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Research Article

SHATAVARI GHRITA ASCHYOTANA IN COMPUTER VISION SYNDROME A PILOT STUDY

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ABSTRACT

Computer Vision Syndrome (CVS) is one among major lifestyle hazard of superfast and advanced 21st century. According to contemporary science, only palliative measures in the form of Tear supplements are available which has to be used lifelong by the patients. So considering the grave nature of the disease, higher incidence and lack of effective measure it has been selected for the present study. As CVS is a technological occupational hazard there are no direct references available in our classics. Though few features mentioned in *Netra rogas* provide indirect references through which one can understand doctrines behind its treatment. Symptoms of CVS mainly indicate vitiation of *Vata* and *Pitta dosha*. So there is a need of finding effective measures which can fulfil the criteria such as *Vatapittahara, Snehana, Chakshusya* and *Rasayana*. Considering above facts *Aschyotana* with *Shatavari ghrita* is expected to yield better results.

In the present study, 10 patients were randomly selected and treated with *Shatavari Ghrita Aschyotana*, 10 drops i.e., *Snehana* type, twice daily for a period of 30 days. Follow up study was undertaken for every 15 days upto 3 months. There is significant improvement in condition especially related to subjective symptoms like eye strain, dryness, diplopia and redness. The collected data was statistically analysed and at the end of present study overall response was moderate i.e., 65.96%.

Hence we can infer that Ayurvedic siddhantas are eternal and can be applied in understanding any disease. *Shatavari Ghrita Aschyotana* proved effective in management of Computer Vision Syndrome. So this simple, cost effective formulation can be used in treating CVS.

KEYWORDS: Computer vision syndrome, *Shtavari ghrita, Aschyotana, Snehana.*

INTRODUCTION

In the era of 21st century, pace of life has become more accelerated and competitive. Constant evolution of man has led to revolutionary advancements in science and technology. This has made man's life easier but also brought some disadvantages. Due to this long term exposure to visual display terminal a new group of eye and vision problems has emerged, i.e. "Computer vision syndrome".

Computer vision Syndrome is a complex of eye and vision problems to near work which are experienced during or related computer use. Computer Vision Syndrome (CVS) affects 75-90% of people who spend 3 hours or more in front of computer per day. It is associated with a measurable adverse impact on several common and important tasks of daily living, further implicating it as an important public health problem deserving increased attention.

OBJECTIVES OF THE STUDY

To know the efficacy of *Shatavari Ghrita Aschyotana* in Computer vision syndrome.

SOURCE OF DATA

The patients with signs and symptoms of Computer vision syndrome were selected from OPD and IPD of Shalakya Tantra Department of Sri Jayachamarajendra Institute of Indian Medicine, Bengaluru.

METHOD OF COLLECTION OF DATA

The selection was done on the basis of clinical examination. A careful clinical history of all those patients complaining of eye strain, blurred vision, redness, dryness, headache, diplopia- with 3 or more symptoms were considered. The patients were then subjected to a thorough examination and after establishing the diagnosis; the patients were taken for the clinical study.

Inclusion Criteria

1. Patients between 16 to 50 years of age.
2. Computer users complaining of eye strain, dry eyes, headache, progressive refractive changes, redness, diplopia– with 3 or more features.
3. Minimum 3 hours use of computer/day and minimum usage since 6 months.

Exclusion Criteria

1. Patients suffering from infectious conditions of the eye like conjunctivitis, scleritis, uveitis, glaucoma, stye etc.
2. Any fundus pathology like optic atrophy, diabetic retinopathy, hypertensive retinopathy, papilledema etc.

Study Design

The study was purely clinical with 3 phases.

- Diagnostic phase
- Interventional phase
- Assessment phase

Diagnostic Phase

The diagnosis was confirmed by Schirmer's test and tear break up time.

Interventional Phase

Patients were asked to put *Aschyotana* of *Shatavari Ghrita*, 10 drops. i.e., *Snehana* type twice daily for a period of 30 days. Counseling was done about computer ergonomics and advised to follow the same.

Follow up period: Follow up study was once in 15 days after treatment till 3 months.

Method of Preparation: *Shatavari Ghrita*

"शतावरी मूलकल्कं घृतप्रस्थं पयः समम्

पचेमृदुअग्निना सम्यक् क्षीरं दत्त्वा चतुर्गुणम् || [2]

Ingredients for preparation of 7 litre *Ghrita*

(i) *Shatavari Kwatha*- 28litres
(ii) *Shatavari Kalka* - 4.75kg
(iii) *Ksheera* - 28litres
(iv) *Ghrita* -7litre

For making *Kashaya*

(i) 7kg of *Shatavari kwatha choorna*
(ii) Water added – 112 ltr
(iii) Reduced to – 28 ltr

Procedure [3]

After initial *Murchana, Murchita ghrita* was taken in a clean wide mouthed stainless steel vessel and is placed over mild fire. When fumes start appearing in *Sneha, Shatavari kwatha* and *Shatavari kalka* are added then constantly stirred until *Kwatha* portion evaporates then milk was added and boiled with constant stirring until *Sneha siddhi laxanas* appear in it. Later it is filtered through a clean cloth and preserved in wide mouthed plastic containers.

Shatavari Ghrita Aschyotana

***Poorvakarma*:** The patient is made to lie down on the treatment table in supine position.

***Pradhana karma*:** The lower lid of patient is retracted with left hand. The medicament is instilled with the right hand through the sterile dropper, drop by drop at the medial canthus of the eye from a height of two *Angula*. While dropping the medicine the patient is asked to keep his eye open.

***Paschat karma*:** Following *Aschyotana karma* the medicine is gently wiped off with sterile soft cotton. The eyes are then subjected to mild fomentation. For this, the pad of cotton is soaked in warm water and the water is squeezed off. This moist warm pad of cotton is placed on the closed eyes.

Assessment Phase: Effect of the therapy was compared before and after the treatment on the basis of self formulated scoring scale to signs and symptoms in Subjective and Objective parameters.

Subjective Parameters

- Eye strain
- Dry eyes
- Blurred vision
- Headache
- Redness
- Diplopia

Objective Parameters

1. Visual acuity
2. Schirmer's test
3. Tear Break Up Time

Parameters Gradation Index

1) Eye Strain

Absent	0
Mild Eye strain	1
Moderate Eye strain	2
Severe Eye strain	3

2) Dryness

No feeling of dryness	0
Occasional feeling of dryness	1
Frequent feeling of dryness	2
Continuous feeling of dryness	3

3) Blurred vision

Absent	0
Blurred vision occurs after 1 hour of working and disappears after work	1
Blurred vision occurs after 1 hour of working and continues for 2 hrs after withdrawal from work	2
Blurred vision continues for the whole day and relieved after sleep	3

4) Headache

Absence of Headache	0
Mild-Occasionally present	1
Moderate-Frequently present	2
Severe-Continuously present throughout the day	3

5) Redness

Absent	0
Discrete, thin vascular network limited to P.C and fornix	1
Prominent vascular network involving peripheral part of B.C	2
Fiery red eye involving whole B.C and circumcorneal zone	3

6) Diplopia

Absent	0
Mild-transient diplopia	1
Moderate-Diplopia in few direction of gazes	2
Severe-Constant diplopia in all direction of gazes	3

7) Progressive refractory changes: Visual acuity (Distant and Near)

6/6	N6	0
6/9	N8	1
6/12	N10	2
6/18	N12	3
6/24	N18	4
6/36	N24	5
6/60	N36	6

Assessment of response

One line improvement – Mild

Two line improvement – Moderate

> than 2 line improvement – Marked

8) Schirmer's test

Level of wetting of tear strip above 15mm in 5 minutes	0
Level of wetting of tear strip above 10mm-15mm in 5 minutes	1
Level of wetting of tear strip above 5mm-10 mm in 5 minutes	2
Level of wetting of tear strip at above 1mm-5mm in 5 minutes	3

9) Tear break up time

The appearance of dry spot after 15 seconds	0
The appearance of dry spot between 10-15 seconds	1
The appearance of dry spot between 5-10 seconds	2
The appearance of dry spot within 5 seconds	3

Assessment Response

The net result obtained by various parameters of assessment both before and after treatment was taken into consideration to assess the overall effect of the therapy. Then they were graded in terms of percentage of relief in subjective and objective parameters.

- **No improvement**: Less than 25% relief in signs, symptoms and clinical tests
- **Mild Relief:** 26% to 50% relief in the signs, symptoms and clinical tests
- **Moderate relief**: 51% to 75% relief in the signs, symptoms and clinical tests
- **Marked relief**: 76% but 100% relief in the signs, symptoms and clinical tests

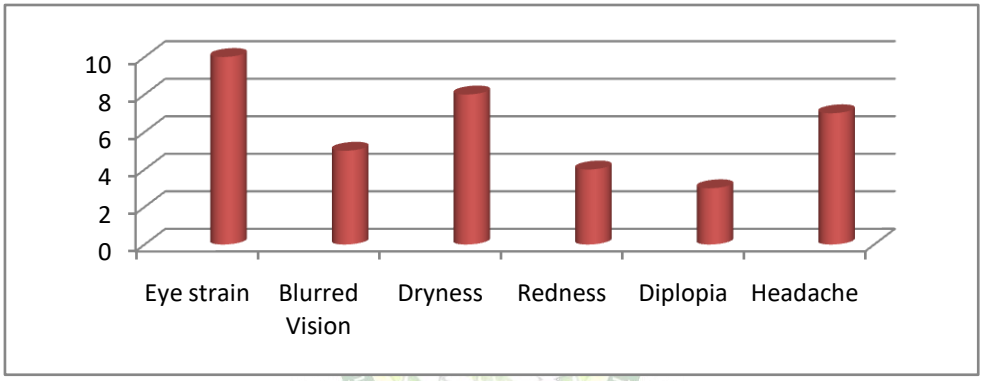
Observations and Results

Table 1: Symptom wise distribution of 10 patients of Computer vision syndrome

Symptoms	No. of Patients and Percentage	
	Total	
Eye strain	10	100%
Blurred vision	5	50%
Dryness	8	80%
Redness	4	40%
Diplopia	3	30%
Headache	7	70%

Among 10 patients of computer vision syndrome, 100% (10 patients) had Eye strain, 50% (5 patients) had Blurred vision, 80% (8 patients) had Dryness, 40% (4patients) had Redness, 30% (3 patients) had Diplopia and 70% (7 patients) had Headache.

Chart No.1: Symptom wise distribution of 10 patients of Computer vision syndrome



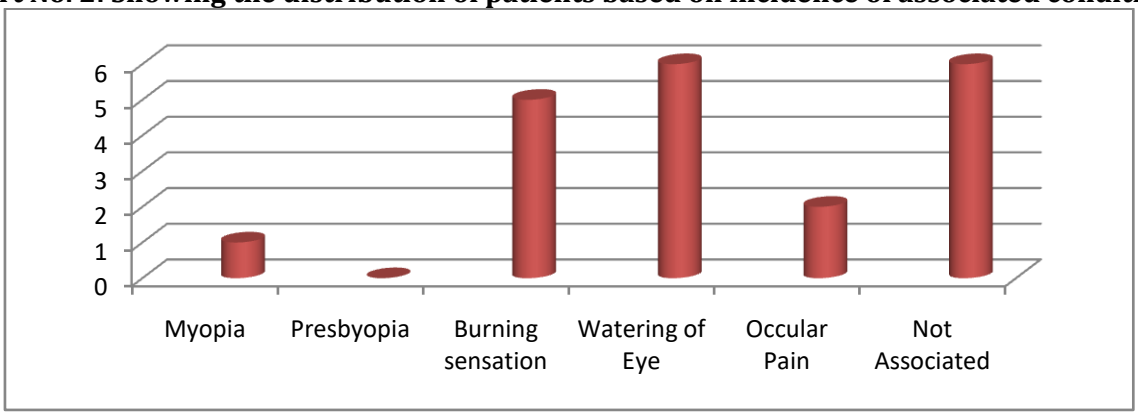
Associated Conditions

Table 2: Showing incidence of associated conditions among 10 patients

Associated conditions	No. of patients and percentage	
	Total	
Myopia	06	15%
Presbyopia	01	2.5%
Burning sensation	10	25%
Watering of the eye	10	25%
Ocular pain	04	10%
Not associated	09	22.5%

Out of 10 patients, 15% (6 patients) were having CVS associated with Myopia, 2.5% (1 patient) with Presbyopia, 25% (10 patients) with Burning sensation, 25% (10 patients) with watering of the eyes, 10% (4 patients) with Ocular pain and 22.5% (9 patients) were not associated with any symptoms.

Chart No. 2: Showing the distribution of patients based on incidence of associated conditions



RESULTS

Table 3: Effect of treatment on Eye strain

Symptom		BT	AF	BT-AF	%	S.D (±)	S.E (±)	t value	p value
Eye Strain	RE	2.45	0.70	1.75	71.43	0.639	0.143	8.76	<0.001
	LE	2.45	0.70	1.75	71.43	0.639	0.143	8.76	<0.001

Statistical analysis showed that the mean score which was 2.45 before the treatment was reduced to 0.70 after follow up with **71.43%** improvement and there is a statistically highly significant. (P<0.001)

Table 4: Effect of treatment on Blurred vision

Symptom		BT	AF	BT-AF	%	S.D (±)	S.E (±)	t value	p value
	RE	1.05	0.55	0.50	47.62	0.761	0.170	1.78	<0.05
	LE	1.05	0.55	0.50	47.62	0.761	0.170	1.78	<0.05

Reduction in the mean score was shown from 1.05 to 0.55 after follow up with 47.62% improvement. It is found to be statistically significant (P<0.05).

Table 5: Effect of treatment on Dryness

Symptom		BT	AF	BT-AF	%	S.D (±)	S.E (±)	t value	p value
Dryness	RE	2.20	0.70	1.50	68.18	0.827	0.185	6.04	<0.001
	LE	2.20	0.75	1.45	65.91	0.826	0.185	5.66	<0.001

Showed statistically highly significant improvement (P<0.001). The mean score which was 2.20 before treatment reduced to 0.70 after follow up with **65.91%** improvement.

Table 6: Effect of treatment on Redness

Symptom		BT	AF	BT-AF	%	S.D (±)	S.E (±)	t value	p value
Redness	RE	0.65	0.10	0.55	84.62	0.826	0.185	2.65	<0.05
	LE	0.65	0.10	0.55	84.62	0.826	0.185	2.65	<0.05

Redness was observed with a mean reduction of score from 0.65 to 0.10 after follow up with 84.62% improvement. Analysis of this data shows statistically significant improvement (P<0.05)

Table 7: Effect of treatment on Diplopia

Symptom		BT	AF	BT-AF	%	S.D (±)	S.E (±)	t value	p value
Diplopia	RE	0.40	0.05	0.35	87.50	0.671	0.150	1.99	<0.05
	LE	0.40	0.05	0.35	87.50	0.671	0.150	1.99	<0.05

Diplopia was observed with a mean reduction of score from 0.40 to 0.05 after follow up with 87.50% improvement. Analysis of this data shows statistically significant improvement (P<0.05).

Table 8: Effect of treatment on Refractive Changes

Symptom		BT	AF	BT-AF	%	S.D (±)	S.E (±)	t value	p value
	RE	0.15	0.10	0.05	33.33	0.224	0.050	0.39	>0.05
	LE	0.15	0.10	0.05	33.33	0.224	0.050	0.39	>0.05

Refractive changes were observed with a mean reduction of score from 0.15 to 0.10 after follow up with 33.33% improvement. Analysis of this data shows statistically no significant improvement (P>0.05).

Table 9: Effect of treatment on Headache

Symptom	RE	BT	AF	BT-AF	%	S.D (±)	S.E (±)	t value	p value
Headache	LE	1.50	0.45	1.05	70.00	0.887	0.198	4.58	<0.001

Headache was observed with a mean reduction of score from 1.50 to 0.45 after follow up with 70% improvement. Analysis of this data shows statistically highly significant improvement (P<0.001).

Table 10: Effect of treatment on Schirmer's test

Parameter		BT	AF	BT-AF	%	S.D (±)	S.E (±)	t value	p value
	RE	2.20	0.65	1.55	70.45	0.605	0.135	8.81	<0.001
	LE	2.00	0.65	1.35	67.50	0.587	0.131	8.10	<0.001

Schirmer's Test was observed with a mean reduction of score from 2.20 to 0.65 after follow up with 70.45% improvement. Analysis of this data shows statistically highly significant improvement (P<0.001).

Table No-11Effect of treatment on *Tear Break up Time*

Parameter		BT	AF	BT-AF	%	S.D (±)	S.E (±)	t value	p value
	RE	2.30	0.90	1.40	60.87	0.598	0.134	8.63	<0.001
	LE	2.00	0.90	1.10	55.00	0.641	0.143	6.24	<0.001

Tear Break up Time was observed with a mean reduction of score from 2.30 to 0.90 after follow up with 60.87% improvement. Analysis of this data shows statistically highly sigificant improvement (P<0.001)

Table no. 12 Comparative results of treatment

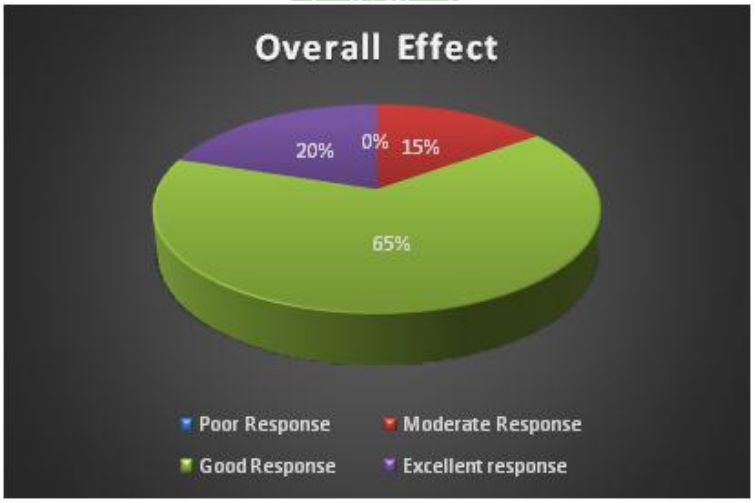
Parameters	Mean							% of relief
	BT	AF	S.D	S.E	T value	P value	Remark	
Eye Strain	2.45	0.70	0.639	0.14	8.76	<0.001	H.S	71.43%
Blurred Vision	1.05	0.55	0.761	0.17	1.78	<0.05	S	71.43%
Dryness	2.20	0.70	0.826	0.18	6.04	<0.001	H.S	65.91%
Redness	0.65	0.10	0.671	0.15	1.99	<0.05	S	84.62%
Diplopia	0.40	0.05	0.224	0.05	0.39	<0.05	S	87.80%
Refractive Changes	0.15	0.10	0.887	0.19	4.58	>0.05	N.S	33.33%
Headache	1.50	0.45	0.754	0.13	8.81	<0.001	H.S	70%
Schirmer's Test	2.20	0.65	0.605	0.13	8.10	<0.001	H.S	70.45%
Tbut	2.30	0.90	0.598	0.14	6.24	<0.05	S	60.87%

Overall effect of treatment is 65.96%.

Table no.13 Gradation Index for overall Response

Gradation Index for Overall Response		
Class	**Grading**	**No of patients**
0-25%	No Improvement	0
26% -50%	Mild Improvement	1
51% - 75%	Moderate Improvement	7
76% - 100%	Marked Improvement	2

Chart no. 3 Overall effect of treatment



DISCUSSION

Since dryness is a major symptom in computer vision syndrome, many consider it under Dry eye syndrome itself. Infact the clinical features of Dry eye syndrome differ from Computer vision syndrome. Hence it cannot be completely correlated to *Shuskakshipaka.* However all the symptoms present in Computer vision Syndrome are scattered among various *Netra rogas* told in our classics. Hence only modern part of the literature review could be procured easily, though an attempt has been made to correlate to Ayurvedic diseases, *Nidana* of observing bright light have been mentioned which can be correlated to staring at computers.

CVS manifests because of staring the computer monitor screen for a long hours without proper blinking leading to eye strain, blurred vision,

dryness, headache etc., there is involvement of *Ruksha, Khara guna* of *Vata* and *Ushna, Teekshna guna* of *Pitta dosha* in pathophysiology. Hence the treatment modalities must be *Sheeta, Snigdha, Chakshushya, Vatapittahara* and *Brimhaneeya*. Though *Nidana parivarjana* i.e., Avoiding the usage of computers cannot be done because of their occupational needs, few preventive aspects like usage of anti glare glasses, resting the eye sufficiently in the intervals and adjusting the lightings and sitting posture may relieve the symptoms.

Probable Mode of Action of *Shatavari Ghrita*

1. The ingredients are *Shatavari, Ghrita* and *Ksheera,* All of them has *Madhura rasa, Guru Snigdha gunas, Sheeta virya, Madhura vipaka, Vata pittahara, Chakshushya, Jeevaniya* and *Rasayana* properties.
2. *Shatavari* has Anti inflammatory, Antibiotic, Anti haemorrhagic, Anti oxidant and immune-modulator property.

- Antioxidant action of the drug has strong ability to scavenge the free radical and protects the normal structure of cells.
- The role of super oxide dismutase catalyzes the dismutation of super oxide radical into an ordinary molecular oxygen by maintaining the physiology of the eye and rebuilts the aging tissue and thereby extending the life span of that particular tissue.
- *Shatavari Ghrita* as being a good immune-modulator, it confers anti-inflammatory activity and in Computer Vision Syndrome thereby prevents T-cells from releasing cytokines (primarily interleukin-6) that helps to restore the functions of tear film, checks the inflammatory process and prevents ulceration.
- As *Shatavari Ghrita* has good antibiotic activity, it reduces the inflammation and improves the lipid production in Computer vision syndrome.

3. *Ghrita* is *Yogavahi* because of the *Samskarasya anuvarthanath*. It can penetrate into *Sookshma srotas*. Thus can cross the barriers of absorptions. *Ghrita* itself is a *Rasayana* and because of its *Vata Pittahara* property, works towards the normalcy of the *Doshas* responsible for triggering the disease. It effectively cures symptoms like dryness, burning sensation and redness.
4. *Ghrita* contains Vitamin A, Vitamin E and β carotene which are anti- oxidants and are helpful in reducing ketone bodies and prevents the oxidative injury to the body. Mainly Vitamin A keeps the epithelial tissue of the body intact, keeps the outer layer of the eyeball moist.

- The nourishing property and *Chakshushya guna* of *Shatavari, Ghrita* and *Ksheera* helps in relieving the *Vata prakopaka* symptoms like eyestrain, diplopia, headache, dryness and inability to focus near objects.

Compared to artificial tear products, *Shatavari Ghrita* is rich in lipid content which reflects mucoadhesive properties and therefore the degree of contact time with ocular surface is greater and thus lubricates the eye surface and enhances the lipid layer of tear film.

Probable Mode of Action of *Aschyotana*

- *Aschyotana* is considered as the first line of treatment for all *Netra rogas*. The drug is topically delivered into cul-de-sac to achieve greater availability and local quicker action.
- The dosage of drops selected here is form of *Snaihika Aschyotana* (10 drops). The drops were divided as five drops, twice a day.
- Since medicated *Ghrita* used in the form of drops and pH value is said to be neutral and thus helps to comfort and protect the health of eyes.

The medicated *Ghrita* absorbs through conjunctival mucosa and percolates into the palpebral conjunctiva and then to bulbar conjunctiva and thus helps to lubricate the eye. Since *Ghrita* is in aqeous suspension form it crosses the corneal epithelium and endothelium.

Limitations

- Sample size was not adequate to draw precise conclusions.
- Duration of study was limited.

Scope for Further Study

- As Computer vision syndrome is a recent occupational hazard, there is a higher scope for research in better understanding of the disease and the standard line of treatment.
- Since contemporary science of treatment involves only lubricating eye drops which the patient has to use regularly as long as they use computers, there is higher scope in Ayurveda, which can provide relaxation and rejuvenation in multiple modes compared to Contemporary science.
- The role of other therapies in treating CVS like *Tarpana, Nasya, Shirodhara, Seka, Anjana, Shirolepa,* Eye exercises and Yogic practices can be explored in detail.
- *Shamana* drugs can be administered in follow up to enhance the effect of therapy.
- Extension of therapeutic procedures is designed on large number of patients and for longer duration so that exact efficacy can be known even in chronic cases.

CONCLUSION

CVS is a new occupational hazard seen in computer users, hence cannot be expected to be in Ayurvedic period, which is going to be a key health threat in near future however the features mentioned in various *Netra rogas* may be correlated to CVS, and there is room to understand the principles and gain the benefits through Ayurveda.

The pilot study of '*Shatavari ghrita Aschyotana'* shows moderately encouraging results in the improvement of different symptoms of Computer Vision Syndrome.

REFERENCES

1. Sharma P.C.Yelne MB. Dennis P.J. Joshi Aruna. Database on medicinal plants used in Ayurveda, Central council for research in Ayurveda and Siddha Jawaharlal Nehru Bharatiya Chikitsa avam Homeopathy Anusandhan Bhavan, New Delhi 2002. p.419.
2. Pandit shri lalchandraji Vaidya. Bhaishajya ratnavali, Motilal banarasi das prakashan, Delhi; 2012.p.606, p.995
3. Sharangadhara. Sharangadhara Samhita- with Adhamalla's Deepika and Kashiram's Gudartha dipika commentary, edited by Pandith Parashuram shastri, 4th ed. Varanasi: Chaukhambha Orientalia: 2000.398pp.

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