

Scientific Aspects of 'Agnihotra' in Healing the Atmosphere

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Abstract: Human being can live without food for few days, without water for few hours but without breathing can not live for few minutes. The tragedy is that we are taking great care only for nutritious food and pure water, though we eats 3 to 4 times or drinks 10 to 12 times in a day. But we never think about getting pure oxygen though we breaths around 21,400 times every day.

The mammoth industrialization, rapid urbanization, deforestation, air and water pollution, ozone-depletion, radioactive wastes, e-wastes etc., have disturbed and destabilized the natural harmony of environment and bio life cycles. The ecological imbalance caused by these criminal acts of the so called 'civilized society' has resulted in a disastrous threat, not only to the human survival but, also to life as a whole on our planet.

Now it is responsibility of every human being to think on it, to play the role in protecting the environment, to take the responsibility of providing pollution free environment to the next generation and one of the solution for this is to do 'Agnihotra'. Agnihotra is a small scale 'yagna' that could be performed every day at home by any individual.

Basically there are two energy systems in the physical world: heat and sound. In performing yagna, these two energies, namely, the heat emanating from yagna's fire and the vibrations generated from the chanting of the Gayatri and any other Vedic Mantras, are blended together to achieve the desired physical, psychological and spiritual benefits. The fumigation, vaporization and sublimation of specific substances in the yagna-fire constitute a verifiable scientific method of sublimation of matter and expansion of its colloidal state generates ions and energy with positive effects in the surrounding atmosphere through the specific sonic waves of the mantras.

Experimental studies show that the incidences of physical ailments, sickness and/or diseases become less in the houses where the yagna or Agnihotra is regularly performed because it creates a pure, hygienic, nutritional and healing atmosphere. It rejuvenates the brain cells, revitalizes the skin, purifies the blood and prevents growth of pathogenic bacteria. Agnihotra is basically a healing process.

This paper describes whole procedure of doing yagna which is not just spiritual but also scientifically proven fact. It gives detailed description of every small thing used in yagna right from which 'samidha' has to be used, the shape and size of vessel used for doing yagna, the scientific reason behind it and its positive effect helping in preventing the pollution.

Keywords : Samidha, Agnihotra, Yagna

I. INTRODUCTION:

Today's stressful life style has made men prone to various diseases like diabetics, cancer, heart attack, mental depression and many more resulting in his becoming slave of medicines. Moreover his greed to earn more has made him the greatest threat to nature where he leaves no stone unturned to achieve his "so called dreams" without ever giving second thought to just wait and look back at his destructive deeds. Nature has no other alternative but to bear this pain. Many a time it shows its fury by bringing in tsunami, flood, drought, famine, earthquakes and volcanoes but we were and we have always turned our faces to this wrath of nature.

Vedas have been bestowed upon mankind which not only guide us how to live the stress free, healthy and happy life but it also has solutions to most of the problems that we face today. Among the many, the simplest solutions are 'Yagna' and 'Yoga'.

Yagna is considered to be the greatest 'karma' in Vedas and it is instructed that every individual should do yagna daily. The small scale 'yagna' that could be performed every day at home by any individual is called 'Agnihotra'.

The Aim of this paper is to make each individual realize the benefits of performing Agnihotra and also to guide them for the same. The rest of the paper is organized as follows: Section II describes about various materials that are used and offered in Yagna. Section III talks about the chemical processes that take place during and after yagna. How Agnihotra purifies environment is given in section IV. Section V briefly talks about the procedure of performing Agnihotra. In Section VI results and case studies related to yagna are discussed. Finally conclusion is presented in Section VI.

II. MATERIALS:

A. Fumigating Substances Used:

Fumigating substances used and offered in the Yagna fire are as follows. The Medicinal Herbs used in this are used as per the specific requirement; different combinations of these herbs and/or other special herbs are used for the treatment of specific diseases through yagna-therapy. [1, 2]

Sr. No	Wood	Odoriferous Substances	Healthy Constituents	Sweet substances	Medicinal Herbs
1.	Santalum Album (sandalwood).	Saffron	Clarified butter (ghee)	Sugar	Tinospora cordifolia (tinospora/guduchi or giloya)
2.	Aquilana Malaccensis (borax wood).	Musk	Milk	Dried date	Bacopa Monieri (bacopa or bráhmi)
3.	Cedrys Libani (cedar or deodar).	Agar	Fruits	Resin	Convolvulus Pluricaulis (shank pushpi)

4.	Mangifera Indica (mango).	Tagar	Lin Seeds	Honey	Mesua Ferrea (cobra's saffron or nágkesar)
5.	Butea Frondosa (flame of the forest or palásha).	Sandalwood powder	Wheat	Jaggery	Glycyrrhiza Glabra Bois (liquoric root or mulhati)
6.	Aegle Marmelos (bengal quince or bilva).	Cardamom	Rice	Dried grapes	Red Sandalwood
7.	Ficus Religiosa (the holy fig or pipal).	Nutmeg javitri	Barley		Terminalia Bellirica (beddanut or bahedá)
8.	Ficus Bengalensis (banyan or bargad).	Camphor	Millet		Dry Ginger
9.	Proposis Spicigera (sponge tree or Shami).	Javitri	Gram		Terminalia Chebula (chebulic myrobalans or harada)
10.	Ficus Glomerata (wild fig).		Peas		Tinospora cordifolia (tinospora/guduchi or giloya)
11.	Santalum Album (sandalwood).				

B. Inverted Pyramid Shaped Yagna Kunda:

The word 'pyramid' means 'the fire in the middle'. This meaning is closely associated with the inexplicable energies emanating from its center and shape. The pyramid shape is widely known to generate and store a special energy field, which possesses bacteriostatic properties. The inverted pyramid shape of the agni kunda allows controlled generation and multidirectional dissipation of energy. It acts as a generator of unusual energy fields and spreads them in its surrounding atmosphere.

C. Chanting of Sanskrit Mantras:

The power of sound vibrations has since long been acknowledged in the field of science. With substantial amplification these vibrations can penetrate the energy spheres at the subtle and cosmic levels. All the alphabets of the Sanskrit language are endowed with special impulsive phonetics, which send out harmonious wave patterns when pronounced.

With the advent of spectrographic techniques and instruments like the Multichannel Tonograph and Retrometer, it has now become possible to study the sound effects of mantras in relation to yagna. The patterns of chanting of the mantras are so designed that they latently contain the

essence of the music or the quintessential sound of the torrent of life-sustaining energies emanating from the cosmic energy center of the corresponding mantras. (The cosmic energy center associated with the Gayatri Mantra is the Sun). The chanting of these mantras produces vibrations, which are soothing to human mind and all plant and animal life. These vibrations also help in spreading specific energy waves in the surrounding atmosphere while the oblations are offered [3-5].

III. CHEMICAL PROCESS HAPPENED IN AGNIHOTRA

A. Products of Combustion:

The interpretation of the process of combustion in a yagna on a scientific basis is rather difficult due to the following reasons: (i) The properties of substances, which are used here vary; (ii) The conditions under which combustion takes place inside the yagna-fire are very sensitive to the shape of the kunda and the type, quantity and arrangement of wood etc; (iii) the variation in the temperature and thermodynamic effects is quite significant from the top to the bottom of the kunda and it also depends upon the shape and size of the latter. The products of combustion depend on the factors like — (a) The nature of substances used and their proportions; (b) Temperature attained; (c) Controlled supply of air and (d) Interaction amongst the various products formed.

B. Distillation of Wood:

Besides the complete combustion of the cellulose material of wood, it is also subjected to distillation. This happens due to the way samidhás are arranged in the kunda (also called yagna kunda or havan kunda) and the levels of temperature and air supply which prevail in it.

C. Vaporization of Odorous Substances:

The temperature attained by the kunda varies between 250°C and 600°C, while in the actual flames it can rise as high as 1200°C to 1300°C. At their boiling points, the volatile constituents vaporize and their gaseous forms get diffused. Also, when cellulose and other carbohydrates undergo combustion, steam is formed in copious quantities by the combination of the hydrogen of the decomposed organic molecules with the oxygen. This is how the substances like thymol, eugenol, pinene, terpinol etc., are dispersed to in the surroundings and the aroma of a yagna can be smelt at a considerable distance.

In addition to steam, smoke is emitted in large quantities and solid particles existing in a decomposed state offer sufficient scope for its diffusion. Thus smoke also functions as a colloidal vehicle for the spreading of volatile aromatic substances. This process depends on the inside and surrounding temperature and on the direction of the wind.

D. Combustion of Fatty Substances:

The fatty substances used in yagna are mainly ghee and other fatty substances of vegetable origin. Ghee helps in rapid combustion of cellulose of wood and keeps the fire alight. All fatty substances used are combinations of fatty acids, which volatilize easily. The combustion of glycerol portion gives acetone bodies, pyruvic aldehyde and glyoxal etc. The hydrocarbons

produced in the reactions again undergo slow combustion and as a result methyl and ethyl alcohols, formaldehyde, acetaldehyde, formic acid and acetic acids are formed.

E. Photochemical Process:

The vaporized products diffused in the atmosphere are also subjected to photochemical reactions in the sunlight. They undergo photochemical decomposition, oxidation and reduction reactions. To some extent even CO₂ is also reduced to formaldehyde as follows:



From an environmental angle, the reduction of CO₂ caused by yagna as explained above and the liberation of oxygen cannot be overemphasized. Similar kinds of other useful reactions take place in the presence of specific radiations from the sunrays. This may be perhaps the reason it has been recommended that yagna should be performed during sunlight.

IV. PURIFICATION OF ENVIRONMENT BY AGNIHOTRA:

The medicinal fumes emanating from the process of Agnihotra have been observed by researchers in the field of microbiology to be clearly bacteriostatic in nature, which eradicate bacteria and micro-organisms, the root causes of illness and diseases. This must be the reason why the incidence of physical ailments, sickness and diseases becomes less in the households where Agnihotra is regularly performed.

Purification of environment through the constituent electrically charged particles of the substances fumigated in yagna is an obvious byproduct of this process. The observations of some distinguished scientists (as reported in the reference nos. [2-5]) are noteworthy in this regard. According to Dr. Hafkine, the smoke produced by burning the mixture of ghee and sugar kills the germs of certain diseases; inhaling it from some distance induces secretion from certain glands related to the windpipe that fill our heart and mind with relaxation. "Burning sugar and its smoke has a significant effect in purifying the atmosphere. It kills the germs of T.B., measles, smallpox and cow-pox" – remarks Prof. Tilward. A Russian Scientist named Dr. Shirowich mentions that – "if cow's ghee is put into the fire, its smoke will lessen the effect of atomic radiation to a great extent". He also related this process to yagna.

Particularly effective results with respect to the elimination or reduction in radiation were achieved through yagna's fire and ash. These observations are made by Dr. L. Matela Anatoninhowska of Poland after using P.S.I. techniques.

Even without going into detailed chemical bacteriology, it appears highly probable that performing yagna leads to the purification of air in view of the following (as reported in the reference nos. [2, 5]):

A. Removal of Foul Odors:

As already stated, under steam volatilization, the various volatile oils get diffused in the surrounding atmosphere along with steam and smoke. Since these oils have distinctly good smells, the foul odors are automatically neutralized. This aroma can be effortlessly smelt in the

surroundings when yagna is performed. It is due to the diffusion of substances like thynol, eugenol, piene, terpinol and oils of sandalwood, camphor and clove.

B. Removal of Bacteria:

As stated under products of combustion, the partial oxidation of hydrocarbons and decomposition of complex organic substances produce formaldehyde, which is a powerful antiseptic. It is also interesting to note that the germicidal action of formaldehyde is effective only in the presence of water vapor, which is also produced in large quantities in yagna. The use of formaldehyde sprays for disinfecting of walls, ceilings etc., is common and such an effect is automatically produced when yagna is performed. The oxidation of hydrocarbons produces formic acid and acetic acid, both of which are good disinfectants. Use of formic acid for preservation of fruits and that of acetic acid in preserving vinegar is a common practice.

The antiseptic and antibiotic effects of the smoke of yagna have also been examined by conducting laboratory experiments on rabbits and mice and it has been established that smoke emitted in yagna is a powerful antibiotic. Agnihotra ash is also found to purify and cleanse the water, making it fit for drinking [6].

C. Removal of Insects:

There are non-bacterial parasites like flies, ringworm, dice fleas etc., which are normally difficult to deal with since bactericides which can be used against them are also harmful to other living organisms. Such insects are generally immune to ordinary reagents. However they either get killed or are driven away when they come in contact with volatile oils like camphor, which are diffused in the environment during the performance of yagna.

D. Effects on Plants and Vegetation:

The disinfection of air is not only useful to animal life but it also helps plant life. The aromatic substances, which get diffused in the air through Agnihotra offer protection to plant life against harmful organisms. This ensures a healthy plant growth. Agnihotra's atmosphere and ash can be used as adjuvant in the natural farming methods – also known as the Agnihotra farming methods. It is a holistic concept of growing plants in pure and healthy atmosphere and balancing the ecological cycles by performing Agnihotra (yagna) in the middle of the farm and using the yagna-ash as a fertilizer. Several experiments have been conducted in the East European countries on the use of yagna ash in soil treatment. These, too, have shown positive effects and potential applications in Agriculture.

E. Role of CO₂ Generated in Yagna:

The wood and fossil burning in atmosphere is always controversial because of the generation of carbon monoxide and carbon dioxide and a consequent increase in the 'green house' effect. On this basis it can be argued that yagna also produces CO and CO₂. It should be noted here that the way in which the samidhás are burnt in yagna is a process of slow combustion. It is not comparable to the burning of coal in the factories or household fire or running of steam engines etc, where oxygen is sucked in large quantities and CO₂ is emitted likewise. In the slow combustion process that takes place in yagna, a small quantity of O₂ is utilized and CO₂ is emitted in a quantity that poses no threat to the environment. In fact whatever CO₂ is generated

is readily absorbed by the surrounding plant life and vegetation and thus the CO₂ cycle is strengthened [5].

Another important fact to be noted is that CO₂ produced in yagna is not free CO₂. It is mixed with the vapors of other aromatic oils and antiseptic products. It acts as a vehicle in transporting such products to the surroundings.

The use of CO₂ as a cerebral stimulant to assist patients suffering from lack of ventilation is a common practice in the medical field. Its use in controlling and curing many mental disorders is also known to medical science. Small amounts of CO₂ inhaled by the persons performing yagna act as a stimulant for inhaling more and more aromatic fumes which helps in curing mental disorders

V. METHODOLOGY:

The process of performing daily Agnihotra is very simple, inexpensive and requires only a few minutes to perform. Yet it is very effective and beneficial in all eventualities.

The following procedure of doing Agnihotra is specifically tuned with the biological clock and the vital energy cycle which is studied by the 'Institute for studies in Vedic Sciences' located in Akkalkot, (M.S.)[1]. Features of this Agnihotra are described below. There are two types of Agnihotra: Sunrise and Sunset which are to be performed daily.

A. *Performing the Sunrise Agnihotra:*

Fire preparation: About 5 to 10 minutes before the Sunrise, arrange pieces of dry cow dung Cakes/Samidha in the Yagnya Kunda. First take a small piece of cow dung cake and place it at the bottom of the pot. Now put *Guggal* or Camphor or cotton wick duly soaked in cows ghee on the bottom piece. Then start arranging the pieces of cow dung cake around it neatly leaving a little empty space in the centre to put the offerings. Use a match stick to and lit the fire . if necessary , use the fan so that all pieces are fully ablaze.

Take one pinchful of clean, unbroken rice grains in a small dish. Smear these rice grains with a few drops of cow's pure ghee. Divide the Ghee smeared rice grains in two parts

Exactly at the time of sunrise, utter first '*Suryaya Swaha*' and offer first part of rice grains to the fire with the word '*Swaha*' and recite '*Idam Suryaya Idam Na Mama*' to complete the first oblation. Offer other part of the the rice grains to the fire after saying '*Prajapataye Swaha*' and complete it by uttering '*Idam Prajapataye Idam na Mama*'. Concentrate on the fire till the offerings are fully burnt'. The morning Agnihotra is thus completed.

B. *Performing the Sunset Agnihotra:*

In the evening, before sunset remove very carefully the morning Agnihotra's ash from the pot and put it in a bag or box specially kept aside for it. Repeat the above procedure of morning Agnihotra.

Exactly at the sunset time, recite 'Agnaye swaha', and offer first part of the rice grains immediately with word 'Swaha' and utter 'Idam Prajapataye Idam Na Mama' Concentrate on the fire till the offerings are fully burnt. This concludes the evening Agnihotra.

VI. RESULTS AND CASE STUDIES:

A. Results:

A group of scientists led by Dr. Manoj Garg, Director, Environmental and Technical Consultants in association with the experts from the Uttar Pradesh Pollution Control Board had conducted experiments during the Ashwamedha Yagna at Gorakhpur, U.P. These experiments were set up at about 20 meters east of the Yagnashala. The samples of 100 ml each of water and air collected from the surroundings were analyzed, using high volume Envirotech APM-45 and other sensitive instruments for testing water and air pollution.[4]

1. In Air Samples (unit mg per average sample)

Instant	Level of Sulphur dioxide	Level of Nitrous Oxide
Before Yagna	3.36	1.16
During Yagna	2.82	1.14
After Yagna	0.80	1.02

2. Bacteria Count in Average Water Samples

Before Yagna	4500
During Yagna	2470
After Yagna	1250

These results clearly support the claims made about the role of Yagna in control of air pollution.

B. Case Studies:

1. Diabetes and Agnihotra:

Case-Report

Name of Patient: Pandurang M. Patil

Age: 72 yrs

Adress: Sai Prabha, Mangvir Pakhadi

Post-Tal- Alibaug, Dist- Raighad(M.S)

Case : One year old diabetic

Before Starting Agnihotra---Report on 6-05-1993

1	Fasting:	
	Blood Sugar:	285 mg/dt(Normal 70-110)

	Urine Sugar:	Present +++++
2	Post Lunch (2 hrs. after lunch)	
	Blood Sugar:	530 mg/dt(Normal up to 120)
	Urine Sugar:	Present +++++

After performing daily Agnihotra---Report on 24-07-1993

1	Fasting:	
	Blood Sugar:	95 mg/dt(Normal 70-110)
	Urine Sugar:	Absent
2	Post Lunch (2 hrs. after lunch)	
	Blood Sugar:	120 mg/dt(Normal up to 120)
	Urine Sugar:	Absent

The above case report result has been furnished by Medicare Pathology laboratory.[2]

2. Bhopal Gas Tragedy and Agnihotra:

The incidence occurred on the daily night of December 3, 1984, when the poisonous MIC gas leaked from Union Carbide, Hundreds of people died and thousands were hospitalized. There were however two families --- Shri. Sohan Lal S Khushwaha and Shri M. L. Rathore, which lived in the worst affected area, one mile away from the plant came out unscathed as they were regularly performing Agnihotra. In these families none died. Nobody was even hospitalized despite of being present in the area worst hit by the toxic gas. This observation proves that Agnihotra is a powerful antidote to pollution (Ref. 'The Hindu' News Paper of 4-5-85; news item under the heading 'Vedic way to Beat Pollution')

VII. CONCLUSION:

Agnihotra thus, appears to be a promising scientific, simple, cost effective, eco-friendly method to counter the ever-increasing deadly pollution of the environment and purify and enrich the environment with healthy ingredients. Experimental results show that the incidences of physical ailments, sickness and/or diseases become less in the houses where the yagna or Agnihotra is regularly performed because it creates a pure, hygienic, nutritional and healing atmosphere. It rejuvenates the brain cells, revitalizes the skin, purifies the blood and prevents growth of pathogenic bacteria. Thus for living healthy, stress free and happy life there is no other alternative than that of performing Agnihotra daily. God Made this beautiful world, so man has got no right to destroy it, on the contrary it is his moral responsibility to preserve and conserve the same for future generation.

REFERENCES:

1. Dr. Madhukar P. Gaikwad, Agnihotra: The Message of Time, *National Symposium on Unification of Modern and Ancient Sciences, Mumbai, (1995)*
2. Ashok N. Raval, The New Age Force of Gayatri, *Publisher S. Ramakrishnan* (1981)
3. Does Yagna Add to the Prevalent Pollution?" article published in the proceedings of Ashwamedha Yagna held in Montreal, Canada **(26 to 28 July, 1996).**
4. Fumigating substances used in Yagnya" article published in the proceedings of Ashwamedha Yagna held in Montreal, Canada **(26 to 28 July, 1996).**
5. Selected Articles from Akhand Jyoti Publisher, Akhand Jyoti Sansthan, Mathura. **(Aug. '84, July & Aug. '92, March '93, Sept. '97).**
6. Reports and booklets published from Shantikunj, Haridwar and Yug Nirman Yojna, Mathura.
7. Pt. Shriram Sharma Acharya, The Integrated Science of Yagna, *Publisher Shantikunj Haridwar* India.