Scientific rationale of Yagya: a review

Ravi Kant Chaube1*, Vivek Kumar Chaube2, Purnendu Saxena3, Kuldip Solanki4, Rahul Vinay Chandra Tiwari5, Heena Tiwari6

1Department of Radiology, Ultra Care Diagnostic Centre, Civil Lines, Raipur, Chhattisgarh, India
2Department of Plastic and reconstructive Surgery, 3Department of Orthopedic Surgery, V.Y. Hospital, Raipur, Chhattisgarh, India
4Department of Gastroenterology, Solanki Gastro and Endo Centre, Raipur, Chhattisgarh, India
5Department of Oral and Maxillofacial Surgery, CLOVE Dental and OMNI Hospitals, Visakhapatnam, Andhra Pradesh, India
6Department of Dental Surgery, CHC Makdi, Kondagaon, Chhattisgarh, India

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*Correspondence: Dr. Ravi Kant Chaube,
E-mail: ravi.chaube@gmail.com

ABSTRACT

Yagya is an ancient Hindu Vedic ritual aimed at ablution of the body and surroundings by reinforcing the natural equilibrium in various components of the body and ambient environment. Yagya is directed with selective medicinal preparation of herbs that is forfeited in the holy fire inflamed by specific woods along with the chant of distinct Vedic Hymes (mantras). Medicinal smoke significantly removes human pathogenic microbes. The vaporization and sublimation of ingredients of havan samagri in an inverted pyramid shaped yagya-kunda deliver vast amount of therapeutic and environmental benefits. The chemical transformation (into vapor or gaseous phase/ colloidal forms) of the herbal/ plant medicinal preparations in Hawan lead to release of medicinal phytochemicals; which affect many endogenous chemicals including hormonal axis. These fumes help in purifying the air and have anti-epileptic, anti-pyretic, anti-fungal, antibacterial effects amongst the numerous other benefits. Regular chanting of hymns helps in purifying the mind. Improvement has been noticed with respect to digestion, hypertension, mental agitation and sleep after chanting the Mantras.

Keywords: Agnihotra, Ambient atmosphere, Human body, Hawan, Yagya, Yagna

INTRODUCTION

From Vedic era, use of yagya (also called Yagna, Hawan or Agnihotra) for health advantage is one of the important functions of Yagya. Yagya was earlier extensively used for preventing and treating various diseases and ailments, and also for refining and maintaining immunity for individuals. Yagya has numerous applications described in Vedic and Ayurvedic literature. For instance, Yagya has been used in solving the difficulties related to environment, in handling natural disasters, for attaining spiritual progress, for preserving ecological balance, for managing social and political balance, and for averting and curing diseases.1 The notion of incinerating herbs in the fire to produce medicinal-smoke and taking it through nose, skin and breath and by executing pranayama prevails in the Vedic literature.

COMPOSITION

The Yagya, which includes the application of medicinal herbs, is recognized as Bhashaj Yagya. Even in contemporary times, application of Bheshaj Yagya is usually seen in Indian culture.2 It is an Indian therapeutic procedure of transnasal and pulmonary inhalation and transcutaneous permeation of medicinal-smoke of precise
Various holy sticks (dhoop) made from different trees were attained and fumes were formed. Numerous bacteria secluded from different sources were exposed to different stick fumes (dhoop). It was detected that the fumes of Achyranthus aspera controlled the bacterium Streptococcus pyogenes whereas Azadirachta indica, Calotropis gigantica, other components like Ficus benghalensis, Ficus religiosa, Mangifera indica, and Pongamia pinnata were also found to be fruitful in controlling pathogenic bacteria.

The chemical transformation (into vapor or gaseous phase/colloidal forms) of the herbal/plant medicinal preparations in Hawan lead to release of medicinal phytochemicals, which affect many endogenous chemicals (Table 3).

Table 2: Usual ingredients of ‘Hawan Samagri’.

| Vernacular name | Botanical name        | Family          |
|-----------------|-----------------------|-----------------|
| Jow             | Hordeum vulgare       | Gramineae       |
| Til             | Sesamum indicum       | Pedaliaceae     |
| Chauval         | Oryza sativa Linn.    | Gramineae       |
| Makhana         | Euryale ferox         | Nymphaeaceae    |
| Kismis          | Vitis vinifera        | Vitaceae        |
| Narival         | Cocos nucifera        | Arecaleae       |
| Baadam          | Prunus communis       | Rosaceae        |
| Chandan         | Santanum album        | Santalaceae     |
| Deodar          | Cedrus deodara        | Coniferaceae    |
| Agar            | Aquilaria agallocha   | Thymelaceae     |
| Indrayan        | Citrillus colocynthis | Cucurbitaceae   |
| Jatamansi       | Nardostachys jatamansi| Honesuckale     |
| Chandni tagar   | Ervatamia devarricata | Apocynaceae     |
| Peepal          | Ficus religiosa       | Moraceae        |
| Pista           | Pistacia vera         | Anacardiaceae   |
| Tambul          | Zanhexylum armatum    | Rutaceae        |
| Kapoor (camphor)| Cinnamomum camphora   | Lauraceae       |
| Kesar (saffron) | Crocus sativus L.     | Iridaceae       |
| Guggul          | Commiphora mukul      | Burseraceae     |
| Ashwagandh      | Withania somnifera    | Solonaceae      |
| Nagarmotha      | Cyperus scariosus     | Cyperaceae      |
| Nagskar         | Mesua Ferrea          | Androacaeae     |
| Tejapatra       | Cinnamomum macrocarpum| Lauraceae       |
| Kulanjan        | Alpinia galanga       | Zingiberaceae   |
| Jaiphal (Nutmeg)| Myristica fragrans    | Myristicaceae   |
| Laung (Clove)   | Syzygium aromaticum   | Myrtaceae       |
| Neem            | Azadirachta indica    | Meliaceae       |

Table 1: Woods recommended for the use in hawan.

| Vernacular name | Botanical name       | Family        |
|-----------------|----------------------|---------------|
| Mango           | Mangifera indica     | Anacardiaceae |
| Sandal-wood     | Santalum album       | Santalaceae   |
| Agar wood       | Aquilana malaccensis | Thymelaceae   |
| Tagar wood      | Valeriana wallchhi   | Valerianaceae |
| Deodar (cedar)  | Cedrys libani        | Pinaceae      |
| Dhak or Palash  | Butea frondosa       | Fabaceae or Leguminosae |
| Bilva           | Aegle marmelos       | Rutaceae      |
| Pipal           | Ficus religiosa      | Moraceae      |
| Bargad (Banyan) | Ficus bengalensis    | Moraceae      |
| Shami           | Proposis spicigera   | Fabaceae or Leguminosae |
| Gular (wild fig)| Ficus glomerata      | Moraceae      |
| Ber             | Ziziphus jujube      | Rhamnaceae    |

It should be stressed on that the purpose of agnihotra is not to burn the ingredients that are added in the form of oblations, but to vaporize them i.e. to heat them just to the extent that they alter the air quality. Yagya is directed with selective medicinal preparation of herbs that is forfeited in the holy fire of specified woods along with the chant of specific Vedic Hymes (mantras). The chemical reaction and sublimation of selected wood and havan samagri (Table 1, Table 2) in an inverted pyramid shaped yagya-kunda to deliver vast amount of health benefits and therapeutic and environmental purification applications.
DISCUSSION

Yagya as well as regular chanting of Mantra’s helps counter many ailments as well as environmental hazards as mentioned below.

Air pollution

Air pollution has both serious acute and chronic effects on human health. Yagya is steered with selected medicinal preparation of herbs that is forfeited in the holy fire along with the chanting of specific vedic hymes (mantras).

The fumes lead to purification of air by oxidizing the carbonic compounds and along with that they have antimicrobial properties which benefit the people around. They have disguising effect on various pollutants in the atmosphere including the oxides of sulphur. Surplus Carbon dioxide in the atmosphere is also reduced to formaldehyde which acts as a powerful antiseptic with germicidal action. The joint chanting of mantra that adapt in front of Yagya, enlarges the mantra Shakti exponentially and expands the mantra vibrations to all dimensions, which have unlimited radiant effect in the outer space.

Antifungal effect

Laboratory tests were directed by exposing petriplates having czapek dox agar medium, in a closed room, before and after fumigating ‘Hawan samagree’ and plant parts (dried leaves, bark, sawdust) of Mangifera indica, Azadirachta indica and Santanum album. Results displayed substantial decrease in concentration of fungal load. This method can be successfully applied at actual work places like small flour mills, ginners, cobbler shops etc., to limit the concentration of lethal fungi like Aspergillus, Penicillium, Alternaria, Curvularia, Cladosporium etc.

Antiepileptic effect

The healing value of Hawan is grounded on the ingredients used. Ghee when burnt like oil will produce natural fumes that heal the respiratory system and clear any blood clots and bacteria affecting the nasal, lungs and veins. The direct neuro-pharmacological properties of essential oils, aroma of the oil may apply a pleasant response via the olfactory system in turn, changing the hypothalamic control of hormones and neurotransmitters. The medium chain fatty acids in pure Ghee get changed into ketones and provide the epilepsy patient brain with the energy it needs to endure as well as

| Botanical name         | Active component                  | Effects on human body                                                                 |
|------------------------|-----------------------------------|--------------------------------------------------------------------------------------|
| Saffron Coccus sativus | Crocetin                           | Antihypertensive, antitussive, antioxidant, antidepressant, anticonvulsant             |
| Jatamansi Nardostachys jatamansi | Valeranone                | Increase in seizure threshold, Inhibit the electroshock convulsions               |
| Coconut Cocos nucifera | Monounsaturated fatty acids, Saponins | Inhibit convulsions, increase GABA and, serotonin level                        |
| Sesame seeds Sesamum indicum | 1-(5-methyl-2-furanyl)-1-propanone   | Antioxidant, antimicrobial, anti-inflammatory, antancer                               |
| Clove Eugenia caryophyllus | Eugenol, β-caryophyllene.         | Analgesic, antioxidant, anti-inflammatory, anxiolytic, anticonvulsant                 |
| Nutmeg Myristica fragrans | Myristicin and macelignan         | Reduce severity of seizures.                                                        |
| Nagkesar Mesua ferra   | Sesquiterpene                     | Anti-inflammatory, anti-pyretic.                                                     |
| Tagar Valeriana wallich | Valerian                          | Antispasmodic, sedative, anticonvulsant.                                            |
| Agar Aquilana malaccensis | Sesquiterpenes                  | Sedative action.                                                                     |
| Nagarmotha Cyperus rotundus | Cyperone                      | Anti-inflammatory, anti-microbial, anti-fungal, anticonvulsant action.                |
| Ber Zizphus jujube     | Flavonoids, saponins, tannins, vitamin A, vitamin B | Anti-microbial, anti-ulcer, antispasmodic, immunostimulant, anticonvulsant action. |
| Phoolmakhane Nelumbo nucifera | N-nornuciferine             | Anticonvulsant action.                                                              |
| Mango Mangifera indica | PGG, polyphenolics, flavonoids    | Increase GABA levels, anticonvulsant action.                                        |
| Neem Azadirachta indica | Azadirachtin                     | Antibacterial, antiviral, immune booster, anti-inflammatory                         |
| Sandal-wood Santalum album | Tricyclic α-santalol, β-Santalol | Anti-inflammatory, anti-bacterial, fungistatic.                                     |
brain healing and repair. Small amounts of CO₂ inhaled by the persons performing Yagya acts as a stimulant with which aromatic fumes are inhaled which aid in curing mental disorders.¹¹ Saffron used in Hawaii, elevates seize threshold and block Pentylenetetrazole induced (PTZ) convulsions can be ascribed to its modulatory effect on GABA neurotransmission. The possible mechanism of anti-epileptic activity has been shown to be by growing the GABAergic neurotransmission. Jatamansi is a popular Ayurvedic herb and used in numerous formulations. It has been used in the treatment of many diseases and has some activities including anticonvulsant activity, anti-parkinson’s activity, tranquilizing activity, hepatoprotective, neuroprotective etc.¹² Nutmeg (Myristica fragrans) has anticonvulsant activity against PTZ and lithium-pilocarpine induced seizures and lesser doses were more effective in inhibiting seizures. Clove is also a significant part of Havan Samagri. Clove essential oil has been shown to meaningfully increase the onset of convulsion and decrease its duration in dose dependent manner compared to the control for strychnine and picrotoxin-induced convulsion.¹³

Nosocomial infections

Camphor purifies the air in the diffusive atmosphere and achieves various medicinal benefits when we inhale. It acts as a germ killer, mosquito and fly repellent and bounds spreading of the virus in that place. The chief ingredient in Havam is mango wood (Mangifera indica) which when burnt releases formaldehyde a gas which slays harmful bacteria thus purifying the atmosphere. The jaggery burnt in the Hawai also releases the formaldehyde gas.¹⁴ Medicinal smoke significantly removes human pathogenic bacteria Corynebacterium urealyticum causing urinary tract infection, Kocuria rosea causing catheter-related bacteremia, Staphylococcus lentus causing splenic abscess, Staphylococcus xylosus causing acute pyelonephritis, Tsukamurella inchoennis causing acute myelogenous leukemia, Enterobacter aerogenes causing nosocomial infections, Sphingobacterium spiritivorum causing extrinsic allergic alveolitis and Sphingomonas sanguinis producing nosocomial non-life threatening infections.¹⁵

Other health benefits

Medicinal-smoke intake can deliver benefits in curing ailments such as- headache, disease related to sensory organs, migraine, hiccup, asthma, goiter, fungal infection, jaundice, cold, sneezing, insomnia, hair fall etc. The inhalation of medicinal-smoke of a specific herbal-powder combination of neem leaves, bach, kooth, harad, saraso and googal ends high fever in patients. Inhalation of the medicinal-smoke of a specific herbal-powder combination made using neem leaves, bach, hing, sendha namak, saraso was seen to destroy worms and pus.¹ The mind used in Yagya obtains deep effect of harmonizing from incantatory spiritual verse known as “mantra.” This ancient Indian spiritual science of sound vibrations had been utilised to help the mind, body and life. According to a study, about 60% of patients displayed improvement with respect to digestion, hypertension, mental agitation and sleep after chanting Mantra’s.

CONCLUSION

Vedic literature defines treatment of extensive range of diseases (both infectious and non-infectious) and ailments through Yagya, along with the precautions, detailed procedures, causes of diseases, therapeutic supplements etc.

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