



DEV SANSKRITI
VISHWAVIDYALAYA

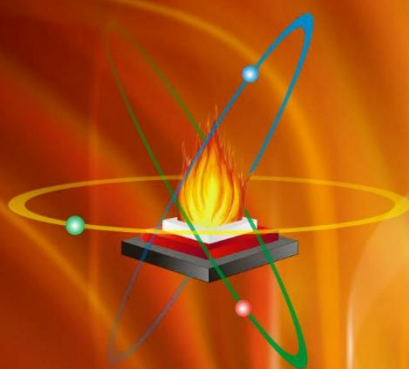
ISSN: 2581-4885



INTERDISCIPLINARY JOURNAL OF YAGYA RESEARCH

Peer Reviewed Research Journal

VOLUME 1 ISSUE 2



PUBLISHED BY:

DEV SANSKRITI VISHWAVIDYALAYA, Shantikunj, Haridwar - 249411 (UTTARAKHAND)

www.dsvv.ac.in

OPEN ACCESS ONLINE JOURNAL

Yagya reduced level of indoor Electro-Magnetic Radiations (EMR)

Mamta Saxena^{1*}, Manisha Sharma², Mukesh Kumar Sain³, Gunjan Bohra⁴, Rashmi Sinha⁵

¹Adviser, Department of Agriculture Cooperation and Farmers Welfare, Lodhi Road, Delhi

²Member, Divine India Youth Association, Green Park, New Delhi

³Member, Divine India Youth Association, Vikaspuri, New Delhi

⁴Member, Divine India Youth Association, Gurugram, Haryana

⁵Member, Divine India Youth Association, Asiad Village, New Delhi

*Corresponding author: Mamta Saxena. Email: saxenamamta@hotmail.com

Abstract. In today's lifestyle it is unthinkable to have a day without coming into contact with electronic devices such as cell phones, laptops, tablets, Televisions and now LEDs. In the whole world people are relying heavily on these technological tools for entertainment and for communication with friends, family, and at school and work. All these devices emit Electro-Magnetic Radiations (EMR) which are harmful for human beings as they cause many harmful effects including Cancer. Data gathered from 13 participating countries was pooled and analyzed by the International Agency for Research on Cancer (IARC), to determine whether there were any links between use of mobile phones and head and neck cancers in adults. Based largely on these data, IARC has now classified electromagnetic radiofrequency fields as possibly carcinogenic to humans (Group 2B), a category in

which harmful pesticide like DDT has been kept. Thus, we need a solution which can be imbibed in our day to day lives to reduce EMR level at our residences and workplace. Yagya is a non-conventional solution suggested in Indian scriptures to save from harmful cosmic waves. Hence, in the present study, Yagya was conducted as an intervention to find its impact on the indoor EMR flux. Five case studies were performed in NCR Delhi. It was observed that after the performance of Yagya there was a significant decrease in the indoor EMR level indicating a utility of Yagya as non-conventional solution for reducing indoor EMR level.

Keywords. Yagya, Electromagnetic Radiations, EMR, Indoor atmosphere, non-conventional solution

Introduction

The modern lifestyle in the world is making us victim of unknown and unseen hazards arising from the usage of electronic devices and gadgets. It is unthinkable to have a day without coming into contact with electronic devices such as cell phones, laptops and tablets. In the whole world, people are relying heavily on these technological tools for communicating with friends, family, and school children also for work. Most of the people are unaware that these electronic devices emit waves of Electroagnetic Radiation (EMR).

There are some unavoidable important applications of EMR such as for medical diagnostic instruments, security scanning at airports and shopping malls for radars, for microwave ovens and so on. Additionally, EMR (Infra-red waves) are used in TV remote controls, night vision goggles. Moreover, radio-waves are used in radio and television broadcasts. The harmful effects of EMR over longer exposure of electronic devices are hazardous.

Harmful Effects of EMR

When any electric or magnetic field acts on conducting materials, they affect the distribution of electric charges on their surface. Similarly, when low-frequency electric fields pass through human body, they influence it just as they influence any other material made up of charged particles. In human body they disturb the electrically charged sphere of various organs of the body causing harmful effects.

It is seen that with the passing of low-frequency magnetic fields in the human body, circulating currents are induced (1). The strength of these currents is dependent on the intensity of the outside magnetic field. If the field is sufficiently large, these currents could stimulate muscles and nerves or might affect other biological processes. The main biological effect of the electromagnetic fields is heating. This fact is employed in microwave ovens to heat the food. Thus, in homes where microwave ovens are used, people are subjected to the high radiations emitted from the device.

A study has been conducted by the International Agency for Research on Cancer (IARC), to determine whether there were any links between use of mobile phones and head and neck cancers in adults. Data gathered from 13 participating countries was pooled and analyzed. It was found that there was increased risk of meningioma or glioma with using mobile phones for more than 10 years. Based largely on these data, IARC has now classified electromagnetic radiofrequency fields as possibly carcinogenic to humans, a (Group 2B), an equivalent category in which harmful pesticide like DDT has been kept. As per the report of World Health Organization (1-3).

Several studies have been conducted recently to evaluate and establish the harmful effects of electromagnetic radio frequency field (EMF) on human health. Mobile phone usage has become imminent and is now an essential part of our daily lives. The effect of mobile phone radiations on human health is, therefore, the subject of interest.

The fast increasing use of mobiles has raised public concerns and thus controversy about the potential health effects of the EMF emissions from this technology (1-3). There being little or no surveillance by regulatory authorities and local administration and lack of awareness amongst the people, large number of mobile towers have sprung up on residential and office buildings. Recently, the World Health Organization (WHO) has recommended to investigate the ill-effects of exposure to electromagnetic radiations (EMRs) from these mobile phone based stations so as to address public concerns (3). Studies have indicated that people residing near mobile phone towers complain of non-specific symptoms of ill-health such as sleep disorder, constant stress and headache. Because of the lower power output of cell phones, premature cataracts have not been linked to mobile phone use, possibly (4-5). The radiofrequency EMFs from mobile tower stations have been found leading to impaired cognitive functions including ill effects on oral as well as general health. Within the oral cavity, saliva modulates the ecosystem, thus it plays a crucial role in the maintenance of oral homeostasis (6). The other functions include repair and protection of the oral

mucosa, lubrication of the bolus, dental re-mineralization and buffer capacity (7-8). The decrease or increase in salivary secretions may lead to caries, dysphagia, oral mucositis, candidiasis, oral infections and halitosis (9-10). Decreased flow rate of saliva tends to increase the risk of caries development (11). The bicarbonate concentration affects the buffer capacity of saliva (12).

The radiation effects are classified into two main categories that are known as ionization and non-ionization. Ionization radiations may have high energy that could impact the atoms in the cells, and may lead to change their natural structure. They can possibly be too dangerous and lethal, and can also lead to cancer and other diseases. On the other hand non-ionized radiations consist of electromagnetic radiations such as microwaves, communication waves, electrical waves etc. This kind of radiation is not able to change the structure of atom hence they just impact on their manner which can lead to irreparable hurts (13).

A recent study (14) has revealed that majority of people, who were residing near the mobile tower stations, complained of headaches, sleep disturbances, concentration difficulties, dizziness, hypertension and irritability. It was seen that as compared to the control subjects, a majority of the subjects had the problem of significantly lesser stimulated salivary secretion ($P < 0.01$).

The 'Interphone' study was developed "to investigate whether mobile phone use increased the risk of cancer in humans and, whether the Electromagnetic frequencies emitted by mobile phones are carcinogenic" (2007) (16). This study largely concentrated on "tumors that arose in the tissues which were most exposed to RF fields from using of mobile phones: acoustic neurinoma, meningioma, glioma, and parotid gland tumors" (2007). The patients' mobile phone usage was recorded in each case (2007). The study collected information from 13 countries: Australia, Denmark, Canada, Finland, Germany, France, Israel, Italy, New Zealand, Japan, Sweden, Norway, and the United Kingdom (2007). The study included 7,658 controls and results demonstrated 2,425

cases of meningioma, 2,765 cases of glioma, 109 cases of malignant parotid gland tumor, 1,121 cases of acoustic neurinoma (2007).

This phenomenon has caught the attention of scientists and common man now more than ever. However as long back as in 1930s, debates started regarding ill effects of EMR when scientist brought forward the theory that high-frequency electromagnetic fields (EMFs) may cause health problems (16). Thus it is seen that the awareness and concern on this issue has grown significantly over time.

As a number of studies have already been conducted to assess the damages which could be caused due to long term exposure of human beings to Electromagnetic Radiations and WHO has already upgraded the class of these radiations from category 2A to category 2B, it is now more or less confirmed that we all are exposed to potential risk of EMR all the time. It was need of time that to look into possibility of finding a solution.

One non-conventional approach to find the solution to this problem is Yagya. It is stated in Vedic texts that Yagya purifies the atmosphere. Yagya is a non-conventional solution suggested in Indian scriptures to purify environment and as a comprehensive approach (17). In addition, previously it was shown that Yagya can reduce particulate matter (18) as well as biological (19) and air pollutants (20).

Hence, in the present study, Yagya was conducted as an intervention to find its impact on the indoor EMR flux. In the present study, experiments were performed in five different residential areas in Indian National Capital Region, Delhi. Objective of this study was to test if there was any effect of Yagya on indoor atmosphere electromagnetic radiations where it was performed at different time and distances. It was observed that after the performance of Yagya there was a significant decrease in the indoor EMR level indicating a utility of Yagya as non-conventional solution for reducing indoor EMR level.

Study	Measurement		No of consequent Measurement	No of times experiment repeated	Source of radiation	Resident Place
	Distance (feet)	Time (hr)				
Experiment 1	3-12'	1-24	5	1	Laptop	Gurugram, HR
Experiment 2	3-12'	4	11	1	Laptop	Gurugram, HR
Experiment 3	2'	1-2	15	3	Kitchen microwave	Asiad Games Village, New Delhi
Experiment 4	0-5'	0.5hr	5	1	Television	Vikaspuri, New Delhi
Experiment 5	center of room	Morning Afternoon evening	15	1	General	Green Park, , New Delhi

Table 1. Details of the experiments performed in the study. Total 5 residences in Delhi-NCR were selected for the study and are shown in the table.

Methods

Conduction of experiment

Standard Yagya was performed with below described Hawan Samagri (herbal mixture) and measurement of the radiations was taken at different distance and time before and after the Yagya (table 1). Source of radiation was different for each place and mentioned in the table 1. Each experiment for particular distance and time followed by number of repeated measurement for each reading is mentioned in the table 1.

Procedure of Yagya

The procedure of Yagya was as described in the book 'Saral Aur Sarvopyogi Gayatri Yagya Vidhi' (21). The items used for the Yagya have been described in starting chapters along with the abbreviations used. The procedure of Yagya starts with *Shatkarm* and finishes with *Visarjanam* as described in the book.

Substances offered in Yagya

(A) Wood (Samidha)

Wood used was dry and free from dust, insects and worms. It was bark less. The wood cut into small sticks of varying lengths called Samidha according to the size of the altar or *Agnikunda*. Mango Wood was used as Samidha for all Yagya experiments.

(B) Herbs (Hawan Samagri)

In addition to wood, various herbs (*havishya* or *hawan samagri*) were offered in Yagya. Special herbs which were traditionally known for their good effects on the atmosphere were used to make special environmental Yagya samagri.

The experimental Yagya is the normal Yagya wherein special herbs for purification of atmosphere were mixed with the common Yagya samagri and Cows Ghee and Jaggary were used for giving oblations with Mantras.

Hawan samagri used: Common Havan Samagri had the following ingredients: Saw dust of sandal-wood and pine wood, the *agar* and *tagar* wood chips, *kapurkachari*, *gugal*, *nagarmotha*, *balchhaar* or *jatamansi*, *narkachura*, *sugandhbala*, *illayachi*, *jayphal*, cloves and *dalchini*. The proportion of constituents for one kilogram of Air Purification Havan samagri was as follows: Giloy (200 grams), *Jau* (50 grams, a type of grain), *Bilva* (50 grams), *Nagarmotha* (200 grams), *Apamarg* (100 grams), *Indra-Jau* (50 grams), *Kutaj* (50 grams), Rice (50 grams), Ghee (100

grams), Jaggary (100grams) and odorous Substances such as *Jatamansi* (100 grams) and *Adusa* (50 grams).

Along with this the normal hawan samagri from Shantikunj Pharmacy, Shantikunj was mixed in equal proportions and used as final formulation in the experiment.

Measurement of Radiation

In order to measure the extent of EMR inside the house, GM3120 Electric Magnetic Radiation Detector of KKMoon was used. This meter can test Electric field radiation and Magnetic field emissions to reach the optimal test result. It was used to test and learn electromagnetic radiation situation indoor and outdoor.

Equipped with a built-in electromagnetic radiation sensor, which can display the radiation value on the LCD digital display after processing by control micro-chip. Unit: V/m (Electric Field); μ T(Magnetic Field). Its accuracy for Electric field was 1V/m; Magnetic field was 0.01 μ T and Range for Electric field was 1-1999V/m and Magnetic field was 0.01-19.99 μ T.

Statistical analysis

Paired sample student's TTest (TTEST) and 2way ANOVA was performed using version of Graphpad software, La Jolla, CA.

Results

Yagya reduced medium-long indoor distance EMR from indoor radiation sources

Experiment 1 and 2 were performed at a Gurugram, Haryana residence for 3', 6', 9' and 12' distance from the radiation source. Table 1 indicates different radiation source for different experiments. Experiment 1 was performed for 1, 3, 12, and 24 hours (Figure 1A) and experiment 2 was performed for 4 hours (Figure 1B) of EMR measurement post-Yagya.

EMR changes from pre -Yagya (mean \pm SD = 7.43 \pm 1.01) were significantly reduced (n=12; p value 0.006) to after Yagya (mean \pm SD = 3.01 \pm 0.96) (Figure 1C) for 3'-12' and 3-24 hours. The results indicated that not only Yagya reduced level of indoor EMR from

medium to long indoor distances but also it maintained the reduced level for up to 24 hours. Though further analysis for more than 24 hours would be required to see how long the effect would remain.

Yagya reduced short-distance EMR from indoor radiation sources

Experiment 3 and 4 were performed at a two residences in Delhi-region (Table 1). EMR levels before and after Yagya were measured at 1' and 2', and at 0, 1, 2 hours (Figure 2A), and 1" (0.083'), 1', 5' at 0.5 hours (Figure2B).

EMR changes from post-Yagya at 2' distance were significantly (n=9; p value<0.0001) reduced at 0 hour (mean \pm SD = 4.56+0.65), at 1 hour (mean \pm SD = 4.31+1.70), and at 2 hour (mean \pm SD = 3.61+0.84) compared to before Yagya (mean \pm SD =10.16+1.39) (Figure 2A). In addition, all the values were combined. These results indicated that not only Yagya reduced level of indoor EMR from short indoor distances from radiation source but also it maintained the reduced level for up to 2 hours which was in keeping with the postulate of Yagya's effect to maintain reduced level of EMR for up to 12 feet and 24 hours (Figure 1A-C).

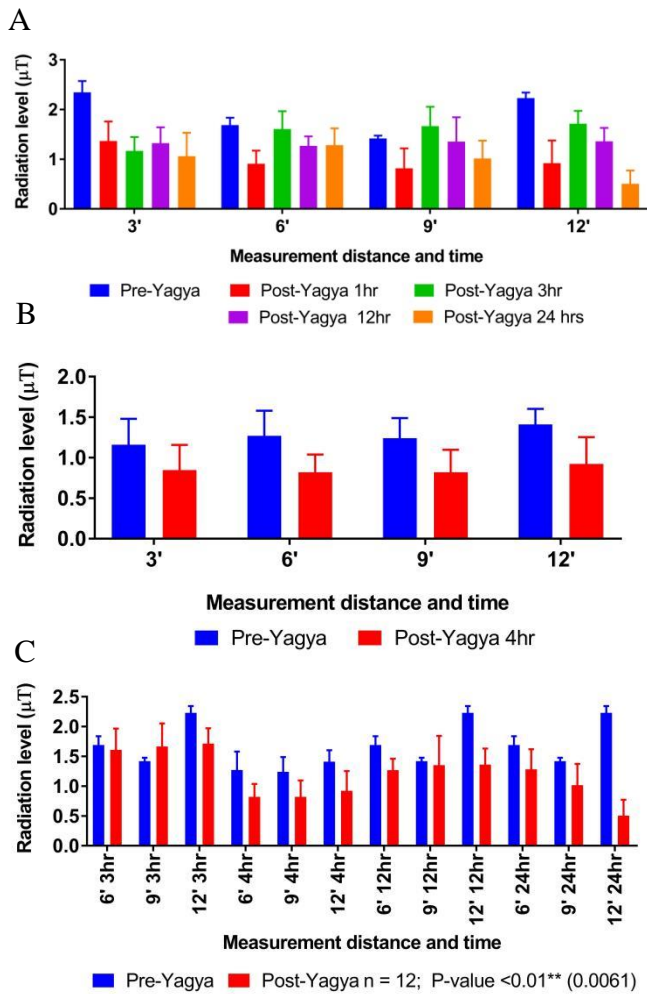


Figure 1. Effect of Yagya on EMR level measured at medium to long indoor distances before and after Yagya. EMR level measured before and after Yagya at A) 3', 6', 9', 12' and 1-24 hr, and B) 3', 6', 9', 12' and 4 hr. C) The combined graph of A and B for long distance 6', 9', 12' and for 3-24 hrs. 'hr' represents hours. Y axis is radiation level and X axis is the measurement taken at particular distance and time.

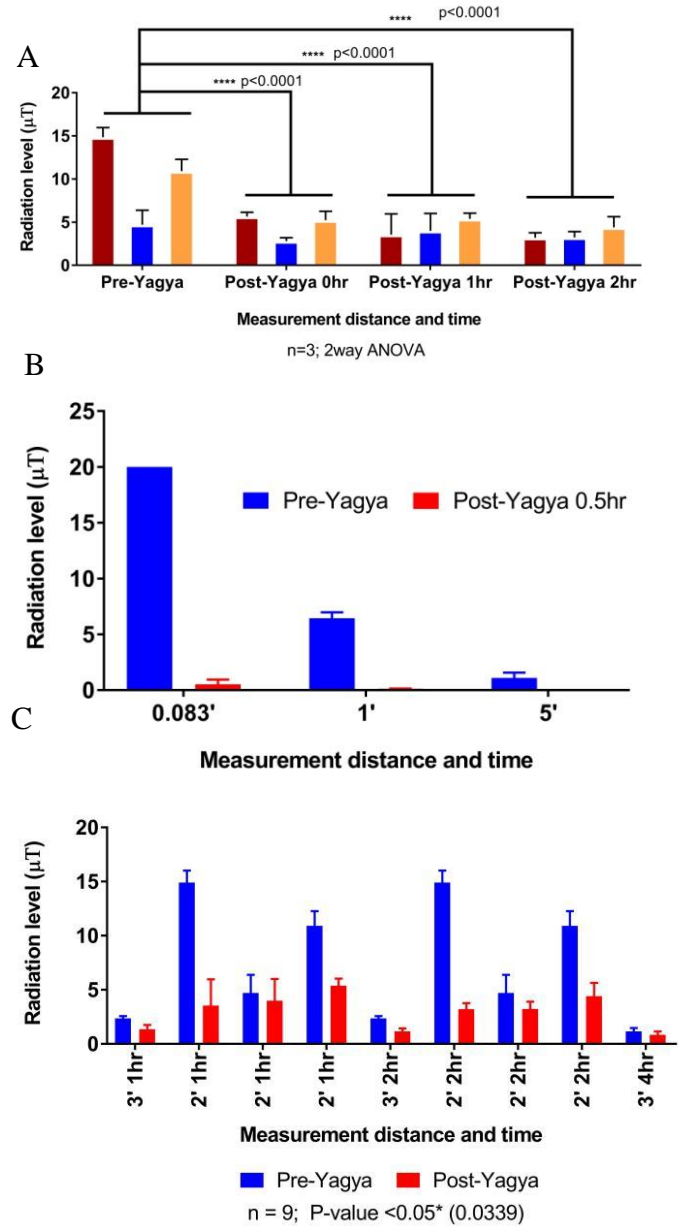


Figure 2. Effect of Yagya on EMR level measured at short distances before and after Yagya. EMR level measured before and after Yagya at A) 2' and 0, 1, 2 hr, and B) 1'' (0.083)', 1', 5' and 0.5 hr. C) The combined graph of A and B for short distance 2' and 3' for 1, 2 and 4 hr. 'hr' represents hours. Y axis is radiation level and X axis is the measurement taken at particular distance and time.

Besides Yagya maintained reduced EMR level post Yagya from as short as 1” to 5’ for 30 minutes (Figure 2B). Experiment 4 was conducted in Vikaspuri, New Delhi. Here 5 readings were taken to note the EMR before Yagya, in the morning. These readings were noted at a distance of 1”, 1’ and 5’ from the source, which was Television (TV). After Yagya was conducted in the morning between 7.00 am– 7:25 am, readings were again noted after half an hour at all the above distances. In order to see the longevity of effect readings were repeated in the afternoon and evening at 5’ distance from TV. Results were interesting and encouraging. In this experiment it was seen that the readings at a distance of 5’ from the source, i.e. TV became Zero within 30 minutes after Yagya.

In addition, for distance 2’ to 3’ Yagya reduced pre-Yagya EMR level from 1.66 ± 0.14 (mean \pm SD) to 1.19 ± 0.31 (mean \pm SD) statistically (P value = 0.0339; n=9) (Figure 2C). This indicated utility of Yagya to reduce EMR level at short distance.

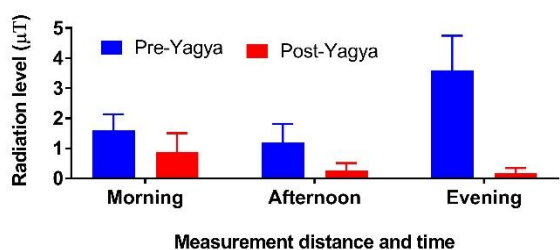


Figure 3. Effect of Yagya on EMR level present for a day long before and after Yagya. EMR level measured before and after Yagya in the morning, afternoon and evening before and after Yagya at central of the room. Y axis is radiation level and X axis is the measurement taken at particular distance and time.

Yagya reduced indoor EMR level compared to previous day EMR level.

There are many residences in the Delhi-NCR region where indoor atmosphere has high amount of EMR in the whole house as compared to other residences. Hence, the experiment was conducted in such a Green Park residence in New Delhi (Experiment 5, Figure 3) to find effect of Yagya for the whole day.

There were severe magnetic Flux field detected inside the house. So it was decided to record the EMR one day before thrice a day (morning, afternoon and evening) to see the variability of radiations during the day. Each time 15 readings were recorded. Then on the next day the experiment ‘Yagya’ was conducted at 9.00 am in the morning and after completion readings were taken thrice a day i.e. morning, afternoon and evening, 15 times each again.

As seen in figure 3, compared to previous day EMR level present in the morning, afternoon and evening, the next day EMR level for each time was drastically less indicating the potential of Yagya to maintain the atmospheric low level of indoor EMR throughout the whole day.

The average of pre-Yagya readings taken a day before were 1.6 µT, 1.2 µT and 3.6 µT respectively in morning, afternoon and evening. However after Yagya on the next day, these readings were 0.9 µT, 0.3 µT and 0.2 µT

The results are interesting. It was seen that in the morning, soon after Yagya, though there was positive effect seen on the EMR readings, but the background reading itself was less for the morning. However as the day passed the afternoon post-Yagya effect was seen. However, these all the readings were less than 1.0 µT. Best effect was seen in the evening, when post-Yagya readings were near about zero, though background evening readings taken a day before, were significantly high, average being 3.6 µT (n=15). Care was taken to ensure that the electrical and electronic equipment that were in place and in use, on before and on the day of experiments were same. Though this experiment was repeated once but 15 readings were taken to measure the stability of the signal.

Discussion

The study found that the changes in EMR readings after Yagya were significant not only for short distances and short duration but also for long distances and longer duration (Figure 1-2).

Magnetic Flux intensity is inversely proportional to the distance. Thus as the distance from the source decreases, the magnetic flux increases. This was evident from the pre-Yagya day readings (Figure 2B). However after Yagya significant decrease in the EMR was observed after 30 minutes (Figure 2B). The Average EMR reduced from 6.4 μ T to 0.14 μ T which is well within the tolerable limit of 0.40 μ T indicating potential of this non-conventional approach to tackle the radiation.

Similarly at a very close distance from the source, TV, the pre-Yagya readings were maximum of measuring device limit i.e. 20 μ T. However after 30 minutes of Yagya the average EMR was 0.5 μ T, which is again near the tolerance limit (Figure 2B). In this experiment, statistical values are not available due to triplicate readings were not taken, however the average values of EMR being significantly less than the background readings, it can be concluded that the reduction in EMR flux afterwards was due to Yagya.

Microwave and Television require close contact before or during operation. Figure 2 indicated reduction in the EMR level at short distance indicating powerful and potential utility of Yagya in day to day life to create clean indoor environment.

From the study it can be inferred that Yagya has a positive impact on the EMR inside the house and reduces its intensity to a level which is safe. In was seen that the impact had become more significant as the day progressed (Figure 1, 3) for example in the evening, post-Yagya EMR was very low (Figure 3) compared to its previous day background.

The exact mechanism of how the performance of Yagya could reduce the EMR level is yet to be researched. Further study to find out the role of herbs, fire, and Mantra in the reduction of EMR is required to be performed in future.

Biological and psychological hazards of the EMR have given the scientific community a deep thought to make a balance between utility and dependency of indoor EMR gadgets and also to find a solution to

reduce EMR. Organizations like WHO, due to long term exposure of human beings to Electromagnetic Radiations, have already upgraded the class of these radiations from category 2A to category 2B, for causing cancer, as potential risk of EMR all the time (1-3). Approaches like Yagya, which are Vedic-solutions being implied in one or other way traditionally should be looked as a solution for reducing indoor EMR to safe level.

References

1. Blettner M, Schlehofer B, Breckenkamp J, Kowall B, Schmiedel S, Reis U, et al. Mobile phone base stations and adverse health effects: phase 1 of a population-based, cross-sectional study in Germany. *Occup Environ Med.* 2008 Sep 19;66(2):118–23. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19017702>
2. Schröttner J, Leitgeb N. Sensitivity to electricity--temporal changes in Austria. *BMC Public Health.* 2008;8:310. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/18789137>
3. Geneva, Switzerland. World Health Organization; International EMF Project Progress Report; 2010-2011:1–20
4. Hermann DM, Hossmann KA. Neurological effects of microwave exposure related to mobile communication. *J Neurol Sci.* 1997;152(1):1–14. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9395121>
5. Braune S, Wrocklage C, Raczek J, Gailus T, Lücking CH. Resting blood pressure increase during exposure to a radio-frequency electromagnetic field. *Lancet.* 1998;351(9119):1857–8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9652672>
6. Atkinson JC, Baum BJ. Salivary enhancement: current status and future therapies. *J Dent Educ.* 2001;65(10):1096–101. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/11699983>
7. Mandel ID. The role of saliva in maintaining oral homeostasis. *J Am Dent Assoc.* 1989;119(2):298–304. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/2671090>

8. Sonies BC, Ship JA, Baum BJ. Relationship between saliva production and oropharyngeal swallow in healthy, different-aged adults. *Dysphagia*. 1989;4(2):85–9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/2640184>
9. Atkinson JC, Wu AJ. Salivary gland dysfunction: causes, symptoms, treatment. *J Am Dent Assoc*. 1994;125(4):409–16. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/8176076>
10. Bardow A, Moe D, Nyvad B, Nauntofte B. The buffer capacity and buffer systems of human whole saliva measured without loss of CO₂. *Arch Oral Biol*. 2000;45(1):1–12. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/10669087>
11. Heintze U, Birkhed D, Björn H. Secretion rate and buffer effect of resting and stimulated whole saliva as a function of age and sex. *Swed Dent J*. 1983;7(6):227–38. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/6583873>
12. Wikner S, Söder PO. Factors associated with salivary buffering capacity in young adults in Stockholm, Sweden. *Scand J Dent Res*. 1994;102(1):50–3. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/8153580>
13. Mohammadreza A, Yasmin T, Sara M, Soodabeh D, Mohammadnoor I. A Review on the impact of Electromagnetic Radiations on the Human's health, 2012, Proceedings, National Graduate Conference, 2012, Universiti Tenaga Nasional, Putrajaya Campus.
14. Singh K, Nagaraj A, Yousuf A, Ganta S, Pareek S, Vishnani P. Effect of electromagnetic radiations from mobile phone base stations on general health and salivary function. *J Int Soc Prev Community Dent*. 2016;6(1):54. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27011934>
15. Ledford B. Cell Phones, Electromagnetic Radiation, and Cancer: A Study of Author Affiliation, Funding, Bias, and Results. *Policy Studies*. Posted in 2010, Economics, Healthcare, No.11, Research Notes, Science, Technology and tagged ethics. 2012. Available from: <http://www.ipsonet.org/proceedings/2012/07/30/cell-phones-electromagnetic-radiation-and-cancer-a-study-of-author-affiliation-funding-bias-and-results/>
16. Kundi M. The Controversy about a Possible Relationship between Mobile Phone Use and Cancer. *Environ Health Perspect*. 2009;117(3):316–24. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19337502>
17. Sharma S. Yagyopathy ek samagra chikitsa paddhati. In: *Yagya- ek samagra upchar-prakriya*. 2012th ed. Mathura: Akhand Jyoti Sansthan, Mathura - 281003; 1994. p. 3.18-3.27
18. Saxena M, Kumar B, Matharu S. Impact of Yagya on Particulate Matters. *Interdiscip J Yaya Res*. 2018;1(1):01–8
19. Saxena M, Sengupta B, Pandya P. A Study of the Impact of Yagya on Indoor Microbial Environments. *Indian J Air Pollut Control*. 2007;7(1):6–15
20. Saxena M, Sengupta B, Pandya P. Effect of Yagya on the gaseous pollutants. *J Air Pollut Control*. 2007;7(2):11–5
21. Sharma S. editor. *Saral Aur Sarvopyogi Gayatri Yagya Vidhi (Hindi)*. Revision. Yug nirman yojana vistar trust, Gayatri Tapobhumi, Mathura; 2012