

Impact of Homa Organic Farming in mitigating Soil, Water, and other Environmental Crises

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ABSTRACT

Pollution of the atmosphere, the soil, and water resources are some of the biggest problems of our time, and it affects all areas of life, including agriculture. In this situation, it seems plausible to make use of every method, including traditional knowledge, which may help to overcome these problems (as it was suggested in the Convention on Biological Diversity, also known as the Rio Convention). Homa therapy, a method based on traditional *Vedic* knowledge, is said to bring nature back to harmony and thus remove pollution from our environment. But this method has to be understood and evaluated in terms of modern science. This will be done in this article. The method will be explained, and then an overview is given of completed and ongoing research into mitigating problems of the pollution of our atmosphere, the soil, and water resources. Also, the impact on agriculture and horticulture will be shown, and there will be suggestions for further research.

Keywords: *Agnihotra*, Homa organic farming, Environmental crisis, Loss of biodiversity.

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INTRODUCTION

Homa therapy counteracts pollution of the atmosphere, soil, and water resources and helps to restore the balance of nature and create a kind of microclimate around the farm, which is beneficial to plants, animals, and humans in that area. Environmental pollution is a big problem for the whole planet, and of course, it also affects agriculture and horticulture.

- How can we reduce environmental pollution and still grow enough food for a growing number of people?
- Also, we have to do it in a sustainable way.
- Recent news is shocking. The graphics show the percentage of pollution-related deaths in 2015, Fig. 1 from the World Health Organization (WHO).

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- As these problems now possibly affect everybody, also methods which can help need to be available for everybody.

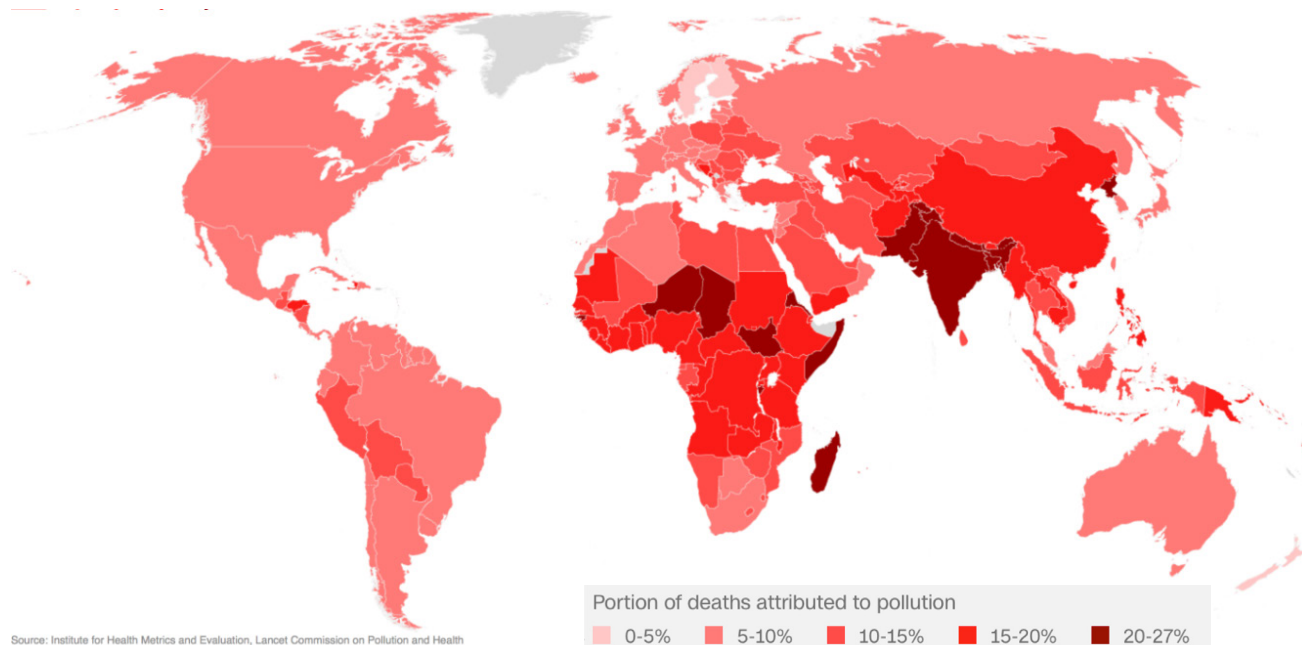


Fig. 1: Pollution-related deaths

- Not only humans suffer from environmental pollution, but plants also suffer as well.
- Leaves are getting damaged. This makes plants more vulnerable to pests and diseases.
- Photosynthesis is reduced, growth is reduced, and yields go down by 5 to 20% according to recent studies (Agrawal, 2018).
- Till now, agriculture has added to the pollution of soil, water, atmosphere, and food.
- How can agriculture not only stop adding to pollution but even help to mitigate the existing pollution?
- One possible solution to this overall pollution is given in the form of *Agnihotra* and Homa organic farming.
- But of course, before going mainstream with this method based on *Vedic* knowledge, a thorough scientific evaluation is necessary.
- Following, I will show what has already been done and, in the end, will suggest more researchable issues.

What is Homa Therapy?

It is the science of healing the atmosphere through pyramid fires to eliminate pollution and contamination. The basis of Homa therapy is *Agnihotra*, the smallest Homa healing fire tuned to the specific biorhythm of sunrise/sunset. It comes from the ancient most *Vedic* sciences of bioenergy, medicine, agriculture, and climate engineering. When we refer to "*Agnihotra*," we mean a specific process of purification of atmosphere through the agency fire done in the following manner:

- In a copper pyramid of prescribed shape and size, a small fire of dried cow dung and cow's ghee is prepared a few minutes before the exact moment of sunrise and sunset.
- Two pinches of raw, unpolished rice mixed with cow's ghee are then added into the fire at the exact moment of sunrise and sunset to the accompaniment of a specific Sanskrit mantra.

Any other processes, including some rituals performed in India, which are sometimes also referred to as "*Agnihotra*," have not been tested. The results may be different.

Why is it so important to keep the exact timings of *Agnihotra*? *Vedic* knowledge states about sunrise:

"At sunrise, the many fires, electricities, ethers, and more subtle energies emanating from the sun extend all the way to the Earth and produce a flood effect at those coordinates where the sun is said to rise. It is awesome. The flood enlivens and purifies everything in its path, destroying what is impure in its wake. This torrent of life-sustaining energies causes all life to rejoice. At sunrise that music can be heard. The morning Agnihotra Mantra is the essence of that music. It is the quintessential sound of that flood. At sunset, the flood recedes" (Paranjpe, 1989; Berk, 2018).

As this effect is there only for a short time band, *Agnihotra* has to be done at the exact time. Special software has been developed in Germany, which gives a timetable for the whole year after entering the coordinates of the place (or even just the address). If you go to a different place even in the same town, the timings will be different, and also they change from year to year. This flood of energies is said to carry subtle music,

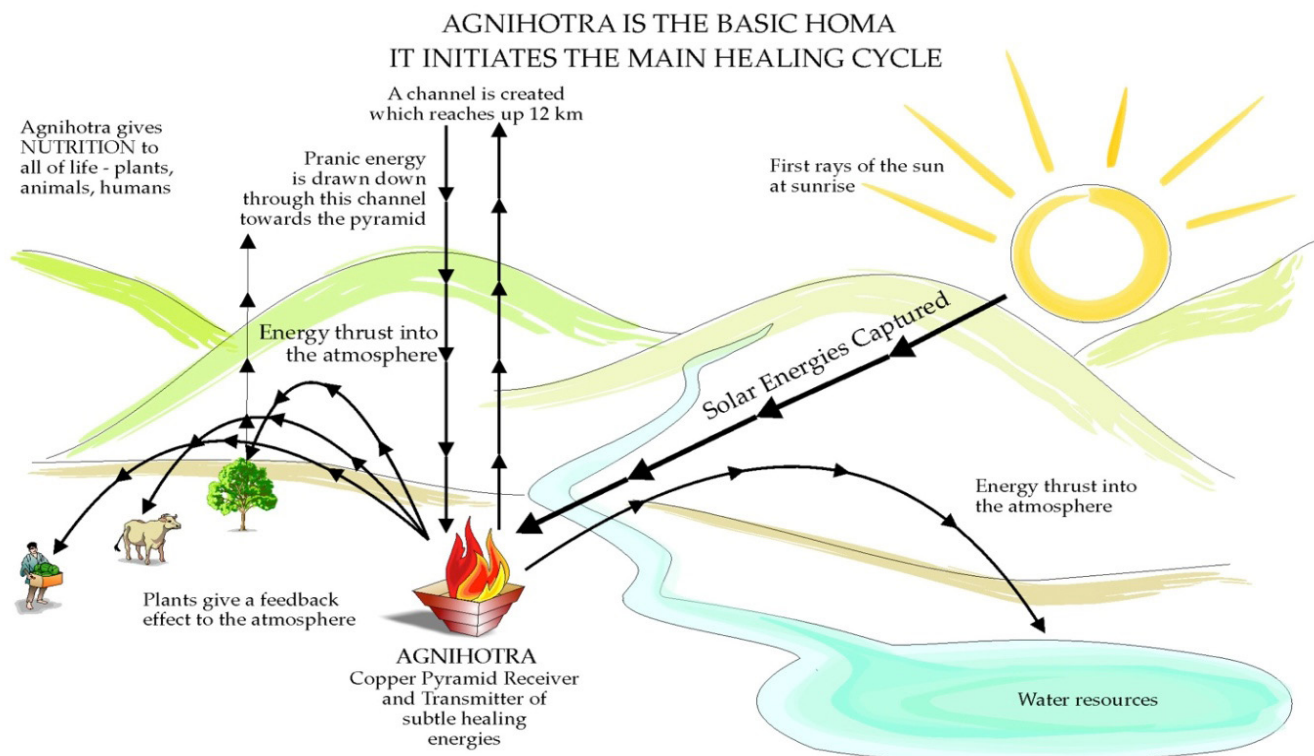


Fig. 2: How *Agnihotra* works
Source: Berk & Johnson 2008

the *Agnihotra* mantras being the quintessential sound of that music. That leads to a kind of resonance effect – and therefore, the mantras have to be uttered in the correct way, and of course, using a different language from Sanskrit would not have the effect. But anyway, Sanskrit is the mother or maybe grandmother of all our languages. Therefore, uttering Sanskrit mantras means just going back to the roots of our own civilization (Fig. 2).

Effects of Homa Therapy on Our Environment

Water

There are a lot of observations on the effect of Homa therapy on the environment - water, soil, and atmosphere. Regarding water, purification can be seen when *Agnihotra* ash is added and/or when *Agnihotra* is performed next to the water sample:

Pathogenic bacteria are reduced; pH comes back to normal; beneficial microorganisms thrive.

Purification of Water from Pathogenic Bacteria

Dr. John Matlander, a physician from Ecuador, sent the following report:

An experience was with a gallon of infected water that I had for several weeks. I requested a doctor to analyze it with a potent microscope. He told me that that water was cultivation containing fungi, staphylococcus, and streptococci. Before throwing it away, I put some of this water in a 200 mL glass and added two teaspoons of *Agnihotra* ash. I mixed it well and left it for three days. Then I returned it to the doctor and asked for another checkup with the microscope, and he said: "Completely pure water." So I told him that this was the same water he had analyzed three days ago and the doctor thought that this was impossible, completely impossible. But it happened this way, the *Agnihotra* ash had made this water completely pure.

Purification of Industrial Effluent

In 2000, a study was made in Mumbai on the effect of *Agnihotra* ash on water and biotic life when industrial effluent from the textile process industry was present in the water. Different concentrations of effluents were prepared. Ash dose was given, and fish were kept under observation for 48 hours. Biotic life was absent in 15% effluent. But if 0.5 g of *Agnihotra* ash per liter was added to the concentration of 15% effluent, biotic life was possible again. For a concentration of 20% effluent, 2 g/liter *Agnihotra* ash had to be added in order to make biotic life possible. The chemical oxygen demand (COD) of the effluent before and after *Agnihotra* ash treatment was compared. The study revealed COD after *Agnihotra* ash treatment is reduced, which indicates *Agnihotra* ash helps to purify the water (Table 1).

Table 1: Purification of water with *Agnihotra* ash

S. No.	Effluent concentration	Treatment	COD mg/litre
1	15% effluent in 1 litre of water	Filter	573.0
2	15% effluent in 1 litre of water	+0.5 gm ash filter	270.9

Table 2: Highly alkaline and saline water becomes potable with *Agnihotra*

	pH	Salinity
First analysis	9.5	1,150 ppm
After 6 months	7.2	720 ppm

Agnihotra Ash and Salinity (India)

In 2002, Karin Heschl, a Homa therapy teacher who works closely with farmers in India, and other Homa experts were involved in outreach programs with farmers in the Khargone District, Madhya Pradesh, India. One particular farmer told them his well from which he irrigated his crops had water with salinity problems. They told him of previous experiences and suggested to regularly perform *Agnihotra* next to the well and to put *Agnihotra* ash into the well regularly as well. A few months later, this farmer came and happily informed that he had done what was recommended, and he had water samples tested by some laboratory once a month. With each successive test, the water became less and less saline.

Wells Remain Active (India)

Also, in 2002 the same group of Homa therapy volunteers were working with a farm near Indore owned by Prestige Feed Mills. The workers on the farm were instructed to perform twice daily *Agnihotra* and some Om Tryambakam Homa as well as ash application in their irrigation well and in the soil. There was a severe drought in that area that year. But after some months of continuous practice of Homa farming, this was the only well in the area that had not dried up and indeed was supplying water for other farmers nearby who did not have water.

Salinity and Alkalinity of Borewell Water Neutralized (Australia)

Because of water scarcity on the Homa Farm of Lee and Frits Ringma in Australia, a bore well was drilled, despite indications that there were no underground streams on the farm. Sub-artesian water was found at forty meters (130 ft). It was laboratory tested and found to be highly saline and alkaline. The pH was 9.5, and the salinity measured 1,150 ppm. So, *Agnihotra* was performed near the bore well, and *Agnihotra* ash was placed into the bore well regularly. The State Department of Water Resources was conducting regular tests on the bore wells in the area, and the salinity and alkalinity reduced with each lab report until finally, after about 6 months, the borewell had potable drinking water. Now the pH is constant at 7.2, which is neutral, and the salinity is 720 ppm, within the standards laid down by the WHO for potable water (Table 2).

Genotoxic Effects of Colchicine Neutralized by *Agnihotra* Ash

Colchicine is an alkaloid of the meadow saffron (*Colchicum autumnale*) which is used for certain experiments in as it inhibits mitosis, means it has a genotoxic effect. Can this genotoxic effect be neutralized by *Agnihotra* ash? In order to answer this

question, an onion root tip assay for genotoxicity was performed (Matsumoto *et al.*, 2006). Onion bulb rootings were treated with colchicine in distilled water and colchicine in distilled water plus *Agnihotra* ash. The photos show nice root formation in the sample with colchicine and *Agnihotra* ash—whereas no roots formed with colchicine alone. A similar experiment was conducted with methyl parathion (Fig. 3).

RESULT

Agnihotra ash shows an activating effect on cell division and also neutralizes the toxic effect of colchicine and methyl parathion. These experiments are described in detail (Pathade and Abhang, 2014; Abhang *et al.*, 2015).

Effect of *Agnihotra* Atmosphere on Water Purification

Several reports show that *Agnihotra* ash helps to purify water (Gerlecka, 1988; Matlander, 2013). When you add *Agnihotra* ash, you have a combination of chemical and of physical effects, which lead to the effect of purification. Would *Agnihotra* itself have a similar effect also - no *Agnihotra* ash added, and no contact to the fumes of *Agnihotra*? Is there some kind of 'energy field' around *Agnihotra* which has some effect on water? Would this 'energy field' be of electromagnetic type?

The following experiment was designed to examine the effects of *Agnihotra* on water only in terms of physics and exclude any effects of possible chemical reactions of *Agnihotra* ash or *Agnihotra* smoke with water. Therefore, we decided to keep polluted water from the Narmada River in glass bottles in an *Agnihotra* room (where *Agnihotra* has been performed for several years regularly at sunrise and sunset and where apart from the mantras related to *Agnihotra* no word is spoken). A preliminary experiment showed that after a period of five days, the count of coliform bacteria was reduced by more than 50% compared to control (same water kept in the laboratory during these five days). No *Agnihotra* ash was added to the water, and the bottles containing the water were tightly closed so that no *Agnihotra* smoke could enter, thus ruling out a chemical explanation by some effect of particles produced by the *Agnihotra* procedure. What else could lead to such an effect? The most obvious guess would be that the regular performance of *Agnihotra* creates some kind of energy field which helps to purify water. But this guess does not help much unless we know which kind of energy field we are talking about. In our everyday life, the most common energy fields are electromagnetic fields. Could it be that *Agnihotra* creates some kind of electromagnetic field which leads to the purification of water?



Left side: Without ash

Right side: With *Agnihotra* ash

Fig. 3: Experiment with colchicine
Source: Pathade/Abhang 2014

Table 3: Improvement of water sitting next to *Agnihotra*

	Percentage changes as compared to control (average)				
	DO	pH	COD	Hardness	Coliform/100 mL
Average all	195%	-21%	-63%	-52%	-69%
Average (stainless steel)	233%	-21%	-62%	-50%	-68%
Average (copper)	173%	-23%	-66%	-53%	-69%
Average (aluminum)	158%	-17%	-66%	-51%	-70%
Average (all metals)	188%	-20%	-65%	-51%	-69%
Average (all glasses)	203%	-22%	-60%	-52%	-69%

Source: Berk / Sharma 2015

In order to find this out, the following experiment was designed. We know that Faraday cages shield electromagnetic waves. Therefore if the effects of *Agnihotra* on the water are (partly) based on some electromagnetic waves, then there would be no (less) change in the parameters of water quality if this water is kept in such Faraday cages. Water was taken from the Narmada river and filled in bottles. Three each of the bottles filled with water were put in containers made of stainless steel, copper, and aluminum, respectively. Then the metal containers were closed with a tightly fitting lid in order to get Faraday cages. In addition to these nine water bottles enclosed in metal containers for comparison, we also used eight bottles without metal containers (filled with the same water from the Narmada river). All these bottles were placed in the *Agnihotra* Shala at Maheshwar Homa Therapy Goshala, where *Agnihotra* is being performed regularly exactly at sunrise and sunset. For control, three water bottles were kept in a lab. After five days, all water samples were examined for dissolved oxygen (DO), pH, chemical oxygen demand (COD), hardness, and count of coliform bacteria (See Table 3).

ANALYSIS

There was a general improvement of water quality in all the parameters measured as compared to control. These changes are consistent through all three replications. Although there was some difference between the water samples kept in metal containers and the samples kept in bottles regarding DO, pH, and COD, this difference was rather small compared to the difference with control. Also, there were some differences between the different kinds of metal containers - but again, these differences were small compared to the difference with control. Further experiments could look deeper into these differences. But the main results with all three replications and all parameters of water quality are that:

- *Agnihotra* atmosphere helps to purify water
- This effect of purification is there whether or not the water samples are kept in Faraday cages

The conclusion seems natural that there is some kind of energy field around *Agnihotra*, which is not of the known electromagnetic type and which is not shielded by Faraday cages. High energy electromagnetic radiation, which would not be shielded by these metal containers were excluded as an explanation in a separate experiment (Berk and Sharma, 2015).

River Purification with Homa Therapy

The experiments mentioned above show that both *Agnihotra* and *Agnihotra* ash help in purifying water. But these experiments were all done on a small scale. For farming, we need to consider

Table 4: Improvement of water running through a column of *Agnihotra* ash

Parameters	WHO max. allowed	Omkareshwar	Mandleshwar	Maheshwar (Homa therapy)	Barwani
pH	6.5–9.2	8.0	8.2	7.5	8.0
Total solids	1500	1090	1256	650	1225
Total hardness	500	555	620	475	650
Chlorides	600	550	520	250	652
Nitrate	45	15.5	20.5	12	22.5
Sulphate	1000	450	375	250	350
Coliform count	100 mL	500 mL	600 mL	100 mL	700 mL

larger bodies of water. Will Homa therapy also work on that level? Especially important for farming are subsoil water and rivers. There is one very interesting preliminary report by Sharma *et al.* (2011) about the water quality of the Narmada river in Madhya Pradesh. Various parameters were studied to determine the quality of the water. Water samples were taken at monthly intervals from four sites along the river—Omkareshwar, Mandaleshwar, Barwani, and Homa Therapy Goshala, near Maheshwar. This experiment demonstrates the effect of Homa therapy, based on the ancient science of *Vedas*, which offers solutions to reduce the pollution in our environment and of the water resources (Table 4).

Effects of Homa Therapy on Soil

The health of our soil is of the utmost importance for feeding a growing number of people on this planet. This was known a long time before we had the current problems of depletion and pollution of our soils, e.g., by the indiscriminate use of agrochemicals, monocultures, etc. A Sanskrit text written already around 1500 BC noted: “Upon this handful of soil our survival depends. Husband it, and it will grow our food, our fuel, and our shelter and surround us with beauty. Abuse it, and the soil will collapse and die, taking humanity with it.”

It seems that we are now heading towards such a situation of soil collapsing. According to information from the food and agriculture organization (FAO) of the United Nations, now about one-third of the world’s soil has already been degraded. Unless new approaches are adopted, the global amount of arable and productive land per person in 2050 will be only a quarter of the level in 1960, the FAO reported, due to growing populations and soil degradation. How could it be possible with just one-fourth of the productive land we had in 1960 to feed a continuously growing number of people on this planet? That does not seem to be possible. Therefore it is necessary to bring degraded soil back to good health so that productivity increases. For such rejuvenation of the soil, Homa organic farming is a very valuable tool. It helps to activate different types of microorganisms, starting from the level of viruses, bacteria, fungi, and algae. Thus, healthy micro-flora and micro-fauna are created.

A study done in Gogate College, Ratnagiri, Maharashtra, India, examined the effect of *Agnihotra* ash on farm soil. Four soil samples were taken, and the initial microbial count was done. Then 1% of *Agnihotra* Ash was added to the soil samples. One week later, the microbial count was taken again. The addition of *Agnihotra* Ash resulted in an increase in the overall bacterial flora, including the effective bacteria, i.e., nitrogen fixers and phosphate solubilizers, while the reduction in the fungal flora was seen (Berde *et al.*, 2015). The result was that beneficial

microbes are thriving: the count of nitrogen fixers was seen to increase 100 fold while that of phosphate solubilizers was 1,000 fold. At the same time, harmful fungal flora was kept under control. This experiment explains the findings of some experiments done earlier in the US about water solubility of phosphorus in soil. It is well known that all plants need phosphorus for their growth. However, regardless of how much phosphate is added to the soil, only the water-soluble portion can be utilized by the plant (Tompkins and Bird, 1973, 1989).

Dr. Tung Ming Lai, Denver, Colorado, USA, did an experiment and showed that *Agnihotra* ash helps to increase the water solubility of phosphate in soil (Lai T.M.).

This experiment was replicated in the German Agricultural Research Institute FAL, and again an increase in water-soluble phosphates was measured (Kratz and Schnug, 2007). It seems that the increase in phosphate solubilizing bacteria, which Berde *et al.* (2015) found, could explain these results. This explanation would also take account of the lesser increase of water-soluble phosphate in the Kratz/Schnug experiment: They measured phosphate content after only a few hours after mixing *Agnihotra* ash and control ash to the soil. T.M. Lai kept the soil for one week after mixing it with the ashes before measuring phosphate content again. That means that phosphate solubilizers had more time to multiply and then start their activity. Anyway, an interesting subject to do more research and find out whether adding *Agnihotra* ash to soil could be sufficient to make enough phosphorus water-soluble and thus available to plants—and thus the necessity of adding phosphate fertilizers would be eliminated, which would make farmers more independent from outside supplies (Table 5).

Improvement of Sodic Soil (India)

Sodic soils are a big challenge for farmers in India. Approximately 3.8 million hectares of farmland in India are sodic (according to the survey done by Central Soil Salinity Research Institute, ICAR, India). There are big projects of reclaiming sodic soil, mainly by adding gypsum to the soils. These projects of land reclamation are successful—but at the same time, land degradation continues, thus keeping the total area of sodic soil more or less the same during the last couple of decades. Farmers suffer as productivity on sodic land is reduced and often makes farming economically no more viable. Thus a lot of food production is lost. What can small and marginal farmers who do not have the means for gypsum application (and who are not covered by a government project in their area) do to overcome the problem? One simple experiment done some time ago in the Unnao area

can give some hope. In 2006, a trial was taken by Karin Heschl under the guidance of Dr. R. K. Pathak at Virendra Kumar Singh Krishi Vignan Kendra, Virendra Nagar, Dhaura, Unnao, Uttar Pradesh, India. The soil pH was 9.86 at the field where the trial was done. Wheat was planted in three plots: 1. With agro-chemicals, 2. With vermicompost, and 3. With vermicompost + *Agnihotra* ash. Soil pH was tested again after harvesting the wheat crop.

The field which was treated with vermicompost + *Agnihotra* ash showed significantly lower pH. Potash and phosphorus were also found in more abundant quantities in this plot. Further research is needed to examine how the change of pH comes about. One hypothesis would be that some microorganisms are being activated by *Agnihotra* ash and then bring about this beneficial change. For further studies, it would be good to have one more plot with control ash in order to see whether the effect comes about just by ash or actually by the special properties of *Agnihotra* ash (Table 6).

Acidic Soil (Poland)

Acidic soils are widespread all around the world, mostly in temperate regions. In India, approximately 48 million hectares or more than one-third of agricultural land in India is classified as acidic. Most plants can adapt to slightly acidic soil (pH of 6.0 to 7.0), and there are some plants which tolerate or even prefer moderately acidic soils (pH 5.6 to 6.0) like potatoes, blueberries, or ornamental plants like magnolia trees or rhododendron. For most plants, though acidic soil is a problem as intake of nutrients is compromised, and therefore both quality and quantity of yields are reduced. Soil flora and fauna are also negatively affected.

That was the situation in some areas in Southern Poland. Fundacja Terapia Homa (Homa Therapy Foundation) bought land to start a Homa farm near Jordanow, South of Krakow. The soil was tested by the agricultural department. The result was that the soil in the vegetable garden was the worst, with a pH of 4.4 means extremely acidic. The agricultural engineers told that nothing would grow there (and also in the surrounding farms there was mainly grassland for feeding cows—no agricultural or horticultural production). But the land was already bought. There was no money for applying truckloads of lime to raise the pH of the extremely acidic soil to a neutral level. Still, Jarek and Parvati Bizberg, the people in charge of the farm, started with Homa organic farming – and in spite of what the agricultural engineers said (“nothing will grow”), they got good results growing all different types of vegetables just by using *Agnihotra*

Table 5: Increase of water solubility of phosphate by adding *Agnihotra* ash to the soil

Soil used	Phosphate % per gram of soil		Phosphate % per gram of ash	
	Non-Homa	Homa	Non-Homa	Homa
No soil—only ash			3.40%	8.90%
Weld loam	0.42%	1.72%	2100%	8600%
Red feather loamy sand	0.23%	1.15%	1150%	5750%

Table 6: Effect of *Agnihotra* ash on pH of alkaline soil

Soil treatment	pH
With agro-chemicals	9.86
With vermicompost	9.06
With vermicompost + <i>Agnihotra</i> ash	7.67



Fig. 4: Vegetables grown at the Homa farm of Fundacja Terapia Homa, Poland
Source: Berk & Johnson 2008

and *Agnihotra* ash. There is a good yield of vegetables, and the taste, texture, weight, and quality are superior. Also, the quality of the soil has improved—a recent test showed a soil pH of 7.2. More info in J. Bizberg, Homa organic farming in Poland—miraculous success in acidic soil (Berk and Johnson, 2009).

It would be really worthwhile to do a scientific study and examine how the methods of Homa organic farming influence: soil chemistry, soil biology (what is the role of soil flora and fauna in the improvement?), and soil physics (e.g., will water holding capacity of the soil improve?) (Fig. 4).

Water Retention of Soil (India)

The following observation suggests that on a Homa farm, water retention is increased. Bruce Johnson from the Homa Organic Farm Tapovan (Ratnapimpri, District Jalgaon, Maharashtra, India) sent the following report: “Out of curiosity, we asked someone to dig a hole in the cultivating area on the farm to see how deep he would have to go before finding moisture. It was approximately 0.5 meters. He then went to a couple of neighboring farms and obtained permission to dig a hole in their cultivating areas, and to our surprise, we had to dig approximately one meter before finding moisture in the soil.” This observation suggests that the regular performance of Homa therapy increases the soil’s ability to retain moisture. A controlled experiment in different areas would be interesting.

Effects of Homa Therapy on the Atmosphere

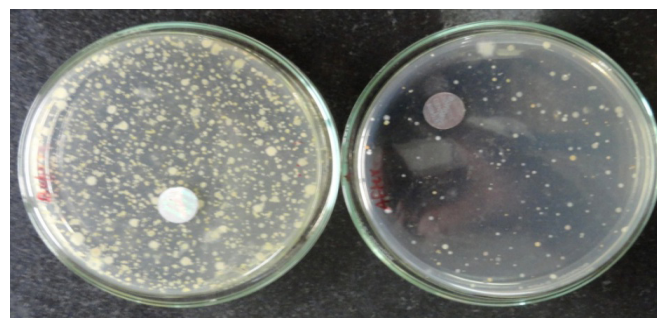
Nutrition through atmosphere

Modern science speaks mainly of soil analysis and water analysis, but not much about the role of our atmosphere for the health and growth of plants. Vruksha Ayurveda—the ancient knowledge on which Homa organic farming is based—states that more than 75% of nutrition to plants and soil comes through the atmosphere. Also, Rudolf Steiner, father of biodynamic

farming, said the same. Of course, it is known that plants are feeding themselves carbon, oxygen, and hydrogen from the atmosphere and that nitrogen can be fixed by certain microbes from the atmosphere into the soil. But rarely the question is asked – if our atmosphere is polluted, will this not also have a detrimental effect on plants’ functioning? Plants may be “choking to death” due to atmospheric toxins. But if you make the atmosphere more nutritious and fragrant by Homa, a type of protective coating comes on plants, and plants’ capacity to breathe increases. The diseases, fungi, insect pests, etc., do not thrive. Modern science has shown that *Agnihotra* and Homa therapy can reduce biological, chemical, and physical air pollution.

Biological Air Pollution: Reduction of Pathogenic Microorganisms

Some preliminary studies were done already several years back. Dr. Arvind G. Mondkar M.Sc., Ph.D., practicing microbiologist, Mumbai, showed that *Agnihotra* fumes are rich in substances which have inhibitory effects on microorganisms like staphylococci, salmonellae, etc. (Mondkar, 1982). Dr. B. R.



Before *Agnihotra* After *Agnihotra*

Fig. 5: Bacterial load in air
Source: Pathade/Abhang 2014

Gupta, Associate Professor of Microbiology, CSA University of Agriculture, Kanpur, showed that bacterial colony count in *Agnihotra* atmosphere was 80% less than that in the non-*Agnihotra* atmosphere. Wg. Cdr. D. V. K. Rao, Classified Specialist, Pathology, Defence Institute of Physiology and Allied Sciences, Delhi, showed that *Agnihotra* ash has a bacteriostatic effect and controls the growth rate of various types of pathogenic bacteria.

Recently the following experiment was done at Fergusson College, Pune. Medium plates were open in the room before and after *Agnihotra* and incubated for 24 hours to grow a bacterial colony. Conclusion: As per the results obtained, *Agnihotra* fumes decrease the microbial load in the air. Further experiments were done to see the effects of *Agnihotra* ash on bacteria. The following results could be shown: loss of capsule formation with *Klebsiella pneumoniae*, loss of hemolytic activity with *Staphylococcus aureus*, and *Klebsiella pneumoniae*; decreased resistance to phagocytosis with *Klebsiella pneumoniae*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*.

These results show that the pathogenic bacteria examined show a reduced virulence when in contact with *Agnihotra* ash (Pathade and Abhang, 2014; Abhang *et al.*, 2015). These results were confirmed by another study done at Palampur Agricultural University, Himachal Pradesh, India (Kumari *et al.*, 2015). In this study, a comparison was made between the effect of *Agnihotra* and a normal fire (in which the same substances were burnt, also in a copper pyramid, but without the *Agnihotra* mantras). *Agnihotra* reduced bacterial count significantly compared to the control fire. For replication of this experiment, it is suggested to keep some distance between *Agnihotra* and control room. In this experiment, the two rooms were next to each other—and *Agnihotra* may well reduce bacterial growth also in adjacent rooms (Fig. 5).

Chemical and Physical Air Pollution

Chemical air pollution refers to chemical compounds detrimental to our health. Modern technology has brought a lot of such compounds into our homes, many of them potentially harmful for humans. A series of experiments was conducted recently at Vikram University, Ujjain, MP (Head of Department: Dr. Kushwaha), and at North Maharashtra University, Institute of Environmental Sciences (Director: Dr. Sopan Ingle), Jalgaon, India. They tested the chemical compounds SO_x and NO_x , which are produced by any form of combustion, and the levels are getting alarmingly high, especially in cities because of all the cars with combustion engines. Also, these experiments measured physical pollution, i.e., particle pollution. Following are the results:

Ambient Air Quality Report

The sampling was done with a high-volume air sampler, which sucks in the air and then presses it through a filter. Particles are stuck in the filter, depending on the filter specifications. Although the values go up a little bit after *Agnihotra* (which is to be expected as the smoke of *Agnihotra* fire creates some level of SO_x , NO_x , as well as some particles), after some time all values go down well below the levels we had before *Agnihotra*. That means *Agnihotra* purifies our air also from these chemical and physical pollutants. The experiments were done both at sunrise and at sunset in order to rule out any effects of normal variations between day and night. The next step will be to do this experiment for one week, performing *Agnihotra* regularly morning and evening (Table 7).

Negative Ions in Air

Negative ions are known to be an indicator for fresh air; lack of



Fig. 6: Germination of seeds
Source: Pathade/Abhang 2014

Table 7: Reduction of chemical and physical air pollution through *Agnihotra* (values are in $\mu\text{g}/\text{m}^3$, sampling period: 30 minutes)

Date	Time		SO_x	NO_x	RSPM	SPM
28/03/2016	5:15 to 5:45	Before Homa	7.9	27.3	105	69
28/03/2016	6:30 to 7:00	During Homa	6.2	23.7	75	63
28/03/2016	7:00 to 7:30	After Homa	8.3	29.1	152	83
29/03/2016	10:30 to 11:00	15 hrs after Homa	5.6	21.9	56	47

SO_x : Sulfur Oxides; NO_x : Oxides of Nitrogen; SPM: Suspended particulate matter (particles floating in the air), RSPM: Respirable suspended particulate matter (particle size equal or less than 10 micrometers—these small particles can go deep into our respiratory system)

negative ions indicates polluted air. Normally, smoke reduces the number of negative ions as can be seen under smog conditions, e.g., but an experiment done in Germany showed that the number of negative ions increased after *Agnihotra* was performed, opposite to what was expected. That would be a good experiment to replicate.

Effects of *Agnihotra* and *Agnihotra* Ash on Germination of Seeds and on Plant Growth

The following two experiments were done in Fergusson College, Pune. The first was to study the effect of *Agnihotra* ash on the germination of seeds. For watering, three types of water were used: tap water, control ash water, and *Agnihotra* ash water. Seeds of *Vigna aconitifolia* and *Vigna unguiculata* were taken as experimental material. Seeds were allowed to germinate, and germination was observed after 24 hours (Dave, 1997; Heisnam *et al.*, 2004; Sharma *et al.*, 2012) (Fig. 6).

DISCUSSION

From results obtained, it can be concluded that *Agnihotra* ash promoted the process of germination probably by increasing its nutrient content and hence can be used as fertilizer.

The second experiment was about plant growth in the *Agnihotra* atmosphere. Two plants were maintained, providing

the same amount of water, light, and other environmental conditions. One is kept in a separate room where *Agnihotra* is performed, and another is kept in a normal room where *Agnihotra* is not performed.

This leads to the conclusion that in the *Agnihotra* atmosphere, plant growth is increased (Pathade and Abhang, 2014). More information on the effect of *Agnihotra* on plants and in agriculture/horticulture is collected (Berk and Johnson, 2009) (Fig. 7).

Nutrient Content

Studies have shown a decline in the nutrient content of plants. There are different reasons for that (like choosing higher yield varieties over those with good nutrient concentration), but reduced soil health and pollution of the environment play an important role also. Ayurvedic doctors have confirmed that the medical potency of the plants they use is declining because of pollution. According to *Vedic* knowledge, this trend can be reversed by performing Homa. That would be an important and interesting study—and it could also be relevant for all medicinal plants which are now widely affected by environmental pollution. Such experiments have not been done yet, but we have one interesting observation showing that vanillin content of vanilla grown on a Homa organic farm is exceptionally high (Table 8 and Fig. 8).



Fig. 7: Plants are grown without *Agnihotra* / in *Agnihotra* atmosphere
Source: Pathade/Abhang 2014

A comparative study on the nutritive value of tomatoes was done at the University of Warsaw, Poland, Europe. Following are the results:

Nutritive value of organic and conventional vegetables from different cultivation systems. Crop: tomato (Values: g/100 f.w.) (Table 8).

Effects of Homa Organic Farming on Biodiversity

It is known that the variety of plants and animals is getting less and less—some main reasons probably are monoculture and the use of herbicides and pesticides in agriculture. Still shocking what a study was done recently in Germany found out: Within 25 years there was a reduction in insect population of 75%. One of the scientists involved in the study considers this as “ecological armageddon.” Still, insects are just one aspect of the loss of biodiversity which we face. All flora and fauna are affected. How does Homa therapy help? Biodiversity is a vast subject. Here I am only giving two examples of how biodiversity increases in Homa atmosphere: invertebrates and butterflies.

Right and left are stations downstream and upstream of the Homa therapy place shown in the middle. The number of

butterflies at three different research stations. Homa therapy place is shown in the middle.

Both studies are done by Dr. Shailendra Sharma and his group, AIMS College, Dhamnod, M.P., India (Figs. 9 and 10).

Effects of Homa on Human Health

In the introduction, it was stated that now a considerable proportion of human deaths are because of environmental pollution. In India, the percentage is between 20 and 25%. As *Agnihotra* purifies our environment from all different kinds of pollution, it naturally will also have a beneficial effect on human health. I want to mention just one example as it shows that *Agnihotra* can also give protection in case of environmental disasters. On the night of December 2nd, 1984, methyl isocyanate (MIC) gas leaked from Union Carbide Factory in Bhopal, M.P., India, causing great havoc. This is still one of the biggest industrial catastrophes worldwide. Thousands of people died, and many thousands more were seriously injured. However, all those performing daily *Agnihotra* in Bhopal were safe. *Agnihotra* proved a very protective armor for all of them. Volunteer *agnihotris* actively served in the MIC gas affected

Farm of Shri Abhay Mutalik Desai Sutagatti, Belgaum, Karnataka



Normally, the best commercial result of vanillin content (by weight) is 25 to 28%. On this Homa farm, the vanillin content was 36% by weight (see certificate).

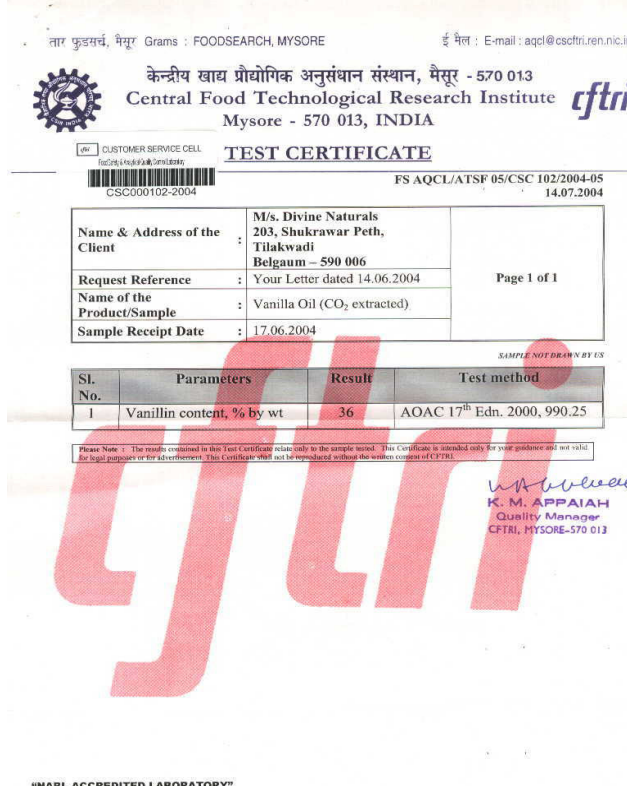


Fig. 8: Test report vanillin
Source: Berk & Johnson 2008

Table 8: Nutritive value of tomatoes conventional/ organic/ Homa organic

Agricultural system	Dry matter	Sugars total	Sugars reducing	Organic acids
<i>Agnihotra</i> farm	7.87	5.03	3.77	0.51
Organic farm	6.86	4.91	3.65	0.42
Conventional farm	6.67	5.00	3.46	0.40
p-value	< 0.0001			

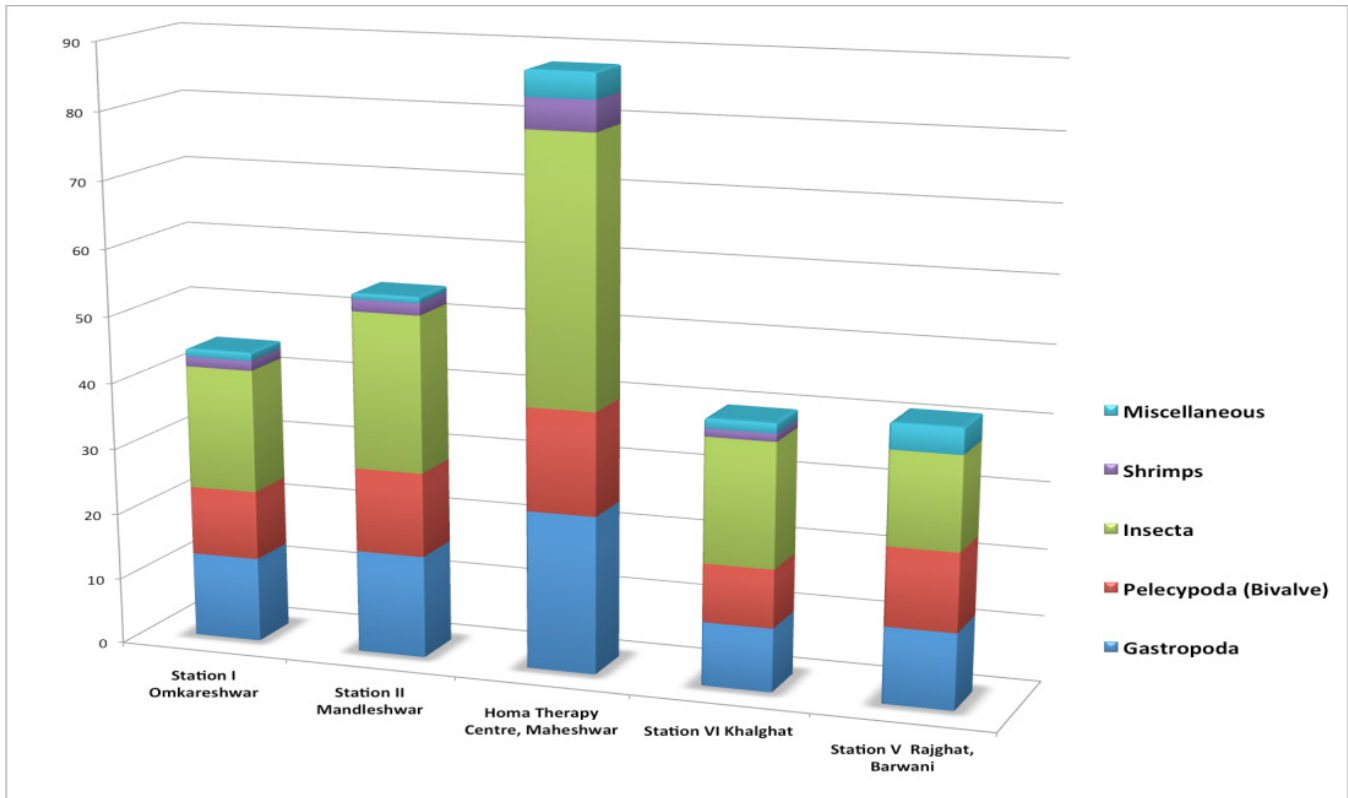


Fig. 9: Biodiversity-invertebrates

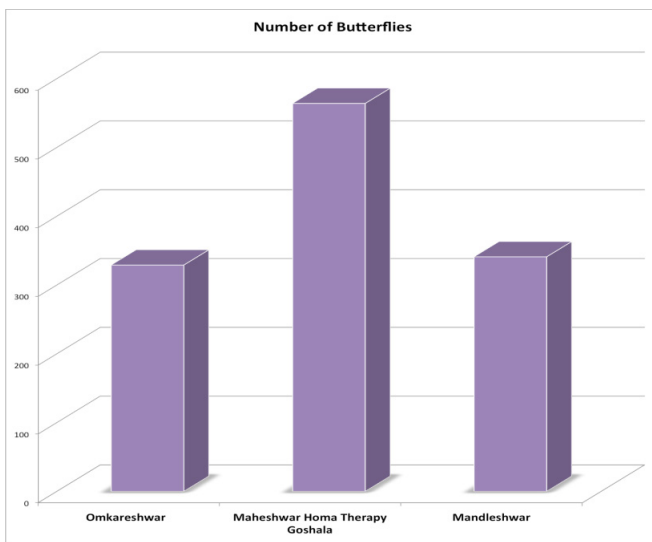


Fig. 10: Biodiversity-number of butterflies

colonies after the accident. They formed 8 to 10 groups of *agnihotris* at different places where about 40–50 affected people used to gather for morning and evening *Agnihotra*. Also, small packets of *Agnihotra* ash were distributed. Eye-drops used to be put in the eyes of the affected people. The result of the treatment with *Agnihotra* eye-drops was wonderful as it gave immense relief to the patients. Conventional medicines did not give much relief to the patients. *Agnihotra* ash and *Agnihotra* atmosphere helped and provided inner peace to those who suffered from the loss of dear ones. This is the experience of about 400–500 people

of both Hindu and Muslim communities. Those 15–20 *Agnihotra* volunteers who performed daily morning-evening *Agnihotra* in the group of assembled suffering people did so regularly for about two months. Thereafter, they inspired these people to perform *Agnihotra* themselves. More reports on healings of different diseases with *Agnihotra* and *Agnihotra* ash are posted on www.homahealth.com.

CONCLUSION

Sufficient evidence of the positive effects of Homa therapy and *Agnihotra* has been compiled in this study as well as in previous data to warrant widespread use and further study. The rather dire current state of environmental and climate disturbance and their demonstrated lack of response to most methodologies cries out for consideration of Homa therapy in light of its demonstrated benefits, low cost, and ease of operation.

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