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Yajna causes good rainfall

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Abstract

We performed the Yajna experiment in a large scale once each year and at different times of the year. Eight continuous years of experimenting on "Yajna" or "Agnihotra", a process in which fire is established in an inverted truncated pyramid or a different shape of fire pit and materials like ghee, saffron, sandalwood, and herbs etc., are offered at given intervals of time while chanting Vedic hymns. These materials are fumigated, and vapours are emitted which rise high in the atmosphere because of the velocity gained by the temperature inside the fire pit. Ghee (clarified butter) prepared from cow milk consist of minerals like Fe, and Cu etc., and on fumigation these materials are separated from the original substance and rise high into the atmosphere as vapours consisting of mineral particles and other molecules present in the ghee. It is found that these vapours are capable of purifying the atmosphere, cloud formation and to cause good rainfall. We have collected data for rainfall for a period of 39 years in a region where the experiment of Yajna was conducted. This data indicates that the years in which the Yajna was performed gave better rainfall than the years in which there was no Yajna.

Keywords: Yajna, rainfall, air pollution, mineral aerosols, condensation, cloud formation

1. Introduction

Rain is an important factor that contributes to the water cycle and existence of life on Earth. Rain is also an important factor in climate control, to the chemical reactions of several atmospheric substances and their cycles. "One of the important factors in the formation of clouds is the presence of aerosol particles in the atmosphere (Warneck P.)[1]. These particles consist mainly of condensed matter other than water, and they are more numerous than either cloud drops or ice crystals in the air". In Young Lee[2] et al studied the time variation in size of aerosol particles growing by condensation. According to the authors (In Young Lee et al), "assuming that for initiation of rain by the collision and coalescence mechanism, drops of radius > 20 μm must have concentration larger than 1000 m^{-3}. "Aerosol particles can scatter and absorb solar and terrestrial radiation that can change the energy balance of Earth and also influence the formation and properties of clouds" (Bjorn Stevens and Graham Feingold)[3].

Raindrops can attract tens to hundreds of tiny aerosol particles to its surface before hitting the ground. Coagulation is a process by which liquids pickup solid particles while flowing. Similarly, raindrops and aerosols attract by coagulation and clear the atmosphere of pollutants like soot, sulphates, and organic particles. Huneeus et al[4] found that the mineral dust particles after being lifted into troposphere have lifetimes of several days. According to Prospero[5] et al, "Mineral dust particles can be transported to thousands of kilometers". Research findings of Textor[6] et al indicates, "emission of mineral dust is the second largest in the troposphere after the sea spray". Since the sea spray particles are larger than 10 μm, the particles are quickly removed from the atmosphere through deposition (Quinn P.K. et al)[7], we can consider mineral dust that are second largest in the troposphere and have diameter less than 10 μm are responsible for coagulation.

Water cycles (Ginoux P. et al)[8] closely depend on the dust emissions and climate change can in turn change the dust emissions. Mineral dust has a long lifetime in the atmosphere and can impact the climate in a number of ways like photolysis rates that impacts the photochemical changes in the troposphere (Jeong G. R. et al)[9]. Mineral dust particles can act as cloud condensation nuclei (CNN) to form liquid droplets (Koehler K.A. et al)[10] as well form ice nuclei (IN) (DeMott P.J. et al)[11] and may be the dominant ice nuclei in the troposphere (Cziczo D.J. et al)[12] and hence the water cycle can significantly be impacted by these mineral dust particles. Research indicates that mineral dust particles are the major source of Fe (Shi Z.B. et al)[13], P (Nenes A. et al)[14], and Cu (Jordi A. et al)[15].

2. Material and methods

After the introduction of minerals such as Fe, P, and Cu etc., in the troposphere and their contribution to CNN and IN, in this part we will discuss the minerals present in the milk and butter from cow and buffalo. According to the research details given by A. Enb[16] et al, "Whole buffalo's and cow's milk as well as dairy products manufactured from them were analyzed for chemical composition and metal contents. Metals iron (Fe), copper (Cu), manganese (Mn), and Zinc (Zn) were detected in the milk of cow and buffalo. The respective amounts in buffalo's milk is (0.88, 0.201, 0.072 and 4.35 mg/kg), and cow's milk is ((0.572, 0.131, 0.047 and 2.828 mg/kg). Also, cow's milk contained Chromium (Cr), Nickel (Ni), Cobalt (Co), and Tin (Sn) at lower levels. Harmful metals such as Pb and Cd were found at low levels". Having been said about the minerals present in cow's and buffalo's milk and their products, we understand that on fumigation of the cow and buffalo dairy products the release of these minerals into the atmosphere occurs to a good extent. Since these minerals have high velocities, on collision with atmospheric molecules (particulate matter or any pollutant) can excite them and cause dissociation. The fumigated particles can rise high enough and can cause coagulation to form clouds and subsequent condensation to give rains as described in the introduction. We have tested this hypothesis for 8 continuous years by doing Yajna and confirmed the results as described below with the rainfall data.

Figure – 1

"Yajna" or "Agnihotra" is a Scientific process that is carefully carried by specialists who are well trained in executing the process. As shown in the above "Fig – 1", a fire pit is prepared, and fire is kept inside the pit with the help of special sticks known as "Samidhas". These "Samidhas" are obtained from various trees such as Ashwath (Ficus Religiosa), Udumbar (Ficus Glomerata), Palaash (Butea Frondosa), Shami (Propsopis), and Vikadgand (Capparis Spinosa) etc. Then cow ghee (Butter turns to ghee on heating), and other food materials, precious metals, and scented materials such as sandalwood, and herbs are kept in the fire at regular intervals.

The Yajna fire generally is between 200 to 1000 degrees Celsius and above. At this temperature generally all materials (eatables, and herbs etc.) are vaporized and the molecules or atoms or ions or nanoparticles rise high into the atmosphere. These molecules have high kinetic energy and travel long distances and climb great heights as the density of these vapors are lesser than the surrounding air. These minute particles have the capacity to interact with the atmospheric gases/particles and cause reduction in the pollution. For example, Sulphur dioxide can be removed using Carbon (Sappok and Walker)[17].

Experimental results (Pushpendra K. Sharma et al)[18] indicated that the pollutants like SO_x, NO_x, CO, and PM could be reduced by "Agnihotra" or "Yajna". It was shown that SO_x reduced by about 51% and NO_x reduced by about 60% while RSPM and SPM were reduced by 9% and 65% respectively.

Using herbs and scented materials in the "Agnihotra" or "Yajna" give medicinal smoke to cure illness (Abdolali Mohagheghzadeh et al)[19] such as pulmonary, neurological and dermatological apart from being beneficial to health and include smoke for social use. The authors also demonstrate that medicinal smoke can be extended to use in modern medicine as a form of drug delivery and is a promising source of new active natural ingredients.

In these Yajna's four types of materials are used for offering in the fire (Yajna). (1) Scented materials such as Kasturi, saffron etcetera. (2) Sweet materials such as jaggery, honey etcetera, (3) Strength producing materials such as cow ghee, cow milk, rice etcetera. (4) Health preserving materials such as herbs and precious metals. These materials are acquired and purified before offering them in proper proportions in the Yajna. Because of this air and rainwater get purified and everyone gets pleasure. The above said materials when offered in the fire (Yajna), become minute and mix with the air. These materials in the vapor state clean the atmospheric air and reduce pollution.

When these materials are offered in the fire (Yajna), hot smoke and steam are produced. Due to heat these materials get dried by releasing the vapors from them. These vapors mixing with the air enters the atmosphere. In that vapor the water part is steam and particles mixed with steam part is smoke. These vapors and particles interact with the atmospheric particles and purify the air. These vapors and particles collect together and form clouds. Because of this we get good rains with purified water.

For the past 8 years (from 2012 to 2019) we performed the Yajna experiment in a large scale once each year at different times of the year and close to Atlanta, GA within a radius of 50 km. We have found (Venkata R Chaganti)[20] that the vapors produced in the Yajna are capable of reducing PM (Particulate Matter) pollution in the atmosphere up to a period of 96 hours after the Yajna and the effect can be observed to a distance of 50 kilometers.

An ahuthi is the selected/allowed material that is offered in the fire pit or Yajna fire. Each ahuthi is equal to about 10 grams of either ghee, herbs, or cooked food like sweets etc. For our experiments we have offered anywhere from 5,000 to 10,000 ahuthis depending on the Yajna design. For each experiment we used cow ghee (clarified butter) and for each experiment the average ghee quantity had been about 40 kg.

Therefore, from the research paper[16] we can calculate the amount of Fe, and Cu that is contained in the ghee used for fumigation. Fe, and Cu are also present in other materials that are fumigated in the Yajna along with Phosphorous (P). Apart from these particles there are other particles released from the ghee as a part of fumigation.

We have analyzed (a) the Particulate Matter[20] values before, during, and after the Yajna, (b) quality[20] of the rainwater that is collected within three days after the Yajna, and (c) the quantity of the rainfall throughout the year succeeding the Yajna day.

In this paper we have analyzed the details of the rainfall for the past 23 years in Atlanta, GA. We found that the rainfall quantity increased during the years (June 2009- May 2010, October 2012 to October 2019) when Yajna was performed compared to the years when there was no Yajna. The details of the Yajna from 2009 to 2019 and reduction in the pollution of Particle Matter were clearly explained in our research work[19]. From this reference and the table given below we draw our results and conclusions.

3. Tables, Figures and Equations

Table – 1 Total precipitation in Atlanta, GA from 1996 to 2019.

		January	February	March	April	May	June	July	August	September	October	November	December	Total
								Atlanta						
	1996	8.26	3.82	6.42	2.91	2.12	1.70	2.14	4.66	4.32	0.89	3.22	4.14	44.60
	1997	5.65	7.93	2.18	4.28	3.36	3.91	4.71	1.32	4.83	5.12	3.34	5.05	51.68
	1998	5.83	7.10	6.25	5.12	1.23	3.58	2.93	5.54	4.45	0.26	1.97	1.90	46.16
	1999	5.34	1.97	3.32	1.14	4.42	5.83	3.43	1.26	4.19	2.41	3.34	2.21	38.86
	2000	4.89	1.26	3.63	2.63	1.86	1.11	2.70	4.03	4.93	0.88	5.02	2.62	35.56
	2001	2.77	3.61	9.08	3.30	3.31	6.69	2.54	1.03	2.19	0.79	0.87	2.22	38.40
	2002	5.35	2.54	5.49	1.83	3.52	2.81	2.59	0.77	6.39	5.94	5.36	5.23	47.82
	2003	2.00	3.51	7.08	3.44	9.94	7.34	5.35	3.48	2.41	1.49	4.17	2.69	52.90
	2004	2.84	4.60	1.04	2.80	2.58	5.99	2.20	3.63	13.65	2.19	7.26	4.82	53.60
	2005	2.57	5.58	7.49	4.36	1.98	2.91	14.63	8.28	0.07	1.98	2.91	3.67	56.43
	2006	5.10	5.50	2.93	2.48	2.86	5.80	1.31	8.66	3.31	3.04	4.39	3.08	48.46
	2007	3.95	2.63	1.31	1.79	2.05	3.66	1.85	3.48	2.92	2.47	0.96	4.78	31.85
	2008	2.85	4.68	5.17	3.22	2.80	0.58	7.17	3.77	0.75	3.48	2.64	4.39	41.50
	2009	2.88	3.70	7.13	5.18	4.54	2.34	5.02	6.14	8.94	8.71	5.75	9.10	69.43
	2010	5.38	4.17	4.24	2.56	6.87	5.21	4.37	3.32	1.60	3.33	5.48	1.62	48.15
	2011	2.63	4.25	9.06	3.06	2.93	2.20	2.67	1.51	2.30	1.70	2.49	4.43	39.23
	2012	5.14	2.23	3.52	2.23	3.41	2.28	3.53	3.89	1.37	1.83	1.67	5.93	37.03
	2013	4.90	7.50	4.58	5.51	5.26	9.57	8.48	5.24	2.74	2.57	1.87	7.80	66.02
	2014	3.35	3.81	3.12	5.90	2.29	5.10	4.60	5.80	0.75	3.54	3.85	5.51	47.62
	2015	4.36	4.15	2.98	7.79	4.44	6.91	5.01	5.77	3.93	2.55	7.98	12.51	68.38
	2016	5.14	7.39	2.21	3.15	1.25	3.26	3.66	3.06	3.43	0.16	2.98	3.00	38.69
	2017	8.18	1.87	2.68	5.75	4.60	7.71	2.68	5.47	4.25	3.87	1.04	4.38	52.48
	2018	3.26	6.11	4.86	6.53	4.45	3.86	8.04	7.59	1.48	4.75	7.27	11.83	70.03
	2019	6.23	4.14	2.17	6.34	2.28	6.46	2.06	1.89	0.76	3.59	2.68		38.60
1981-2010	30 yr avg	4.20	4.67	4.81	3.36	3.67	3.95	5.27	3.90	4.47	3.41	4.10	3.90	49.71

Table – 1 is the data about precipitation in Atlanta GA region from 1996 to 2019 that is collected from the government website https://www.weather.gov/ffc/rainfall_scorecard

Table – 2 Average Precipitation details

Year or interval	Total Precipitation	Average Precipitation per Month	Comments
January 1996 to December 2008 plus January 2009 to May 2009 plus June 2010 to September 2012	703.21 (15 years 9 months)	3.72	No data exists about Yajna during this period.
October 2012 to September 2019	384.99 (for 7 years)	4.58	Yajna was performed on the following dates: 30th September 2012, 25th May 2013, 14th June 2014, 4th April 2015, 21st May 2016, 10th June 2017, 25th August 2018.

From Table – 2 we find during non-Yajna years the average precipitation per month did not exceed 3.72 inches/month and during the Yajna period the rainfall raised as high as 4.58 inches/month. This shows that Yajna period rainfall is more than non-Yajna period by about 23%.

Also, from Table – 1 the 30-year average (last row) between 1981 and 2010 is 4.14 inches/month.

4. Conclusions

This data for a period of 39 years (from 1981 to 2019) clearly indicates that Yajna gives more rainfall and the quality[20] of the rainwater collected after Yajna is much better than normal rainwater as discussed earlier[68].

The amount of precipitation depends on the number of Yajna Kundas (fire pits), type of arrangement of the Yajna Kundas, and the type of herbs and other materials used.

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References

1. Warneck P. (1994) Clouds, Rain and Aerosols. Low-Temperature Chemistry of the Atmosphere. NATO ASI Series (Series I: Global Environmental Change), vol 21. Springer, Berlin, Heidelberg, Introduction.
2. In Young Lee, G. Hanel, H.R. Pruppacher, Journal of Atmospheric Sciences, August 1980.
3. B. Stevens, G. Feingold, Nature 461, 607-613 (2009).
4. Huneeus, N.; Schulz, M.; Balkanski, Y.; Griesfeller, J.; Prospero, J.; Kinne, S.; Bauer, S.; Boucher, O.; Chin, M.; Dentener, F. et al. Global dust model intercomparison in AeroCom phase I. Atmos. Chem. Phys. 2011, 11, 7781-7816.
5. Prospero, J. M. Long-range transport of mineral dust in the global atmosphere: Impact of African dust on the environment of the southeastern United States. Proc. Natl. Acad. Sci. U. S. A. 1999, 96, 3396-3403.
6. Textor, C.; Schulz, M.; Guibert, S.; Kinne, S.; Balkanski, Y.; Bauer, S.; Berntsen, T.; Berglen, T.; Boucher, O.; Chin, M. et al. Analysis and quantification of the diversities of aerosol life cycles within AeroCom. Atmos. Chem. Phys. 2006, 6, 1777-1813.
7. Quinn, P. K.; Collins, D. B.; Grassian, V. H.; Prather, K. A.; Bates, T. S. Chemistry and Related Properties of Freshly Emitted Sea Spray Aerosol. Chem. Rev. 2015, 115, 4383-4399.
8. Ginoux, P.; Prospero, J. M.; Gill, T. E.; Hsu, N. C.; Zhao, M. Global-scale attribution of anthropogenic and natural dust sources and their emission rates based on MODIS Deep Blue aerosol products. Rev. Geophys. 2012, 50, RG3005, doi: 3010.1029/2012RG000388.
9. Jeong, G. R.; Sokolik, I. N. Effect of mineral dust aerosols on the photolysis rates in the clean and polluted marine environments. J. Geophys. Res.-Atmos. 2007, 112, D21308, doi: 21310.21029/22007jd008442.
10. Koehler, K. A.; Kreidenweis, S. M.; DeMott, P. J.; Petters, M. D.; Prenni, A. J.; Carrico, C. M. Hygroscopicity and cloud droplet activation of mineral dust aerosol. Geophys. Res. Lett. 2009, 36, L08805, doi: 08810.01029/02009gl037348.
11. DeMott, P. J.; Sassen, K.; Poellot, M. R.; Baumgardner, D.; Rogers, D. C.; Brooks, S. D.; Prenni, A. J.; Kreidenweis, S. M. African dust aerosols as atmospheric ice nuclei. Geophys. Res. Lett. 2003, 30, 1732, doi: 1710.1029/2003gl017410.
12. Cziczo, D. J.; Froyd, K. D.; Hoose, C.; Jensen, E. J.; Diao, M.; Zondlo, M. A.; Smith, J. B.; Twohy, C. H.; Murphy, D. M. Clarifying the Dominant Sources and Mechanisms of Cirrus Cloud Formation. Science 2013, 340, 1320-1324.
13. Shi, Z. B.; Krom, M. D.; Jickells, T. D.; Bonneville, S.; Carslaw, K. S.; Mihalopoulos,

N.; Baker, A. R.; Benning, L. G. Impacts on iron solubility in the mineral dust by processes in the source region and the atmosphere: A review. Aeolian Res. 2012, 5, 21-42.

14. Nenes, A.; Krom, M.D.; Mihalopoulos, N.; Van Cappellen, P.; Shi Bougiatioti, A.; Zarmpas, P.; Herut, B. Atmoshperic acidification of mineral aerosols: a source of bioavailable phosphorus for the oceans. Atmos. Chem. Phys. 2011, 11, 6265-6272.
15. Jordi, A.; Basterretxea, G.; Tovar-Sánchez, A.; Alastuey, A.; Querol, X. Copper aerosols inhibit phytoplankton growth in the Mediterranean Sea. Proc. Natl. Acad. Sci. U.S.A. 2012, 109, 21246-21249.
16. A. Enb, M.A. Abou Donia, N.S. Abd-Rabou, A.A.K. Abou-Arab and M.H. El-Senaity, Chemical Composition of Raw Milk and Heavy Metals Behavior During Processing of Milk Products. Global Veterinaria 3 (3): 268-275, 2009.
17. R.J. Sappok, P.L. Walker Jr, “Removal of SO_2 from flue gases using carbon at elevated temperatures”, Journal of Air Pollution Control Association, 16th March 2012.
18. Pushpendra K. Sharma, S. Ayub, C.N. Tripathi, S. Ajnavi, S.K. Dubey, “Agnihotra-A nonconventional solution to air pollution”, IJIRSE (2014) Volume 2, Issue 4, Pages 177-189.
19. Abdolali Mohagheghzadeh, Pouya Faridi, Mahammadreza Shams-Ardakani, Younes Ghansemi, “Medicinal Smokes”, Journal of Ethnopharmacology 108 (2006) 161-184.
20. Venkata R Chaganti, “Yajna a Solution to Air Pollution”, IJIRSE (2020) Volume 8, Issue 1, pages (1-11).