Dhoopana Karma - A boon against microbes

Scholar
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INTRODUCTION

- Ayurveda believes in striking a balance between an individual (body, mind, soul, spirit) and environment.

- Measures like water purification, homa, yagna, dhoopana have been mentioned in our Ayurvedic texts.

- Dhoopana is a method by which drugs of herbal, herbo-mineral or animal origin are used for fumigation.
HISTORY

- Since Vedic period sterilization of house & environment around it by Dhoopana, has been going on traditionally.
- Dhoopana has been mentioned in Atharva Veda.
- Dhoopana has also been mentioned for its antimicrobial and growth promoting activities for the healthy production of plants in Vrikshayurveda.
- Dhoopana is an integral part of Rakshavidhi, which ensures protection against microbes.
PREVALENCE IN AYURVEDA

- Various formulations of Dhoopana have been mentioned in our classics.

- Kashyapa has even dedicated a chapter solely for Dhoopana.

- Dhoopana has broad spectrum of aesthetic, psychological and medical significance.
Kashyapa has also mentioned about types of *dhoopana*

- 1 *Dhoopa* (Fumigation)
- 2 *Anudhoopa* (Subsequent Fumigation)
- 3 *Pratidhoopa* (Antifumigation)

On the basis of origin, fumigations can also be classified as *jangama* and *sthavara*. 
DHOOPANA DRAVYAS

- Plants: Kustahara, Krimighna, Kandughna & Vranahara gana. These drugs mostly have anti microbial properties.
- Minerals: sulphur compounds Haritala, Manashila.
- Animal products: hair, nails, horns etc. have been used where keratin is a structural component which contains sulphur.

- This sulphur might play a key role in the disinfection.
Dhoopana has been mentioned for

- healing vrana, yonivyapada, karna rogas;
- disinfecting bhesajagara, vranagara,
- sterilising asavas and aristas.
COLLECTION

- Collection: Pusya or Maitra Nakshatra
- Direction: south-east direction (presided over by Agni) or northward direction.
- Storage: New earthen pots.
- Stability: 2 years if preserved in air tight containers. The materials should retain their original colour & fragrance.
- Precaution: Subsequent fumigation is required to prevent recurrence of disease.
Present Need

- The disadvantages of chemical disinfectants include development of drug resistance, toxicity and hypersensitivity reactions.

- Hence *dhoopana* today can play a major role as a disinfectant as it is eco-friendly and relatively cheaper.

- Various research works have been done to assess its role.
Two rooms of same size which are in routine usage in almost similar fashion were selected for the study. One room served as control without any intervention.

*Dhoopana karma* for 2 days with selected drugs showed statistically significant results in both bacterial as well as fungal count with sustained effects for 6 days.

EVALUATION OF ANTIMICROBIAL AND ANTIFUNGAL PROPERTY OF DHOOPANA KARMA (FUMIGATION) – BY “DHUP”AN AYURVEDIC DHOOPANA PRODUCT L. Sumitha and B. S Prasad
## Composition of DHUP

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Latin Name</th>
<th>Part</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commiphora mukul</td>
<td>Gum resin</td>
<td>1.5 parts</td>
</tr>
<tr>
<td>2</td>
<td>Vetveria zizanoids</td>
<td>Root</td>
<td>1.5 parts</td>
</tr>
<tr>
<td>3</td>
<td>Acorus calamus</td>
<td>Rhizome</td>
<td>1 part</td>
</tr>
<tr>
<td>4</td>
<td>Shorea robusta</td>
<td>Gum resin</td>
<td>1.5 parts</td>
</tr>
<tr>
<td>5</td>
<td>Azadiracta indica</td>
<td>Bark</td>
<td>1.5 parts</td>
</tr>
<tr>
<td>6</td>
<td>Calotropis procera</td>
<td>Root</td>
<td>1.5 parts</td>
</tr>
<tr>
<td>7</td>
<td>Cedrus deodara</td>
<td>Bark</td>
<td>1.5 parts</td>
</tr>
<tr>
<td>8</td>
<td>Boswellia carterii</td>
<td>Gum resin</td>
<td>3 parts</td>
</tr>
</tbody>
</table>
RESULTS

GRAPH 1: MEAN BACTERIAL COUNT OF TEST ROOM & CONTROL ROOM

GRAPH 2: MEAN FUNGAL COUNT OF TEST ROOM & CONTROL ROOM
The antimicrobial activity of Aparajitha Dhooma Choornam was evaluated in the manufacturing unit of the Arya Vaidya Pharmacy, Kanjikode.

The study was attempted to discard the microbial contamination of flora of various sections of the manufacturing unit, thereby to create an aseptic atmosphere for quality products.
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<th>Parts used</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Acorus calamus</em></td>
<td>Rhizome</td>
<td>1 part</td>
</tr>
<tr>
<td>2</td>
<td><em>Actiniopteris dichotoma</em></td>
<td>Whole plant</td>
<td>1 part</td>
</tr>
<tr>
<td>3</td>
<td><em>Aquilaria agallocha</em></td>
<td>Wood</td>
<td>1 part</td>
</tr>
<tr>
<td>4</td>
<td><em>Azadirachta indica</em></td>
<td>Bark</td>
<td>1 part</td>
</tr>
<tr>
<td>5</td>
<td><em>Calotropis gigantean</em></td>
<td>Root</td>
<td>1 part</td>
</tr>
<tr>
<td>6</td>
<td><em>Cedrus deodara</em></td>
<td>Wood</td>
<td>1 part</td>
</tr>
<tr>
<td>7</td>
<td><em>Commiphora mukul</em></td>
<td>Gum Resin</td>
<td>1 part</td>
</tr>
<tr>
<td>8</td>
<td><em>Shorea robusta</em></td>
<td>Resin</td>
<td>1 part</td>
</tr>
</tbody>
</table>
RESULT

- The choornam showed significantly higher inhibition of various Aspergillus species.

- But, it was observed that the overall activity was more pronounced against bacteriae as compared to fungi.
The study was done to assess some herbal agents used for fumigations as listed in Ayurvedic literature.

Air samples were collected using Nutrient Agar plates just before, 15 minutes and 45 minutes after fumigation from both ground and top.
OPTIMAL EFFICACY

- Formalin: 100%
- A. aspera: 94%
- C. procera: 79.30%
- C. deodara: 96.40%
- L. cephalodes: 70.80%
- R. communis: 36.60%
- V. wallichii: 81%
- B. nigra: 83.30%
- A. racemosus: 51.50%
- A. lebbeck: 63.60%
- A. calamus: 82%
RESULT

- In relation to Formaline, *Devadāru* was found to be highly effective among all the other subjects.

- Optimal disinfection achieved by this subject was 96.4% and 78.3% for ground and top samples respectively.
RECENT RESEARCHES

➢ The operation theatre of Shalya Tantra Department, SVNHT’s Ayurved Mahavidhyalaya, Maharashtra was taken to undergo the study.

➢ The swab was sent to laboratory for testing.

To Study the Efficacy of Ayurvedic Dhoopan for Operation Theater Sterilization
Anantkumar V. Shekokar and Kanchan M. Borkar
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</tr>
</thead>
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<tr>
<td>1</td>
<td>Ghrita</td>
<td>1 part</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><em>Brassica nigra</em></td>
<td>Seeds</td>
<td>1 part</td>
</tr>
<tr>
<td>3</td>
<td><em>Acromus calamus</em></td>
<td>Rhizome</td>
<td>1 part</td>
</tr>
<tr>
<td>4</td>
<td><em>Commiphora mukul</em></td>
<td>Gum resin</td>
<td>1 part</td>
</tr>
<tr>
<td>5</td>
<td><em>Azadiracta indica</em></td>
<td>Bark</td>
<td>1 part</td>
</tr>
<tr>
<td>6</td>
<td><em>Aquilaria Agollocha</em></td>
<td>Wood</td>
<td>1 part</td>
</tr>
<tr>
<td>7</td>
<td><em>Shorea robusta</em></td>
<td>Resin</td>
<td>1 part</td>
</tr>
<tr>
<td>8</td>
<td>Sodium chloride</td>
<td></td>
<td>1 part</td>
</tr>
</tbody>
</table>
RESULT

- Reports were similar to modern technique of fumigation i.e. results read as “No microbes found” (Satisfactory).

- A possibility of absence of microbes even before the Dhoopana, existed as aseptic conditions were practiced in the O.T. room.

- Dhoopana may be less effective but it showed significant results & can be used as insect repellent, room purifier & air freshener.

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FUTURE CHALLENGES

- Standardisation of fumigants
- Analysing chemical components
- Developing as a drug delivery system
- Toxicity studies
Acknowledgement

I would like to sincerely thank
- Dr. Prashant Bedarkar
- Dr. Galib
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- Prof P K Prajapati
- Research scholars of the works mentioned &
- The audience
Thank you