Int J Ayu Pharm Chem

RESEARCH ARTICLE

www.ijapc.com

e-ISSN 2350-0204

Eficacy of Vatad (*Prunus amygdalus l.*) with special reference to Medhya karma

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Received: *30th December 2014* ***/ Accepted:*** *2nd January 2015* ***/ Published:*** *10th January2015*

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Abstract

Ayurveda is of the view that Prajnaparadha is the root cause of all the diseases. Medha or Buddhi are the synonyms of Prajna as per Ayurvedic texts. Therefore it can be inferred that Medha has a great role in the prevention of diseases and maintenance of good health. Many references of various Medhya drugs in Ayurveda literature also confirm the importance of Medha, which incorporates Dhee, Dhriti and Smriti. Traditionally Vatad (Prunus amygdalus L.) is administered in all age group from childhood to old age for improving memory. But there is no reference of Medhya Karma of Vatad (Prunus amygdalus L.) in any Ayurvedic Samhita and Nighantu. This research work is aimed at scientifically evaluating the Medya effect, if any, of this drug. The effect of Medhya karma of Vatad found highly improved in 75% cases,Improved in 22.5% cases and not improved in 2.5% cases. Which means 97.5% of volunteers have shown improvement in the memory. This research study substantiates the traditional claim of Medhya effect of Vatad.

Keywords Ayurveda, Memory, *Medha,Vatad, Prunus amygdalus*

INTRODUCTION

The Indian system of medicine is as old as the Indian civilization and is a part of the rich heritage of India. The term Ayurveda is literally defined as the science of life. Vedas are the earliest records of human intellection where we find the principles of Ayurveda which establishes the high antiquity of the origin of Ayurveda. The science of life is considered as an *Upaveda* of *Atharvaveda*. It provides an approach to the prevention and cure of diseases; it emphasizes on the philosophy of maintaining excellent health by normalizing the co-ordination between various cellular functions between the body and the environment as well as improving the inherent vitality of the body.

Realizing the importance of *Medha*, though the modern science has now started emphasizing on mental health besides physical health, Ayurveda had long before mentioned number of methods to keep the mental health sound. A large number of drugs are mentioned in the Ayurvedic texts for Rejuvenating mental health and for enhancing memory under the heading of '*Medhya Rasayan'*[1].

In India Vatad (Prunus amygdalus L.) is traditionally used as *Medhya Dravya*

since decades. Traditionally this drug is administered in all age group from childhood to old age for improving memory. But there is no reference of *Medhya* Karma of Vatad (Prunus amygdalus L.) in any Ayurvedic *Samhita* and *Nighantu*. This research work is aimed at scientifically evaluating the *Medya* effect if any of this drug.

Vatad (Prunus amygdalus L.)[2-7] this drug belongs to the family Rosaceae. It is a medium sized tree. This tree has-

- Rasa – Madhura
- Guna – Guru Snigdha
- Virya – Ushna
- Vipaka – Madhuru

AIMS AND OBJECTIVES

- To evaluate the efficacy of Vatad (Prunus amygdalus) w.s.r to *Medhya Karma*
- To provide an economic drug of *Medhya Karma*

MATERIALS AND METHODS

Selection of Volunteers

Forty volunteers were selected randomly from the O.P.D of N.I.A., Jaipur, irrespective of their sexes, religion, and socio–economic status. All the selected individuals are studied under a single group. The study protocol was approved by the Institutional Ethics Committee. Written, voluntary, informed consent was taken from all the healthy volunteers prior to their enrollment in the study.

Criteria of Assessment

For the evaluation of Memory, P.G.I. (Post Graduate Institute, Chandigarh) Memory scale by Dwarka Prasad and N.N. Wig [8] has been used before and after the administration of vatad.

PGIMS is a battery of Memory Tests. It contains 10 subtests

I. Remote memory
II. Recent memory
III. Mental balance
IV. Attention and concentration
V. Delayed recall
VI. Immediate recall
VII. Retention for similar pairs
VIII. Retention far dissimilar pairs
IX. Visual retention
X. Recognition

Scoring

Subtest I and II – One score for each correct response. Maximum total scores will be 6 and 5, respectively.

Subtest III – Alphabet and counting backward – 3 scores if all correct within 30 seconds, 2 if takes longer time than 30 seconds, 1 if there is one error or omission.

Counting backward by 3'S – 3 score for correct within 30 seconds, 2 if takes longer time than 30 seconds, 1 if there is one error or omission.

Subtest IV – Summation of digits forward and backwards is the score for this subject.

Subtest V – One score for each word correctly recalled (Total 10)

Subtest VI – One score for each clause correctly reproduced (maximum score 12)

Subtest VII – One score for each correct reproduction of the associated word of the pair (Total 5)

Subtest VIII – One score each for the correctly reproduced pair, separately for each trial. Summation of scores on three trials is the score (Total 5)

subtest IX

Subtest X – Each object correctly recognized and named is to be given a score of one. Numbers of wrong identified object are to be deducted from the earned score.

Inclusion Criteria –

1. Subjects willing to participate in the trial
2. Age between 16-64 years, irrespective of sex, education and socio-economic status.
3. Healthy Volunteers who wished to improve their Memory.
4. Uncomplicated cases of Memory disorders.
5. Only those Volunteers have been included who have fulfilled the objective criteria of diagnosis.

Exclusion criteria

1. Subjects unwilling to participate in the trial.
2. Subjects with complications like CVA, ICSOL, mental retardation or psychoneurosis.
3. If the condition of a subject deteriorated during the trial the subject was excluded from the study.

Consent of subjects

All the volunteers selected for the trial were explained the nature of study and their consent was obtained on the Performa before inclusion in the study.

Method of study

All the volunteers selected for the study were explained the nature of the study. Their consent was obtained in the history Performa before inclusion in the study. The history Performa was completed for each patient in which following information was recorded.

- Complete bio-data of the patient.
- Duration of chief complaints.
- History
- General physical examination.
- Systemic examination along with Dashvidha Pariksha, Ashtavidha Pariksha and Srotas Pariksha.

Administration of drug

The trial vatad (Prunus amygdalus) was admistrated in the form of nut.

- Dose : 10gm BD
- Anupana : Cow milk
- Duration of trial : 45 days

Criteria for categorization

A difference in improvement in terms of percentage of total memory scores was recorded as follows;

- **Highly Improved**

Improvement in total memory score > 15%

- **Improved**

Improvement in total memory score between 5 and 15%

- **Not improved**

Improvement in total memory score between 1 and 5%

- **Deteriorated**

Reduction in memory score

RESULTS AND DISCUSSION

The present study entitled "Efficacy of Vatad with special reference to *Medhya karma*". has been carried out to assess the *Medhya Karma* of the drug Vatad (Prunus amygdalus). In India Vatad (Prunus amygdalus L) is traditionally used as *Medhya Dravya* since decades. It is used from childhood to old age for improving the memory. But there is no reference of Medhya Karma of Vatad (Prunus amygdalus L.) in any Ayurvedic *Samhita* and *Nighantu*.Keeping in view the above point the drug was evaluated clinically.

On observation it was found that highest number of volunteers according to age were in between 16-32 years age group. This is because maximum numbers of volunteers were students. Sex wise classification of volunteers show that maximum number of volunteers were male

(67.5% of total volunteers). As the study was carried out on the basis of availability of volunteers maximum male volunteers were there in this study but no relation of sex with intelligence and memory could be established. Majority of the volunteers in this study were Hindus' (97.5%) followed by Christian (2.5%). This reflects the geographical predominance of Hindus community in this particular region. Majority of the volunteers in this study were married (65%) followed by unmarried (35%) because maximum number of volunteers were above 30 years age group. Majority of the volunteers in this study were post graduate (50%) maximum no. of volunteers were P.G. scholars .Majority of the volunteers in this study were student (55%) followed by service (30%), business (10) and 5% (House wife) because maximum no of volunteers were students (Table 1-7).

Table No. 1 Distribution of volunteers according to different Age group

S.No.	Age (in years)	No. of volunteers	%
1	16-32	20	50%
2	33-48	12	30%
3	49-64	08	20%
Total		**40**	**100%**

Table No. 2 Distribution of volunteers according to Sex

S. No.	Sex	No. of volunteers	%
1	Male	27	67.5%
2	Female	13	32.5%
Total		**40**	**100%**

Table No. 3 Distribution of volunteers according to the Religion

S. No.	Religion	No. of volunteers	%
1	Hindu	39	97.5%
2	Christian	1	2.5%
Total		**40**	**100%**

Table No. 4 Distribution of volunteers according to the Socio – economic Status

S. No.	Socio – economic Status	No. of volunteers	%
1	Upper Class	14	35%
2	Middle Class	22	55%
3	Lower Class	04	10%
Total		**40**	**100%**

Table No. 5 Distribution of volunteers according to the Dietary Habits

S.No.	Dietary Habits	No. of Volunteers	%
1	Vegetarians	23	57.5%
2	Mixed Diet	17	42.5%
Total		**40**	**100%**

Table No. 6 Distribution of volunteers according to the Marital Status

S.No.	Marital Status	No. of Volunteers	%
1	Married	26	65%
2	Unmarried	14	35%
Total		**40**	**100%**

Table No. 7 Distribution of volunteers according to the Birth Place

S.No.	Birth Place	No. of Volunteers	%
1	Anoop	7	17.5%
2	Jangal	18	45%
3	Sadharan	15	37.5%
Total		**40**	**100%**

Effects of Therapy

1) Effect on remote memory

9.29% improvement was observed in Remote Memory. The improvement of Remote Memory was statistically extremely significant.

2) Effect on Recent Memory

4.74% improvement was observed in Recent Memory. The improvement of Recent Memory was statistically very significant.

3) Effect on Mental Balance

46.08% improvement was observed in Mental Balance. The improvement of Mental Balance was statistically extremely very significant.

4) Effect on Attention & Concentration

33.63% improvement was observed in Attention & Concentration. The improvement of Attention & Concentration statistically was extremely significant.

5) Effect on Delayed Recall

16.57% of improvement was observed in Delayed Recall. The improvement of Delayed Recall was extremely significant.

6) Effect on Immediate Recall

56.80% improvement was observed in Immediate Recall. The improvement of Immediate Recall. The improvement of Immediate Recall was statistically extremely significant.

7) Effect on Verbal Retention of Similar Pair.

5.26% improvement was observed in Verbal Retention of Similar Pair. The improvement of Verbal Retention of Similar Pair was statistically significant.

8) Effect on Verbal Retention of Dissimilar Pair.

16.53% improvement was observed in Verbal Vetention of Dissimilar Pair. The improvement on Verbal Retention of Dissimilar Pair was statistically significant.

9) Effect on Visual Retention

10.62% improvement was observed in Visual Retention. The improvement of Visual Retention was statistically extremely significant.

10) Effect on Recognition

17.85% improvement was observed in Recognition. The improvement of Recognition was statistically extremely significant.

On observing the effect of *Medhya Karma* of Vatad (Prunus amygdalus L.), on total P.G.I. (Post Graduate Institute, Chandigarh) Memory score, it was found that 75% volunteers showed high improvement,

22.5% volunteers showed improvement and 2.5% volunteers showed no improvement(Table-9).

Table No. 8 Effect of Vatad (Prunus amygdalus L.) on subtest of PGI Memory

SUBTEST	N	Mean		Diff.	% of Change	SD	SE	t-value	p value	
		BT	AT							
Remote Memory	40	4.58	5.00	0.43	9.29	0.59	0.09	4.52	< 0.0001	Ext. S
Recent Memory	40	4.75	4.98	0.23	4.74	0.48	0.08	2.97	0.0051	Very S
Mental balance	40	5.43	7.93	2.50	46.08	1.38	0.22	11.48	< 0.0001	Ext. VS
Attention& concentration	40	8.48	11.33	2.85	33.63	1.59	0.25	11.31	< 0.0001	Ext. S
Delayed recall	40	8.30	9.68	1.38	16.57	1.72	0.27	5.06	< 0.0001	Ext. S
Immediate recall	40	6.25	9.80	3.55	56.80	1.91	0.30	11.77	< 0.0001	Ext. S
Similar Pair	40	4.75	5.00	0.25	5.26	0.67	0.11	2.36	0.0234	S
Dissimilar pair	40	11.80	13.75	1.95	16.53	2.00	0.32	6.17	< 0.0001	Ext. S
Visual retention	40	7.30	8.08	0.77	10.62	1.31	0.21	3.74	0.0006	Ext. S
Recoginition	40	8.13	9.58	1.45	17.85	1.40	0.22	6.57	< 0.0001	Ext. S

CONCLUSION

The sub test of PGI Memory scale can be included under three types of Memory. The subtests Remote Memory and Recent memory represents long-term memory while mental balance, attention and concentration, delayed recall and immediate recall represent Working Memory. The Verbal Retention for similar pair/dissimilar pair, Visual Retention and Recognition tests can be included under Sensory Memory. From the observation it can be concluded that Vatad (*Prunus amygdalus L.*) is more effective in Working Memory followed by Sensory Memory and Long- term Memory. In this study 75% Volunteers show high improvement in memory. Improvement was seen in 22.5% volunteers and no improvement was seen in 2.5% volunteers i.e., 97.5% have shown improvement in the memory.

Table No. 9 Effect of Vatad (Prunus amygdalus L.) on Total PGI Memory

S.No.	Result	No. of volunteers	Percentage
1	Highly improved	30	75%
2	Improved	09	22.5%
3	Not improved	01	2.5%
4	Deterioration	00	00

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