



## COMPARATIVE ANALYSIS OF BACTERIAL AND FUNGAL COUNTS IN 'VASTU HOMA,' A TRADITIONAL AIR PURIFICATION PROCESS.

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### ABSTRACT

Pathogens (beneficial, detrimental) surround us, diseases manifest when immune system gets hampered. Microbes and humans have waged wars against each other. Introduction of powerful anti microbial created a paradigm shift until the genetic makeup of microbes developed resistance. Wholistic procedures inclusive of various indigenous techniques enhances and safe guards healthier environment. Retesting scientifically is indispensable. Microbial air sampler was used to assess the indoor air quality. Vastu homa, a type of sacrificial fire ceremony conducted in three new buildings was chosen. At specific distance from the homa kunda in different directions the air sampler was kept and samples collected before, during and after the homa process. Viable count method (both bacterial and fungal count) was analyzed and compared. The results revealed significant reduction in microbial count in all three buildings (93.39%, and 86.2% and 72.6%). However, fungal count though showed reduction as 48.4% and 51.67 % and 69.38 % was not similar to microbial count.

### KEYWORDS

*Vastu homa, Indoor air quality, Microbial count, Building environment.*

### INTRODUCTION

Environment decides status of all flora and fauna and is mutual. Ayurveda, the Indian Medicine explains air, water, land, noise pollution along with negative emotional pollution which includes lust, greed, anxiety, jealousy etc negative emotions destroy the environment by deforestation, excessive mining, and industrial emissions, poor disposal of waste, excessive use of fossil fuel and unscientific town planning. This disturbs all living beings. Microbes increase in air, water and soil and destroy the homogeneity resulting in diseases. Since a decade growing interest is seen about building environment (BE) factors that determine the survival of fungal and bacterial load in the buildings.<sup>1</sup>

More and more extensive study is being conducted with regard to understanding the relationships between the micro biomes of the built environment and its occupants. Numerous bacterial and fungal species detected indoors have been documented to affect psychological health also so its imperative to comprehend maintenance of healthy environment.<sup>2</sup>

Environment, flora, fauna, plumbing system, AC vents, outdoor influence etc are sources of air borne microbes but it is difficult to fix the intensity and density of microbial loads.<sup>(3)</sup> Humans spend nearly 90% time indoors.<sup>(4)</sup>

In ancient day indoor and outdoor air quality was given utmost importance so Homa or Yajna is a fire technique passed down. Yajna means a process of removing the toxic conditions of the atmosphere through the agency of fire. The resultant purified atmosphere then has positive effects on man, plants and animals<sup>(5)</sup>.

Homa conducted previously has recorded safety and efficacy<sup>(6)</sup> Vastu homa is a type of homa conducted in new buildings before occupation. Monitoring airborne microorganisms is therefore a key component of environmental monitoring in many sectors and a range of technological solutions has been developed and monitoring vastu homa becomes imperative. Vastu homa is for new buildings but agnihotra homa done twice daily has registered many more advantages.<sup>(7)</sup>

In the present study, the effect of Vastu Homa on both bacterial and fungal community was analyzed. This study supports the view that fumes of Vastu homa can be used for biofumigation as an effective, safe, inexpensive and eco friendly technique.

### MATERIAL AND METHODS

**Assessment of Bacterial and fungal Load in indoor air quality:** In active air monitoring, a microbial air sampler is used to force air into, or onto its collection medium (e.g., Petri Dish with nutrient agar based test media for bacteria and chloramphenicol Yeast glucose extract agar for fungi) over a specified period of time. The collected culture is then be incubated and analyzed.

Number of colony forming units of bacterial/fungal counted on 90 mm Petri dish using positive hole conversion table MAS-100 ECo and compute the results as cfu/m<sup>3</sup>.

Air samples were collected before, during and after the procedure of vastu homa. Collection for bacterial and fungal tests conducted at three different buildings at specific distances and directions from the homa kunda and then average load is analyzed, compared.

### RESULTS

#### Bacterial count reduction:

The average Bacterial colony count before the procedure was 5773 cfu/m<sup>3</sup>, which reduced to 1850 cfu/m<sup>3</sup> during and one hour after Vastu Homa reduced to 399cfu/m<sup>3</sup> (6.61%) at GAMC. In the other two buildings reduction after one hour was 138cfu/m<sup>3</sup> (13.8%) and 248cfu/m<sup>3</sup> (12.4%) (**Table. 1**). It was observed that, the bacterial counts also reduced by 93.39% in one dwelling, 86.2% and 72.6% in A and V House. From the results it was observed that after Vastu homa bacterial counts reduced significantly (Graph 1).

#### Fungal count reduction

Reduction in fungal count from 70.33% to 51.6% at GAMC was noted and similarly from 87.91% reduction to 48.33% at A house where as at V house from 80% to 30.62% was registered. (Graph 2).

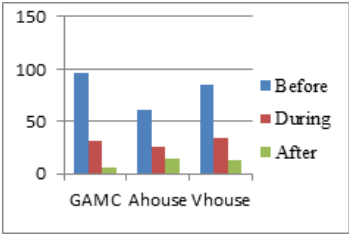
**Table 1:** Average bacterial and fungal counts in Vastu homa done at three new buildings in Mysore.

	GAMC	A house	V house
Before	5773	606	1706
During	1850	251	681
After	399	138	248
	Fungal count		
Before	422	1055	640
During	400	943	346

After	310	580	245
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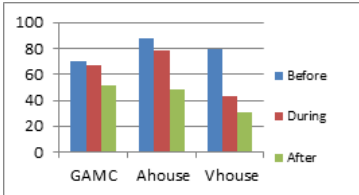
BACTERIAL COUNT

Graph – 1



FUNGAL COUNT

Graph- 2



OBSERVATION

Vastu homa process registers reduction in both microbial and fungal count. But this process is not fully standardized inclusive of herbs and materials utilized apart from the whole process but mantra and few materials are universal aspects. The total outcome has been influenced by factors like building design, ventilation, outdoor air influences, human occupancy, and vegetation in the vicinity, meteorological and regional weather, topographical features, temperature, humidity, airflow rates and also carbon dioxide levels.<sup>(8)</sup>

CONCLUSIONS

Bacterial and fungal count reduction rate is significant after vastu homa procedure in all three buildings, at all directions and distances, which is promising and warrants a wide scale application to make it universal. Large scale study helps to popularize this practice and accept it as time tested and much desirable and effective method to enhance indoor air quality. Hence, the Vastu homa fumes can not only used for the disinfection or biofumigation of air but also it can be used as an effective, safe, inexpensive and eco friendly technique.

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