



## Original Article

# Effect of Yagya Therapy on Physiological parameters and Mental Health

Authors

**Dr Nidhi Singh<sup>1\*</sup>, Dr KC Mathur<sup>2</sup>, Dr KC Ojha<sup>3</sup> and Dr Mukesh Chaturvedi<sup>4</sup>**

<sup>1</sup>MBBS, MD (Physiology), AFSMC Pune

<sup>2</sup>MBBS, MD (Physiology), Professor and Head (Retd) Dept of Physiology, Sardar Patel Medical College, Bikaner

<sup>3</sup>MBBS, MD (Physiology), Professor and Head (Retd) Dept of Physiology, Sardar Patel Medical College, Bikaner

<sup>4</sup>MBBS, MD (Physiology), Medical Officer, Directorate of Med Education and Health, RUHS, Jaipur

\*Corresponding author

**Dr Nidhi Singh**

MBBS, MD (Physiology), AFSMC Pune, India

### Abstract:

**Introduction:** In the 'Yagya' the base fire is utilized to convert the herbal substances directly from their solid state into gaseous phase, and furthermore, to aerodynamically transport the same to the entire surroundings in a most efficient manner. The aim of the study was to find out the effect of this highly rated vedic procedure on the various physiological and biochemical parameters as well as mental health of human beings.

**Material and Methods:** A prospective analytical study was carried out in the Bikaner city of Rajasthan. After obtaining institutional and ethics committee permissions, apparently healthy subjects of both sexes and all regions were recruited in the study. After applying selection criteria baseline physiological and biochemical parameters along with individual Hamilton Anxiety Score were taken. The study subjects were instructed to attend 1hour session of Yagya at clinical laboratory for 1 month. Afterwards every week same parameters were measured and analyzed.

**Results:** There was a significant rise in WBC count especially lymphocytes, total bilirubin, all PFT parameters while a significant fall was observed for blood pressure, resting pulse rate, blood sugar, and Hamilton anxiety score.

**Keywords:** Yagya, Physiological Parameters, Mental Health.

## Introduction

The term "Yagya" is derived from the Sanskrit verb "yajan" which means "selfless sacrifice for noble purposes"<sup>1</sup>Yagya It is also called by the names of *homam*, *havana*, *homa* or *agnihotra* when conducted in a miniature form. In this process the *havan Samagri* is sacrificed in the Yagya- *agni* with chanting of *Vedic Mantras*. Yagya or *agnihotra* was a daily ritual to be performed by every *arya* twice a day. It is one of the five great duties (*Panchamahayajna*) of every householder<sup>2</sup>. From a scientific point of view Yagya is in fact a highly sophisticated method of

sublimation of matter and expansion of its colloidal state. It should be emphasized that the purpose of Yagya is not to burn the substances that are added in the form of oblations rather it is to vaporize them i.e., to heat them just to the extent that they are transformed into vapor phase. Hence these vapors diffuse into the surrounding air and transform the air quality. Coupled with the buoyancy and aerodynamic effects due to the thermal energy released by the base fire, the vaporized substances traverse to all the nooks and corners of the enclosed room. In other words, the buoyancy forces enhance the transport process. It

is a well-known fact that the substances when taken in their vapor form through the nostrils have much greater efficacy – many hundred times more and the same quantity of substance can benefit a much larger population. It is a common experience that if individual eats a green chilly then that person alone would be sneezing under its influence. But if the same chilly is put in the fire then the resultant air can cause many hundred people to sneeze. *Yagya* magnifies the advantages of the desirable herbal substances<sup>3</sup>. The present study was conducted to find out the various physiological changes that might occur with performing daily *Yagya* for a given duration of time.

### Material and Methods

The present study was a longitudinal study in which the candidates were selected from the urban population of Bikaner. The study was conducted after approval from the institutional ethics committee. The participants were explained about the aim, nature and other necessary details of the study and written consent obtained from each participant. Apparently healthy subjects of age  $\geq 18$  years, either sex, belonging to any religion/caste/cultural background were included while subjects suffering from any co-morbid disease, malignant hypertension, uncontrolled diabetes mellitus, pulmonary tuberculosis, severe cardiovascular disease, severe respiratory ailments, psychiatric illness and those with history of smoking, alcohol or drug abuse and non-cooperative ones were excluded from the study.

Initially 100 subjects of both genders and age group between 18-95 years were selected. Out of them, 23 subjects were excluded from the study because of attrition, 2 subjects who had a history of psychiatric illnesses were excluded from the study. Remaining 75 subjects were analyzed for results.

### Clinical Protocol

The study was carried out in the clinical laboratory in the Department of Physiology of Sardar Patel Medical College, in collaboration

with Shri Thakur Prasad Arya of *Vedic Pustakalaya* Bikaner. All subjects were asked to come in the clinical laboratory where *Yagya* was conducted. Thehavansamigri for winter was chosen<sup>4</sup> and *Yagya* was performed as per the guidelines<sup>5</sup>. Each episode of *Yagya* lasted for 1 hour between 9 AM to 10AM and the study continued for a period of 1 month.

Base line values of various study parameters like, clinical examination, anthropometric measurements, biochemical and haematological indices of the subjects were recorded before they were exposed to *Yagya* and then every week as the study continued.

All cases underwent a measurement of blood pressure in sitting position after 5 minutes of rest, from right arm. 2 readings 5 min. apart were taken and the average calculated. Pulse was measured in right artery of the cases by palpatory method. Height was assessed to the nearest 1 centimeter using an anthropometric rod with the subject standing erect on the floor without shoes, with the back against a vertically mounted ruler. Weight was measured on a pre standardized scale to the nearest 100gm while wearing light clothes without jackets, shoes and outdoor garments. BMI (Body Mass Index) was calculated by following formula:

-

$$\text{BMI} = \text{Weight (Kg)} / \text{Height}^2 \text{ (Sq.mtr)}$$

Blood samples were collected in the morning in non-coagulable vials and were sent to the central laboratory at the P.B.M. Hospital, Bikaner for reporting. Random blood sugar levels of all subjects were estimated by GOD POD Method (glucose oxidase para oxidase method). Complete Blood Count was done by cell counter machine. Measurement of Blood urea was done by Berthelot Method and Serum Creatinine was done by Jaffe's method while measurement of SGOT, SGPT and Alkanine Phosphatase was done by enzymatic kits by kinetic method and measurement of total and direct billirubin was done by Di-azo method.

Respiratory functions were measured using a Computerized Spirometer (RMS-Helios 401

Transducer no 400-666). Hamilton Anxiety Score was used to interpret the level of anxiety of the subjects.

All the data obtained were collected in pre-designed, pre-formed performa and entered in Microsoft Excel Spreadsheets in the form of master chart. Statistical analysis was performed using INDOSTAT software and appropriate test such as t test was applied to compare the mean. The significance was assessed using p-value at respective degree of freedom.

### Results

In the present study highest proportion (52%) of cases were in the age group  $\geq 60$  while those from age group 18-29 were 9.33%. Cases that were falling in age group 30-39 were 8% those in age group 40-49 were 13.33% and the cases in age group 50-59 were 17.33% respectively. Mean age of cases was  $55.57 \pm 16.20$  years. Out of 75 cases, 58.67% were males (Sex Ratio - 453 females/1,000 males). 81.33% were married and 100% were from urban areas 72% of total cases belonged to nuclear families.

According to BMI status maximum males (24%) belonged to the category 18.5 - 24.99 Kg/m<sup>2</sup> while maximum females (20%) belonged to the category 25-29.99 Kg/m<sup>2</sup>. Overall highest number of cases (40%) fall in the BMI of range 25-29.99kg/m<sup>2</sup>.

According to the above table-2 the total WBC count showed a statistically significant rise at 4<sup>th</sup> week of study ( $p < 0.05$ ) while the lymphocyte count increased to a statistically significant level at 3<sup>rd</sup> week of study ( $p = 0.0001$ ) and both continued to remain statistically significant till the end of the study. The monocyte and Granulocyte counts didn't show any statistically significant variation through the study. The variations in haemoglobin measurement of cases in subsequent visits were statistically insignificant ( $p > 0.05$ ) while the variations in the T-RBC count of cases in subsequent visits were statistically non-significant. ( $p > 0.05$ ). The variation in values of

HCT, MCV, MCH, MCHC and platelet counts didn't hold any statistical significance ( $p > 0.05$ ).

The mean Systolic BP, Diastolic BP and pulse rate of the cases begin to fall at every subsequent recording and it also had statistical significance ( $p < 0.05$ ). The mean of Blood sugar levels of cases showed a declining pattern every subsequent visit and was statistically significant from 3<sup>rd</sup> recording onwards ( $p < 0.05$ ) while mean values of Blood Urea and Serum Creatinine showed an overall mixed response of both rise and fall, however it was statistically non-significant except for 4<sup>th</sup> recording of serum creatinine where it was statistically significant ( $p < 0.05$ ). The mean values of SGOT showed a rise in V visit which was statistically significant ( $p = 0.007$ ). The mean values of SGPT and Alkaline Phosphatase showed a mixed pattern of rise and fall which was statistically insignificant. The mean values of total Bilirubin should a decline upto 4<sup>th</sup> recording, however it increased at 5<sup>th</sup> recording and this rise was statistically significant ( $p = 0.022$ ). While the variation in direct Bilirubin values were statistically non-significant.

According to the table-2 the mean values of FVC of cases showed a pattern of gradual rise every subsequent visit and it was statistically significant 3<sup>rd</sup> recording onwards ( $p < 0.05$ ) while the mean value of FEV<sub>1</sub> showed a pattern of gradual rise every subsequent recording and it was statistically significant 2<sup>nd</sup> recording onwards ( $p < 0.05$ ). The mean value of FEV<sub>1</sub>/FVC showed a pattern of gradual rise which was statistically significant 3<sup>rd</sup> recording onwards ( $p < 0.05$ ) and mean value of FEF<sub>25-75</sub> showed a pattern of gradual rise every subsequent recording it was statistically significant 3<sup>rd</sup> recording onwards ( $p < 0.05$ ). The mean value of PEFR showed a pattern of gradual rise every subsequent recording which was statistically significant 2<sup>nd</sup> recording onwards ( $p < 0.0001$ ). The mean value of Hamilton anxiety score of the cases showed a pattern of fall on every subsequent recording. It was also statistically significant ( $p < 0.05$ ).

**Table-1:** Distribution of cases according to demographic characteristics

Demographic Characteristics	Number	%	Mean (±SD)
<b>Age (Years)</b>			
18-29	7	9.33	55.57 (±16.20)
30-39	6	8	
40-49	10	13.33	
50-59	13	17.33	
≥ 60	39	52	
Total	75		
<b>Sex</b>			
Male	44	58.67	0.704
Female	31	41.33	
Total	75		
<b>Marital Status</b>			
Single	14	18.67	0.229
Married	61	81.33	
Total	75		
<b>Residence</b>			
Rural	0		0
Urban	75	100	
Total	75		
<b>Family Type</b>			
Joint	21	28	0.388
Nuclear	54	72	
Total	75		

**Table-2:** Weekly alterations in study parameters

Parameter	I		II			III			IV			V		
	Mean	SD	Mean	SD	p Value	Mean	SD	p Value	Mean	SD	p Value	Mean	SD	p Value
WBC	6.77	1.47	7.102	1.58	0.195	7.08	1.57	0.213	7.35	1.54	<0.05	7.59	1.62	0.001
Lymph	2.06	0.6	2.24	0.58	0.066	2.39	0.59	0.0001	2.52	0.6	<0.0001	2.72	0.62	<0.0001
Mid	0.432	0.11	0.44	0.14	0.66	0.429	0.13	0.897	0.457	0.13	0.202	0.444	0.15	0.576
Granulocytes	4.27	1	4.42	1.17	0.413	4.285	1.15	0.937	4.377	1.11	0.562	4.408	1.17	0.45
Hb	12.65	1.67	12.68	1.73	0.912	12.53	2.02	0.693	12.69	1.88	0.884	12.6	1.77	0.859
T-RBC	4.58	0.53	4.62	0.56	0.68	4.708	0.66	0.199	4.64	0.67	0.503	4.61	0.64	0.755
HCT	36.69	5.22	36.89	6.1	0.82	38.04	7	0.182	36.59	5.85	0.912	36.32	5.64	0.678
MCV	79.62	6.44	81.05	7.32	0.209	81.19	6.75	0.149	79.81	8.9	0.885	80.26	9.07	0.624
MCH	27.61	3.04	27.43	3.1	0.726	27.59	3.39	0.974	27.64	3.29	0.953	27.36	2.95	0.611
MCHC	34.38	3.04	33.93	3.26	0.375	33.92	3.13	0.356	34.42	2.63	0.931	34.14	2.52	0.6
Platelets	311	130.2	311.2	90.5	0.992	300.9	82.7	0.568	286.3	78.5	0.16	289.2	83.9	0.224
Systolic BP	143.6	17.86	136.9	16.9	0.018	132.2	15.1	<0.0001	127.4	14.2	<0.0001	124.9	12.9	<0.0001
Diastolic BP	89.68	1.05	86.18	7.93	0.013	81.84	6.49	<0.0001	79.81	5.07	<0.0001	78.16	4.82	<0.0001
Pulse	82.53	4.88	77.77	4.67	0.0001	73.44	5.38	<0.0001	70.33	5.24	<0.0001	68.42	5.15	<0.0001
Sugar	90.04	15.42	86.56	15.2	0.166	83.4	15.9	0.01	83.01	15	<0.001	84.18	12.9	0.012
Urea	24.49	3.31	27.05	3.05	0.399	26.46	3.09	0.051	26.38	3.99	0.067	27.45	4.45	0.995
Creatinine	0.866	0.113	0.856	0.11	0.551	0.848	0.13	0.348	0.825	0.13	<0.05	0.85	0.14	0.44
SGOT	23.26	5.68	23.25	6.01	0.988	22.7	5.8	0.552	22.68	5.85	0.534	25.94	6.29	0.007
SGPT	27.4	7.81	27.91	7.77	0.691	27.37	8.05	0.984	28.49	6.95	0.366	29.01	7.26	0.195
Alkaline Phosphatase	113.3	36.67	111.9	35.6	0.812	113.8	37.1	0.936	11.69	30	0.774	111.7	33.1	0.78
Bilirubin Total	0.832	0.165	0.829	0.16	0.921	0.821	0.18	0.709	0.813	0.16	0.486	0.896	0.18	0.022
Bilirubin Direct	0.284	0.38	0.241	0.22	0.407	0.249	0.22	0.501	0.212	0.04	0.111	0.233	0.06	0.251
FVC (%)	79.09	10.88	81.38	10.9	0.199	83.74	11.2	0.01	85.78	10.9	<0.0001	88.22	11.1	0.0001
FEV <sub>1</sub> (%)	75.06	12.5	79.26	12.9	0.045	83.48	13.8	<0.0001	89.24	14	<0.0001	91.58	15	0.0001
FEV <sub>1</sub> /FVC (%predicted)	95.13	10.91	97.48	11.3	0.196	99.94	11.6	<0.0001	101.9	11.6	<0.0001	103.9	11.6	0.0001
FEV <sub>25-75</sub> (%)	71.52	18.8	77.37	18.6	0.059	82.78	17.9	<0.0001	87.22	17.5	<0.0001	92.08	18.2	0.0001
PEFR (%)	51.11	17.11	56.98	15.9	0.03	62.77	15.1	<0.0001	68.29	14.4	<0.0001	72.7	14	<0.0001
HAS	13.2	6.13	10.18	5.68	0.002	7.86	5.41	<0.0001	5.69	4.72	<0.0001	3.34	3.33	<0.0001

## Discussion

The rise in total WBC count can be either due to sampling error or infection or an effect of *Yagya* therapy. Dr. Sharma DC et al.<sup>6</sup> in a similar study reported a fall in total WBC count. Our study doesn't correlate with this report. The increase in lymphocyte count may be due to immunomodulatory actions of some constituents or part of sampling error.

In this study, the blood indices, T-RBC and Haemoglobin didn't show any significant variation, however in an earlier study by Dr. Sharma, et al Hemoglobin showed a significant rise. Since no mention is given as to the duration of exposure to *Yagya* in his study it may be possible that it is an effect of prolonged exposure in terms of more hours per day or a greater number of days of *Yagya* exposure.

The significant decline in Blood Pressure can be due to an increased relaxed state of the cases as evident by a significant fall of the Hamilton Anxiety score. This can be also due to the anti-hypertensive effect of the phytochemicals of some of the constituents viz. jatamansi (*Nordostachysjatamansi*), Daruhaldi (*Berberis aristata*), Mulhatti (*Glycyrrhiza glabra*), Tagar (*Valerianawallichii*), Agar (*Aquillariaagallocha*), Drakh (*Vitis vinifera*) and Mundi (*Sphaeranthus indices*)<sup>7</sup>

These finding corelate with the result of an earlier study by Dr. Sharma et al<sup>6</sup> in which BP (Both systolic and diastolic) showed significant fall after *Yagya* therapy. The decline in pulse observed in our study can be due to an increased relaxation of the cases as also confirmed by the significant fall in Hamilton Anxiety score. Our findings correlate with a similar study conducted by Dr. Selvamurthy<sup>8</sup> showing a decline in pulse rate after *Yagya*.The fall in values of blood sugar can be explained on basis of the antihypoglycaemic effects of the phytpchemicals of the constituents like Giloya (*Tinosporacordiflia*), Harad (*Terminalia chebula*) Daruhaldi (*Berberis aristata*), Shankhpushphi (*Convolvulus*

*pluriaulis*), Mundi (*Sphaeranthus indicus*) and Shatavar (*Asparagus racemosus*)<sup>9</sup> Our finding corelate with the study conducted in Gurukul Kangri university where similar results of significant fall in blood sugar levels- both fasting and post prandial were observed in diabetic patients<sup>10</sup>.In yet another study conducted by Dr. Khanna<sup>10</sup>, et al similar results were obtained. However in the study conducted by Dr. Sharma, DC<sup>6</sup> the level of fasting blood sugar showed a rise after *Yagya* exposure though this rise was not statistically significant.

In our study there was no significant change in values of renal function tests i.e. Blood Urea and Serum Creatinine. This co-relate with the study of Dr. Sharma, et al<sup>6</sup>. We can infer that the protocol of *Yagya* therapy used in our study does not have a significant effect on kidney functions.As far as the liver function tests are concerned, SGOT showed a significant rise after *Yagya* therapy however it was within the normal range. This corelate with the results of the earlier study by Dr. Sharma, et al<sup>6</sup> where SGOT showed a significant rise after *Yagya*. The variations in value of SGPT were statistically insignificant. This contradicts the results of an earlier study<sup>6</sup> where the values of SGPT showed a significant fall after *Yagya* therapy.

The variations in value of Alkaline Phosphatase were statistically insignificant however in the report of a study by Dr. Sharma<sup>6</sup>, et al there was a pattern of significant fall in the level of Alkaline Phosphatase after *Yagya* therapy. The level of total Bilirubin showed significant rise within the normal range. However the variation in values of direct Bilirubin were statistically in significant.

These mixed patterns of LFTs can be either due to increased metabolic stress on liver. The increased values of FVC may be due to increased lung compliance. In an earlier study by Dr. Raghuvanshi, et al<sup>11</sup> similar finding were obtained. This might as well be due to the constituents that are known to improve lung functions like Jau (*Hordeum vulgare*), shankhpushpi (*Convolvulus pluriaulis*) Guggal

(*Commiphoramukul*), Shatavar (*Asparagus racemosus*), Agar (*Aquilaria agallocha*), Vasa (*Adhatodavastica*), Jaiphal (*Myristica fragrans*), Chandan (*Santalum album*), Chirayata (*Swertia chirayita*), Laung (*Eugenia Caryophyllata*), Giloya (*Tinospora cordifolia*) and Tagar (*Valerianawallichii*)<sup>12</sup>

There was a significant rise in values of FEV<sub>1</sub>, FEV<sub>1</sub>/FVC, FEF<sub>25-75</sub> and PEF<sub>R</sub>. Our findings correlate with the study by Dr. Sharma, et al<sup>6</sup>. This may be explained by the anti-asthmatic action of the constituents which may cause bronchodilation. The known anti-asthmatic constituents include vasa (*Adhatodavastica*), Badi Ilaichi (*Amomum subulatum*), Tulsi (*Ocimum sanctum*) Chirayta (*Swertia Chirayita*), Chandan (*Santalum album*) Kakdasingi (*Pistacia integerrima*) and laung (*Eugenia caryophyllata*)<sup>13</sup>

The fall in Hamilton anxiety score may be due to the anxiolytic effects of giloya (*Tinospora cordifolia*), Shankpushpi (*Convolvulus Plurialulis*), Shatavar (*Asparagus racemosus*) Bhojpatra (*Betula utilis*), Jau (*Hordeum vulgare*), Til (*Sesamum indicum*), Mulhatti (*Glycyrrhiza glabra*), Jatamansi (*Nordostachysjatamansi*), Tagar (*Valerianawallichii*) and Cow Ghee<sup>14</sup>.

The roots of Yagya lie in our very ancient vedic philosophy and the term “Yagya” has been used 11184 times in our vedas<sup>15</sup>. Some eminent physiologists have often quoted that both physiology and philosophy can be considered as a single unit<sup>16</sup>.

The given work is a pioneering research in studying the effect of Yagya therapy on various physiological and Bio chemical parameters as well as mental health. Strength of our study includes an appreciable sample size. However, lack of control population is a short coming of our study. Also, the effect of confounding variables could not be excluded.

Yagya can be defined as a highly sophisticated process in which the reactants i.e. *Samidha*, *Samagri* and *Ghee* undergo a process of slow combustion at various ranges of temperature and

at different depths of the *havankunda*. The lowest range being 250<sup>0</sup>C at the bottom while the highest being 1300<sup>0</sup>c at the top. The products so formed consist of water, fatty acids, hydrocarbons, phenols, ketones and so on. The usual products detected during the Yagya process are acetic acid, formaldehyde and acet aldehyde. The various compounds that are released from the *Samagri* - the phyto chemicals have a role in treating diseases and promoting health<sup>17</sup>.

250-1300<sup>0</sup>c

*Samidha* + *Samagri* + *Ghee* → Fatty acids + Hydrocarbons+ Aromatic compounds + H<sub>2</sub>O

So, although further studies are needed to establish the result, we propose that Yagya therapy does have a significant effect on our body and mind as a whole.

## References

1. Joshi RR. The integrated science of Yagya. Haridwar: YugNirman Yojana Vistar Trust; 2010.p.4.
2. Atharavaveda 9.15.14
3. Pandya P. Reviving the Vedic culture of Yagya. 1<sup>st</sup> ed. Shantikunj, Haridwar: Vedmata Gayatri Trust; 2001.
4. Navneet. Vedic YagyaSamgari-Formulation, Characteristic and its antimicrobial effect. I ed. Haridwar: Swami Shradhanand Pulication; 2011, p.18.
5. Brahmavarchas. Yagya Chikitsa. I ed. Haridwar: Shri Ved Mata Gayatri Trust; 2010.p.238.
6. Sharma SC. et al. Effect of SomYagya on life- humans, microbes and malignant cells. Vishwa Ved Vigyan Sansthan. 2010. Available from:<http://www.vvvsansthan.com/research> on Som Yagya. Last accessed on Dec 5, 2013.
7. Brahmavarchas. Yagya Chikitsa. I ed. Haridwar: Shri Ved Mata Gayatri Trust; 2010.p.88.

8. Selvamurthy W. Physiological Effects of Mantras on Mind and Body: proceedings of Yoga Conference; 1989 November 4; New Delhi.
9. Brahmavarchas. Yagya Chikitsa. I ed. Haridwar: Shri Ved Mata Gayatri Trust; 2010.p.103.
10. Navneet. Vedic Yagya Samgari-Formulation, Characteristic and its antimicrobial effect. I ed. Haridwar: Swami Shradhanand Pulication; 2011, p.56-57.
11. Raghuvanshi M, Pandya P and Joshi RR. Yagyopathic Herbal Treatment of Pulmonary Tuberculosis – A Clinical Trial. Journal of Alternative Complimentary Therapy.2004; 10(2):101-105.
12. Brahmavarchas. Yagya Chikitsa. I ed. Haridwar: Shri Ved Mata Gayatri Trust; 2010.p.301.
13. Brahmavarchas. Yagya Chikitsa. I ed. Haridwar: Shri Ved Mata Gayatri Trust; 2010.p.53.
14. Brahmavarchas.Yagya Chikitsa. I ed. Haridwar: Shri Ved Mata Gayatri Trust; 2010.p.207.
15. Arya S. Yagya Therapy. Vijay Kumar Govindram Hasanand Publishers;2010.p22
16. Mathur KC. Short textbook of Physiology.1<sup>st</sup> ed: Jaypee Brothers Medical Publishers; 2006.p.1.
17. Navneet. Vedic Yagya Samgari-Formulation, Characteristic and its antimicrobial effect. I ed. Haridwar: Swami Shradhanand Pulication; 2011, p.27.