



## Review Article

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### CRITICAL ANALYSIS OF *AMALAKYADI GANA* IN EYE DISORDERS: A REVIEW

Swati Sharma<sup>1\*</sup>, Ankur Tripathi<sup>2</sup>

<sup>1</sup> M.D. (Ayurveda), Research officer, M. S. Regional Ayurveda Research Institute, Jaipur, Rajasthan, India

<sup>2</sup> M.S.(Ayurveda), Assistant Professor, Department of Shalakyata, All India Institute of Ayurveda, New Delhi

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**\*Corresponding author**

E-mail: drswatisharma2010@gmail.com

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#### ABSTRACT

Prevention of Eye from various diseases and maintenance of normal vision in today's digital world is of prime importance. Eyes are especially susceptible and prone to *Kapha*. That's why the factors, which are vitiating *Pitta* or *Kapha* will lead to eye disorders. The proper use of *Chakshushya* and *Rasayana Dravyas* will facilitate to maintain the health of the *Netra* (eyes) and prevents age related eye disorders. The *Chakshushya* effect of *Amalakyadi gana* has been mentioned by *Acharya Sushruta* in the *Sutra Sthana*. '*Amalakyadi Gana*' contains four drugs i.e., *Amalaki*, *Haritaki*, *Pippali*, *Chitraka*. Each of the drugs exhibit beneficial effects in ocular conditions. Combination of all the four drugs together may work wonder. This review work may help to encourage scientists to elaborate *Amalakyadi Gana* beneficence in ocular diseases.

**Keywords:** *Netra*, *Ayurveda*, *Amalaki*, *Haritaki*, *Pippali*, *Chitraka*

#### INTRODUCTION

*Ayurveda* is the most ancient health science, practiced in India since ages. Eye is the highly specialized sensory organ providing the foremost vital function of sight to humans. The eyes are most highly developed sensory organs of our body. In fact, a far larger part of the brain is dedicated to vision than to hearing, taste, touch, or smell combined. There are increase in the prevalence of visual loss and blindness with increasing age<sup>1</sup>. In the eye, *Alochaka pitta* is considered as responsible factor for visual perception i.e., of all the *Mahabhootas*, *Tejas* dominates<sup>2</sup>, so the eyes are especially susceptible and prone to *Kapha*. That's why the factors, which are vitiating *Pitta* or *Kapha* will lead to eye disorders<sup>3</sup>. The main *Rasayana* adopted in eye health promotion are *Naimitika Rasayana* and *Achara Rasayana*. The appropriate use of *Chakshushya* and *Rasayana Dravyas* will help to maintain the health of the *Netra* and prevents age related eye disorders. The *Chakshushya* effect of *Amalakyadi gana* has been mentioned by *Acharya Sushruta* in the *Sutra Sthana*<sup>4</sup>. '*Amalakyadi Gana*' contains four drugs i.e., *Amalaki*, *Haritaki*, *Pippali*, *Chitraka*. All the four drugs exhibit *Rasayana* property, which is important for prevention of age-related changes in the eyes as well as for maintaining health of ocular muscles. This review was planned for critical analysis of the drugs of *Amalakyadi gana* individually or cumulative effects for the benefits of eyes. *Amalakyadi gana* was selected from *Sushruta Samhita* for review of its contents for eye disorders. Various available *Samhitas* (treatise), *Sangraha grantha* (compendia), formularies and scholarly articles were observed for exploring the properties of *Amalaki*, *Haritaki*, *Pippali*, *Chitraka* in eye diseases. Collected data were arranged systematically with brief introduction of their properties. Now a days the major causes of blindness are cataract, corneal scarring and retinal diseases (ARMD) which are age related<sup>5</sup>. All the four components of *Amalakyadi gana* exhibit *Rasayana* property. *Rasayanas* are very well recognized for prevention of age-related signs and symptoms. If we look at combined features of *Amalakyadi gana*, it has predominance of *Katu*, *Madhura*, *Amla*, *Tikta*, *Kashaya Rasas* and *Laghu*, *Ruksha Gunas* with *Ushna Virya* and *Madhura Vipaka*. Hence it may act as

*Tridoshashamaka*. By the combine act, it may act as *Deepana*, *Pachana*, *Chakshushya*, *Balya*, *Rasayana* and *Tridoshashara*. *Deepana-Pachana Karma* increases the *Jatharagni* or site of *Pachaka Pitta* by virtue of which *Ama* is digested, which is said to be main cause of all the diseases which ultimately results into the clearance of the channels (*Srotoshuddhi*). As eyes are specially; prone to *Kapha*, *Laghu*, *Ruksha Guna* play important part in prevention of vitiation of *Kapha*. In the light of Modern era, so many research are available concern to individual herbs of *Amalakyadi gana* that are advocating their *Chaksushya* effects. *Rasapanchaka* of all the four components were collected finely reviewed and tabulated (Table 1).

#### *Amalaki*

*Amalaki* (*Emblica officinalis*) is a well-known drug of Indian origin, which is popularly named as Indian gooseberry. Its therapeutic properties are very well established and generously used since ancient time in India. *Amalaki* (*Emblica officinalis*) is acknowledged as a magical fruit for fitness conscious people<sup>6</sup>. It has great power of tissue rejuvenation. *Amalaki* is a potent herb enriched with fair content of Vitamin-C, Gallic acid, Antioxidant and Tannin. *Amalaki* possesses *Chaksushya* (beneficial for eyes), *Ajara* (Anti-ageing) and *Rasayana* (Adaptogenic) properties<sup>7</sup>. *Amalaki* is also effective in the treatment of various eye diseases like *Abhishyanda* (conjunctivitis), *Adhimantha* (glaucoma) and diabetic eye complications like Diabetic Retinopathy etc. *Amalaki* enhances both *Alochaka Pitta* (*Pitta* responsible for proper functioning of the eyes/ vision) and *Ranjaka Pitta* (*Pitta* responsible for proper functioning of the liver and blood formation). *Amalaki* is a very renowned drug expressing Antioxidant property due to presence of high content of vitamin C. *Triphala* (*Amalaki*, *Haritaki*, *Vibhitaki*) *Churna* along with *Madhu* (honey) and *ghrita* (ghee) is the best rejuvenate prescription for eye disorders<sup>8</sup>. It reduces intraocular pressure by virtue of its purgative action. *Amalaki* is also advantageous in patients having numerous eye ailments which are chronic in origin and age related e.g., mucosal xerosis (dry eye), pterygium, pinguecula, rubor (inflammatory conditions of eye), cataract,

ARMD (age-related macular degeneration) and other retinal degenerative diseases, etc<sup>9</sup>. The antioxidant assets of *Amalaki* (*Embelica officinalis*) were established by an increase in lens glutathione content and a decrease in malondialdehyde content. *Amalaki* (*Embelica officinalis*) improve the cataractogenic condition by the increase in the protein content of lens (both soluble and total protein).

### Haritaki

*Haritaki* (*Terminalia chebula*) held a high admiration in *Ayurveda* for its virtue to prevent and cure the various diseases. *Ayurvedic* ancient literature has vibrantly described the therapeutic effect of the different types of *Haritaki*. *Abhaya* (variety of *Haritaki*) is mentioned for eye disease. *Haritaki* is one of the ingredients of the renowned formulation *Triphala*, which is an established combination beneficial for eye diseases. *Acharya Charaka* has also quote positive action of *Haritaki* (*Terminalia chebula*) on *Indriyas* in *Rasayanadhyaya*<sup>10</sup>. *Haritaki* (*Terminalia chebula*) is mentioned as *Chakshushya* (beneficial for eyes), *Netrya* (good for ocular health) and *Netra-roga-nashini* (Therapeutic effect on eye diseases) etc. in various classical texts of *Ayurveda* like *Charaka*, *Bhavprakash*<sup>11-13</sup>. *Haritaki* (*Terminalia chebula*) reduce Muscles Spasm & augment muscle tones with the help of *Kashaya Rasa*. *Vilayana* (dissolution) of vitiated *Kapha* and *Meda* occurs with its *Ushna virya*, *Laghu*, *Ruksha Gunas* & *Tridosahara* properties. *Haritaki* (*Terminalia chebula*) improve eye muscles tone by its *Rasayana karma* (Rejuvenation property)<sup>14</sup>. *Haritaki* (*Terminalia chebula*) fruit and seeds reveal dose dependent reduction in blood glucose of streptozotocin induced diabetic rats both in short term and long term study<sup>15</sup>.

### Pippali

*Pippali* (*Piper longum*) is extensively using as bioavailability enhancer in many formulations using in eye diseases. *Pippali* (*Piper longum*) in *Charaka Samhita* is known for its *Yogvahi guna*, which can be looked as bioavailability enhancer. That means *Pippali* (*Piper longum*), when combined with either combination of herbs enhances the property as compared to the single use of it. *Trikatu* (a combination drug of long pepper, ginger, black pepper) is also a well-known bioavailability enhancer, which act either by promoting rapid absorption of

gastrointestinal tract or by protecting the drug being metabolized its first pass effect through liver after being absorbed or by combination of both mechanism<sup>16</sup>. Fomentation with concentrated extract of either *Nagarmotha* (*Cyperus scariosus*) or *Sendha Namak* (Rock Salt) or *Mulethi* (*Glycyrrhiza glabra*) or *Pippali* (*Piper longum*) prepared with milk is useful in various eye conditions<sup>17</sup>. *Pippali* (*Piper longum*) have “piperine” as the principal phytoconstituent, which enhances the bioavailability of drugs, nutrients, vitamins etc<sup>18</sup>. *Pippali* (*Piper longum*) has a chief phytoconstituent named Piperene, which has proven property of bioavailability-enhancer. It modifies membrane lipid dynamics and increase the serum levels of some nutritional substances. It also lengthens the serum half-lives of Coenzyme Q10 and beta-carotene. It enhances the absorption of drug molecule in the gastrointestinal tract because it vasodilates the tissues over gastrointestinal tract that results into more perfusion in the area<sup>19</sup>.

### Chitraka

*Chitraka* has good medicinal properties, hence keep an important place in *Ayurveda*. It exhibits *Rasayana* (Rejuvenator) property<sup>20,21</sup> and perform *Deepana-Pachana Karma* which increases the *Jatharagni* or site of *Pachaka Pitta* by virtue of which *Ama* is digested, which is said to be main cause of all the diseases. Being a *Rasayana* (Rejuvenation), it may be helpful in preventing prolong degenerative changes in eyes.

### CONCLUSION

Our ancient preachers have given us a divine wisdom in the form of *Ayurveda*. *Ayurvedic* drugs are exceedingly used in alleviating wide range of ocular conditions. By the review of all the ingredients of *Amalakyadi gana*, we can conclude that all the drugs are potential *Rasayana* which are beneficial for age related ocular diseases like Diabetic Retinopathy, Age related macular disorders etc. *Pippali* being a bioavailability enhancer can enhance potential of the *Amalakyadi gana*. *Chitraka* has *Deepana* and *Amapachana* property. Combination of all the four drugs together may work wonder. Although many research are available on individual drugs e.g., *Amalaki*, *Haritaki* etc. but very few are available on *Amalakyadi gana* formulation<sup>22</sup>. This review work may help to encourage scientists to elaborate its beneficence in prevention and treatment of eye diseases.

Table 1: *Rasapanchaka* (Ayurvedic pharmacodynamics) of *Amalaki*, *Haritaki*, *Pippali* and *Chitraka*

Drug	Botanical Name	Family	Rasa	Guna	Virya	Vipaka	Doshghnata
Haritaki	<i>Terminalia Chebula</i>	Combretaceae	<i>Kashaya, Tikta, Madhura, Katu, Amla</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Tridoshashamaka, especially Vata shamaka</i>
Amalaki	<i>Emblica officinalis</i>	Euphorbiaceae	<i>PanchaRasa (Alavana)</i>	<i>Guru, Ruksha, Sheeta</i>	<i>Sheeta</i>	<i>Madhura</i>	<i>Tridosha Shamaka</i>
Pippali	<i>Plumbago zeylanica</i>	Plumbaginaceae	<i>Katu</i>	<i>Laghu, Ruksha, Tikshna</i>	<i>Ushna</i>	<i>Katu</i>	<i>Vatakaphashamaka, Pittavardhaka</i>
Chitraka	<i>Piper longum</i> Linn.	Piperaceae	<i>Katu</i>	<i>Laghu, Snigdha, Tikshna</i>	<i>Anushna Sheeta</i>	<i>Madhura</i>	<i>Kapha-Vata Shamaka</i>

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