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ISSN: 2278-4772

Ayurpharm Int J Ayur Alli Sci., Vol. 7, No. 8 (2018) Pages 123 – 128

Review Article

A BRIEF COMPILATION ON TRIPHALA – A WONDER COMPOUND IN AYURVEDIC OPHTHALMOLOGY

Nandini Jadhav M[1*], Swapnil Auti [2]

1. *Research officer (Ayu.), CARICD, CCRAS, New Delhi, India.*
2. *Associate Professor, Faculty of Indian Medicine, SGT University, Gurgaon, Goa, India.*

Received: 03-08-2018; Revised: 22-08-2018; Accepted: 28-08-2018

Abstract

Ayurvedic ophthalmology claims Triphala as Agrya i.e. main drug for eye diseases. Medicinal properties of Triphala are well documented. Scattered references are available and various researches have been carried out using Triphala as a chief component in various formulations used in Ayurvedic ophthalmology. An attempt has been made to collect the available research data to lay out the use of Triphala in Shalakya and to dig deep into its efficacy. On critically reviewing available researches and classical references, Triphala is found to be potent drug in many diseases like Cataract, Computer vision syndrome, Conjunctivitis, Blepharitis, uveitis, Lid Concretion, corneal ulcer, diabetic retinopathy, loss of vision, glaucomatous optic atrophy.

Key words: Triphala; Cataract; Computer vision syndrome; Diabetic retinopathy; Uveitis.

***Address for correspondence:**
Dr. Nandini Jadhav M,
Research officer (Ayu.),
CARICD, CCRAS,
New Delhi, India – 110 063
E-mail: nandini.punarvasu84@gmail.com

Cite This Article

Nandini Jadhav M, Swapnil Auti. A brief compilation on Triphala – A wonder compound in Ayurvedic Ophthalmology. Ayurpharm Int J Ayur Alli Sci. 2018;7(8):123-128.

www.ayurpharm.com
ISSN: 2278-4772
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INTRODUCTION

Triphala is an compound consisting of equal parts of three myrobalans, taken without seed i.e. *Emblica officinalis*, *Terminalia bellerica*, *Terminalia chebula*.[1]

In Ayurveda Triphala is considered to be Agrya dravya (drug of choice) for Netraroga (eye diseases). In clinical practice also most of the Ayurvedic Netraroga specialist believes on Triphala a lot than any other compound for management of ocular diseases. Individual drugs in Triphala and compound as whole are having a wide spectrum of pharmacological actions which makes it a wonder drug for Ayurvedic Ophthalmology. Based on this Tridoshahara effect and especially Kaphaghna properties Triphala can be considered as best drug as eyes are Tejomaya (dominant in Teja i.e light) and they are to be protected from Kapha Dosha mainly. Beside classical references, there are so many researches carried out on Triphala which proves its wide range of effects and thus the superiority.

Triphala properties in Ayurveda

Rasa: Kashaya Rasa Pradhana Pancha Rasa
Guna: Ruksa and Guru (slight)
Virya: Ushna
Vipaka: Madhura
Doshaghnata: Mainly used specifically in predominance of Kapha dosha, moderate vitiation of Vata and mildly deranged Pitta.[2]

Chemical Constituents

Triphala has been reported to be a rich source of Vitamin C, ellagic acid, gallic acid, chebulinic acid, bellericanin, ascorbic acid and flavonoids8-9. β-sitosterol.[3] Triphala also contains about 20 % tannins of both condensed and hydrolysable type. Other constituents identified in the fruit include lipids, sitosterol, saponins, cardiac glycoside and various carbohydrates.[4]

Medicinal uses of Triphala in general medicine

Triphala is used as an anthelmintic, purgative,[5] cardiotonic,[6] anticancer,[7] a rich source of vitamin C, a well-known antioxidant,[8] counteracts hepatotoxic and nephrotoxic effects of metals.[9]

References of Triphala used in Netraroga in Ayurvedic classics

Triphala is having number of references in classics. Some of them are as tabulated in Table 1.

Beside classical formulations Triphala is used by various researchers in number of diseases some of the published studies are as below:

Triphala in Cataract

Suresh Kumar Gupta et al studied anticataract potential of Triphala in selenite-induced cataract in, in vitro and in vivo studies. *In vitro* enucleated rat lenses were maintained in organ culture containing Dulbecco's Modified Eagles Medium alone or with the addition of 100μM selenite. These served as the normal and control groups, respectively. In the test group, the medium was supplemented with selenite and different concentrations of TP aqueous extract. The lenses were incubated for 24 h at 37°C. After incubation, the lenses were processed to estimate reduced glutathione (GSH), lipid peroxidation product, and antioxidant enzymes. *In vivo* selenite cataract was induced in 9-day-old rat pups by subcutaneous injection of sodium selenite (25 μmole/kg body weight). The test groups received 25, 50, and 75 mg/kg of TP intraperitoneally 4 h before the selenite challenge. At the end of the study period, the rats' eyes were examined by slit-lamp. TP significantly ($P < 0.01$) restored GSH and decreased malondialdehyde levels.

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Ayurpharm Int J Ayur Alli Sci., Vol. 7, No. 8 (2018) Pages 123 – 128

Table 1: Form in which Triphala is used

Disease	Form in which Triphala is used
Vatabhishyand	Triphala siddha Ghrita/ Dugdhapana[10]
Amladhyushit	Triphala siddha Ghritapana[11]
Shleshmabhishyanda	Triphala as a component of Anjana[11]
Praklinnavartma	Triphalavarti[12]
Krimigrantha	Triphaladi Rasakriya[13]
Pittavidagdha Dhrishti	Triphala Ghrita[14]
Rakta-Pittaja Timira	Virechana with Triphala Ghrita[15]
Pittaja Timira	Triphala Churna with Ghrita[15]
Vataja Timira	Triphala Churna with Taila[15]
Kaphaja Timira	Triphala Churna with Madhu[15]
Kaphaja Timira	As a content of Nasya Yoga[16]
Timira	As Pathya Ahara[17]
Timira	Triphala Kwath Siddha Yavagu[17]
Kukunaka	Triphala Ghrita Aschyotana[18]
Kapha-Pittaja Netraroga	Triphala Pindi and Bidalaka[19]
All types of Abhishyanda	Triphala Kwatha Netraprakshalana[20]

A significant restoration in the activities of antioxidant enzymes such as superoxide dismutase ($P < 0.05$), catalase ($P < 0.05$), glutathione peroxidase ($P < 0.05$), and glutathione-s-transferase ($P < 0.005$) was observed in the TP-supplemented group compared to controls. *In vivo* TF 25mg/kg developed only 20% nuclear cataract as compared to 100% in control. TP prevents or retards experimental selenite-induced cataract. This effect may be due to antioxidant activity.[21]

Triphala in Computer vision syndrome

M. P. Gangamma et al studied Triphala eye drops in management of Computer vision syndrome. 151 patients were registered, out of whom 141 completed the treatment. In Group A, 45 patients had been prescribed Triphala eye drops; in Group B, 53 patients had been prescribed the Triphala eye drops and Saptamrita Lauha tablets internally, and in Group C, 43 patients had been prescribed the placebo eye drops and placebo tablets. Marked improvement was observed in 48.89, 54.71 and 06.98% patients in groups A, B and C, respectively. Triphala eye drops alone was also significant to give relief in all symptoms ($p<0.05$).[22]

Triphala in Conjunctivitis

Pravin M Bhat studied role and efficacy of Triphala Ghrita Aschyotan in Vataj Abhishyanda w.r.t Allergic Conjunctivitis. A total 60 patients were selected of which 30 patients of trial group were treated with Triphala Ghrita Aschyotana and patients of control group in similar number were subjected to Ketotifen Fumarate eye drop. The trial drug Triphala Ghrita is equally effective as compared to Ketotifen eye drop. Trial drug provided significant relief in symptoms like Sangharsha i.e. rubbing like sensation ($P < 0.05$), Nistoda i.e. pricking ($P < 0.05$), Raga i.e. redness($P < 0.05$).

Triphala in Blepharitis

Rohini Patil studied Triphala Rasakriya Varti in the management of Praklinnavartma w.s.r. to blepharitis in 60 patients of Which 30 patients were treated with Triphala raskriya varti & 30 patients treated with Ciplox eye ointment for 7 days. A Highly significant reduction was noted in Vartma Kandu i.e. itching in lids (<0.001), Vartma Shotha i.e. edema in lids (<0.001), Toda i.e. pricking sensation (<0.001), Araktata i.e. redness (<0.001) & Klinnatva i.e. moistening in lid (<0.001). Overall relief provided by Triphala

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ISSN: 2278-4772
Ayurpharm Int J Ayur Alli Sci., Vol. 7, No. 8 (2018) Pages 123 – 128

Rasakriya Varti in Praklinnavartma is also better than that by Ciprofloxacin eye ointment used as standard control. The study shows that symptoms of Praklinna Vartma are reduced significantly by application Anjana of Triphala Rasakriya Varti.[23]

Triphala in uveitis

Suresh Gupta et al studied effect of Triphala on endotoxin-induced uveitis in rabbits by Anterior uveitis was induced in rabbits by intravitreal injection of lipopolysaccharide from Eschericha coli after pre treatment with TA aqueous extract. Subsequently the anti-inflammatory activity of TA was evaluated by grading the clinical signs and estimating the inflammatory cell count, protein, and TNF-α level in the aqueous humour. The anterior segment inflammation in the control group was significantly higher than in TA and prednisolone treated groups, as observed by clinical grading. The inflammatory cell count in the control group was 31.23 ± 0.80 × 105cells/ml, whereas it was 3.29 ± 0.47 × 105cells/ml ($P < 0.0001$ vs. control) and 1.31 ± 0.31 × 105 ($P < 0.0001$ vs. control) cells/ml in the TA and prednisolone treated groups, respectively. The protein content of the aqueous humour was 15.43 ± 0.54, 3.13 ± 0.35 ($P < 0.0001$ vs. control), and 1.96 ± 0.39 ($P < 0.0001$ vs. control) mg/ml in the control, TA and prednisolone treated groups respectively. The aqueous TNF- α level in the control group was 942.20 ± 6.46 pg/ml and was 261.30 ± 13.60 ($P < 0.001$ vs. control) and 104.00 ± 4.50 ($P < 0.0001$ vs. control) pg/ml in the TA and prednisolone treated groups, respectively.[24]

Triphala in Lid Concretion

Pratibha Upadhyay et al reported a case proving Role of Triphala Parishek in Lid Concretion. The patient chosen was suffering from ocular discomfort since 5 years gradually that patients complaint has been increasing in spite of using all the allopathic medicines. Triphala parishek was tried for 10 days in three sittings with gap of 10 days and patient got complete and gradual relief from the symptoms in duration of 2 months.[25]

Triphala in corneal ulcer

Gore Milind et al studied effect of Triphala Ghrita in management of corneal ulcers as an adjuvant to conventional allopathic treatment. 60 patients of corneal ulcers were selected of which 30 were treated with conventional allopathic treatment and 30 were treated with conventional allopathic treatment and Triphala Ghrita orally for 3 weeks. Over all Savrana Shukla (corneal ulcer) of patients of Group A (experimental group) healed 19.67% earlier than Group B (control group).[26]

Triphala in diabetic retinopathy

Binit Kumar et al studied protective effects of bioflavonoids on retinal neurovascular degeneration in diabetic rats. Researcher evaluated effects of herbal drugs (*Moringa oleifera*, Fenugreek and Triphala) on prevention of diabetic retinopathy in streptozotocin-induced type-1 diabetic rats. The results from the present study showed that test herbal drugs (*Moringa oleifera*, Fenugreek and Triphala) possess hypoglycemic, anti-oxidant, antiinflammatory and anti-angiogenic properties.[27]

Triphala in loss of vision

Sanjeev Rastogi et al reported case study of Unilateral Loss of Vision Following a Blunt Injury to Eye. Patient was treated with Triphala Ghrita Tarpana and orally along with Saptamrit lauha and Amalaki Rasayana for 3 months. There was a remarkable improvement in vision in the left eye, which was observed as 6/18 on the Snellen chart. After a total of 6 months of Ayurvedic therapy followed by 6 months of withdrawal, a subsequent follow-up found the vision in the patient's left eye to be 6/12. OCT and an FFA done at this time was

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ISSN: 2278-4772
Ayurpharm Int J Ayur Alli Sci., Vol. 7, No. 8 (2018) Pages 123 – 128

marked by substantial improvements in the RPE Bruch's membrane complex. Ayurvedic therapy seems to have contributed substantially to the improved vision, which had been lost completely following a blunt injury to the left eye.[28]

Triphala in glaucomatous optic atrophy

Upadhyay et al reported a case of glaucomatous optic atrophy treated with Triphala Ghrita for 2 months. Patient was treated with Tarpana with Mahatriphala ghrita for 10 days continuously for three consecutive sittings having a gap of 15 days interval between two sittings. Patient found subjective relief from the diseases as well as improvement in visual acuity from FC- 1metre to 6/60 in RE and from 6/60 to 6/36 LE.[29]

DISCUSSION

Based on Doshik effect the efficacy of above mentioned diseases can be explained due to its Tridoshahara and Rasayana effects. Not just ocular but also Triphala act systemically as an Anulomana & Lekhana Drug. This adds to its effect potential as most of the ocular diseases are caused due to systemic Doshadushti. Regarding cataract previous studies showed that flavonoids, with antioxidant properties, can prevent oxidative damage and slow experimental selenite cataract progression.[30] Triphala has been reported to be a rich source of vitamin C and flavanoids.[31] In computer vision syndrome, the lack of tear drops causes minute damages in conjunctiva giving pain, pricking sensation and redness. Triphala having tremendous wound healing properties hence it heals the damages and prevent the conjunctival health.[32] Blepharitis i.e. Praklinnavartma is a Kapha dominant disease hence Lekhana Yoga are advised for Anjana. Moreover the pharmacological actions of Triphala are like antiinflammatory, anti-bacterial, blood purifier action, immunomodulator etc. Hence it has given the good improvement.[33] In uveitis anti-inflammatory properties of triphala plays a vital role.[34] Antioxidant and healing properties of Triphala are responsible for its effect in corneal ulcer, optic atrophy, diabetic retinopathy, loss of vision etc.

CONCLUSION

Triphala is having multidimensional and variety of pharmacological properties along with Rasayana effect. Also as alone compound or in form of Ghrita, Anjana, Rasakriya, eyedrops, Varti etc. Triphala is found to be potent drug in many diseases like Cataract, Computer vision syndrome, Conjunctivitis, Blepharitis, uveitis, Lid Concretion, corneal ulcer, diabetic retinopathy, loss of vision, glaucomatous optic atrophy.

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Source of Support: Nil Conflict of Interest: None Declared