(Su.S.) Dhoopan is advised in morning and evening for 10days for 3-5minutes. **Amount for Dhoopan drug\textsuperscript{15}** 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. **Yoniodhoopana\textsuperscript{16}** 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 chikita 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 perfusion\textsuperscript{17}. This antiseptic & sterilized environment helps in disinfection of uterine cavity, vagina & vulva; reduces PH & laxity of pubic muscles\textsuperscript{18}.Thus helps in reducing pain, decreasing vaginal discharge, healing of wound & prevent growth of microorganisms.

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

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Vyadhi</th>
<th>Dhoopan dravya</th>
<th>Karma</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yonisrava\textsuperscript{19}</td>
<td>Sarla, yava, guggulu, katuk-matsya-grhitasaha.</td>
<td>Sravahara</td>
<td>Ch.Chi 30/120</td>
</tr>
<tr>
<td>2.</td>
<td>Yonikanda\textsuperscript{20} Shleshmaja yonivyapada Alpasparsha yoni</td>
<td>Bruhatiphala, haridra, daruharidra</td>
<td>Kandughna</td>
<td>Su.U.38/27</td>
</tr>
<tr>
<td>3.</td>
<td>Vranaropaka\textsuperscript{21}</td>
<td>Sarshapa, nimbapatra with ghrita &amp; lavana</td>
<td>Vranaropaka</td>
<td>Su.Su.19/28</td>
</tr>
<tr>
<td>4.</td>
<td>Garbhanirodhak\textsuperscript{22}</td>
<td>Katu-Nimbakashtha</td>
<td>Shukraghna</td>
<td>Y.R.Strirogadhikara</td>
</tr>
<tr>
<td>5.</td>
<td>Garbhasanga\textsuperscript{23}</td>
<td>-Krishnsarpanirmoka, Pinditaka -Bhurjapatra, kalihari, katuutumbi, kushtha, sarshapa &amp; snaemolt</td>
<td>Aavipra-durbhava</td>
<td>Su.Sh.10/13 A.S.Sh.2 A.H.Sha.1/86</td>
</tr>
<tr>
<td>6.</td>
<td>Vilambita prasava\textsuperscript{24} Anagata Prasava\textsuperscript{25}</td>
<td>Krishansarpanirmoka, Tagar -Bhurjapatradhoom, Shinshpasardhoom</td>
<td>Aavipra-durbhava</td>
<td>Y.R.Sutikarogadhikara Ch.Sh.8/38</td>
</tr>
<tr>
<td>7.</td>
<td>Aprasanga\textsuperscript{26}</td>
<td>Katukalabu, sarshapa, kritvedhana, sarpanirmoka with katutail. - Langalimoolkalka -Bhoorjapatra, kanchmani, sarpanirmoka</td>
<td>Gabhashaya sankochaka</td>
<td>Su.Sh.30/23</td>
</tr>
</tbody>
</table>

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\textsuperscript{10}Acharya Kashyapa

\textsuperscript{11}Dhoopan

\textsuperscript{12}Rakshoghana karama

\textsuperscript{13}Vyadhinashana

\textsuperscript{14}Dwiraha

\textsuperscript{15}Amount for Dhoopan drug

\textsuperscript{16}Yoniodhoopan

\textsuperscript{17}Mode of action of Yoniodhoopana

\textsuperscript{18}Yonidhoopana

\textsuperscript{19}Yonisrava

\textsuperscript{20}Yonikanda

\textsuperscript{21}Vranaropaka

\textsuperscript{22}Garbhanirodhak

\textsuperscript{23}Garbhasanga

\textsuperscript{24}Vilambita prasava

\textsuperscript{25}Anagata Prasava

\textsuperscript{26}Aprasanga
8. Nagodara
   Dhoopana drugs used in Aprapatana. Aavipra-durbhava A.S.Sh.4/21
9. Sutika27
   Kushtha, guggulu, agru mixed with ghrita Rakshoghna K.Khi.11/106
10. Sutika Vataj jwara (Vepathu28
    Devedaru or Kushtha, guggulu, agru Rakshoghana K.Khi.11/106
11. Kumaragara29 (for fumigation of cloths, bed sheets)
    Yava, sarshapa, atasi, hingu, guggulu,\n    vacha, choraka, vyastha, golomi, jatamanshi, planksha, rohini, sarpanirmoka\n    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 anti-inflammatory, 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.**

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Institute</th>
<th>Author/Year</th>
<th>Title</th>
<th>Dhoopana drugs</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bharati Vidyapeeth Deemed University, College of Ayurveda, Pune</td>
<td>Dr. Swati Surendra Mohite; 2013</td>
<td>Determining the efficacy of three Ayurvedic formulations &amp; Dhoopana (Medicinal Fumigation) in preventing of infections post vaginal delivery with Episiotomy.</td>
<td>Vidanga, Shatapurasha, Jatamansi (2gm each) Guggulu (5gms). For 5days daily on episiotomy wound.</td>
<td>91% of cases did not experience any pain during 5days of dhoopana assessed by VAS scale. Episiotomy wound of 99.7% of cases healed without any infections or complications.</td>
</tr>
<tr>
<td>2.</td>
<td>Bharati Vidyapeeth Deemed University, College of Ayurveda, Pune</td>
<td>Dr. Vidya Maruti Magar Dr.S.R. Gholap; January 2017</td>
<td>Evaluation of Dhpurana Karma in Sutika Paricharya.</td>
<td>Kustha, Agru, Guggulu. For 7days on episiotomy wound.</td>
<td>100% effect on udarshool P&lt;0.05, 80.4% effect in kukshihras P&lt;0.05, 97% effect in yonirvranashoola reduction P&lt;0.05. Yonirvranashotha grade 0 in 100% patients. Yonirvran approximation in 94% patient was grade 0 (complete). Yonigata raktasrava P&lt;0.05 within range. Vaginal PH reduce from 7.4 to 6.6 with P&lt;0.05. Vaginal temperature raised after dhoopan from 99.3 to 99.6. Average grabhashayaharas of 1.25cm/day.</td>
</tr>
<tr>
<td>3.</td>
<td>Bharati Vidyapeeth Deemed University, College of Ayurveda, Pune</td>
<td>Seema R.Gholap, N.V.Khainar; September 2017</td>
<td>Validation of effect of an Ayurvedic therapeutical procedure, Dhashmoolkwath &amp; Dhoopan Fumigation with medicinal herbs</td>
<td>Agaru, Kushtha Guggulu</td>
<td>Patients of puerperal period 2nd-8th day postpartum and subjected to dhoopana karma. Vaginal PH decreased 7.2 to 6.5. Dhoopana maintained normal involution of</td>
</tr>
</tbody>
</table>
4. S.D.M. Ayurvedic Hospital Udupi  
Reeti Yadav; Sucheta Kumar, Suprabha Kunjbetu; Jan 2019  
A Clinical study of Amalaki choorna (orally) & Saraladi Yonidhoopana in Sweta pradara w.s.t. to vaginitis.

| 4. S.D.M. Ayurvedic Hospital Udupi | Reeti Yadav; Sucheta Kumar, Suprabha Kunjbetu; Jan 2019 | A Clinical study of Amalaki choorna (orally) & Saraladi Yonidhoopana in Sweta pradara w.s.t. to vaginitis. | Sarala, Yava, Guggulu | Patients of sweta pradara got considerable relief in yonisrava, kandu, maithun asahishnuta, dur-gandh, excoriation with P<0.001; reduction in mutradaha P=0.042 and reduction in microorganism with P<0.001 in Candida albicans & gram +ve bacilli P=0.014. |

5. Shri J.G.C.H.S Ayurvedic Medical College and Hospital, Ghataprabha, Karnataka.  
Shreyes S. Vandana S. Kulkarni, Jyothis S. Kanagali Yogitha Bali M.R.  
Role of Krishna Sarpanirmoka dhoopana in prasava (2nd stage of labour): A Comparative study

| 5. Shri J.G.C.H.S Ayurvedic Medical College and Hospital, Ghataprabha, Karnataka. | Shreyes S. Vandana S. Kulkarni, Jyothis S. Kanagali Yogitha Bali M.R. | Role of Krishna Sarpanirmoka dhoopana in prasava (2nd stage of labour): A Comparative study | Krishna Sarpanirmoka Yonidhoopana in Dwitiya avastha of prasava (Second stage of labour) | Krishna sarpanirmoka dhoopana was given in 2nd stage of labour showed significantly better results compared to control group in the duration of uterine contractions & interval between uterine contractions with statistical significance P value < 0.05. (70%) patients delivered uneventfully without episiotomy. |

Main changes occur during sutika avastha are wounds at placental and genital tract sites along with vata prakop, dhatukshaya, kled-rakta nisruti and agnimandaya\(^{30}\). To avoid severe complications & to regain health after prasava dietary regimen and lifestyle modifications in sutika (sutika swasthvrita\(^{31}\)) 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 udar-shool, 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 healing\(^{32}\). Dhoopana drugs used in fumigation of episiotomy are kustha, agaru, guggulu, vidanga, jatamansi, shatpushpa; have proved their krimgnhna, vrnanaropana, 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. Dhoopana drugs with laghu, ruksha, ushan & volatile properties, katu vipaka and ushna veerya produces krimighna, kandughna, kledoshoshak, jantughana, vrnamoshdhak & 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.\(^3\)

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

<table>
<thead>
<tr>
<th>S.N.</th>
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<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>KLE’s Shri B.M.K. Ayurveda Mahavidyalaya, Shahpur Belgaun.</td>
<td>Dr. Sumitha L. Dr B.S.Prasad; Dec 2014</td>
<td>Study of Krimighna effect of “Dhup” An Ayurvedic dhoopana Product as a Rakshoghna Dhoopana of Sensitivity method.</td>
<td>Guggulu, Ushira, Vacha, Rala, Nimba, Arka, Devadaru, Loban.</td>
<td>Dhupa Dhoopana showed remarkable sensitivity against Staphylococcus aureus, S. abony and E.coli by displaying maximum zone of clearance of 3mm, 2.6mm and 2mm diameter respectively.</td>
</tr>
<tr>
<td>2.</td>
<td>Sumatibhai Shah Ayurveda Mahavidyalaya, Malvadi.</td>
<td>Shravani M. Gund, Ramchandra P. Babar, Sunanda V. Vanarase, Rashmi A. Kale. 2017</td>
<td>A Comparative study of Arishta Dhoopana Yoga &amp; Formalin for their Antimicrobial Effect as a Fumigating agent on E.coli.</td>
<td>Neem Panchang powder</td>
<td>Arishta Dhoopana Yoga and Formalin were compared on E. coli sprayed glass experimental chambers of 1M3. The colony forming units of E.coli by taking swabs for culture before and after fumigation (at 30 min, 3 Hours) were noted. Significant result with P value &lt;0.05 was seen in both the groups showing reduction of E.coli.</td>
</tr>
<tr>
<td>3.</td>
<td>Dr. Harisingh Gour Central University, Sagar, Madhya Pradesh, India.</td>
<td>Sushma Bagde Bhatywalkar, Prashant Shukla, Rupesh K. Srivastava. May 2019</td>
<td>Validation of environmental disinfection efficiency of traditional Ayurvedic fumigation practices.</td>
<td>Garlic peel, Turmeric powder, Carom seeds, Loban</td>
<td>The airborne bacterial count without fumigation (control) was 75.66 ± 4.93 cfu/m3 that got reduced to 21.55 ± 3.34, 30.55 ± 8.07, 30.33 ± 1.2 and 30.66 ± 6.33cfu/m3 upon fumigation with garlic peel, turmeric, ajwain and loban powder respectively. In addition, garlic peel is effective in disinfecting surfaces of the drug resistant MPSA bacteria.</td>
</tr>
</tbody>
</table>

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, sukha-prasava 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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