

Conceptual Study on the Add-On Effect of Guduchyadi Rasakriya Anjana in Simple Myopia

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ABSTRACT

Myopia, a common refractive error, affects a growing portion of the population globally. While conventional treatments like spectacles and contact lenses offer symptomatic relief, there is a growing interest in alternative therapies that may help maintain ocular health and potentially delay myopic progression. This paper presents a conceptual study exploring the add-on effect of Guduchyadi Rasakriya Anjana, a classical Ayurvedic ophthalmic preparation, in managing simple myopia. Drawing upon Ayurvedic principles, pharmacodynamics of the ingredients, and supportive evidence from allied ophthalmic disorders, the paper proposes a hypothesis and outlines a potential research methodology.

KEYWORDS: Ayurveda, Shalakyata, Guduchi, Rasakriya, Anjana, Simple Myopia

INTRODUCTION

Simple myopia is a type of refractive error characterized by the inability of the eye to focus distant objects clearly. With increasing screen time, near work, and environmental stressors, the prevalence of myopia is rising at an alarming rate. Modern management strategies primarily include corrective lenses and refractive surgeries. However, these methods do not address the underlying ocular stress or promote ocular health holistically.

According to epidemiological projections by the World Health Organization (WHO), nearly 50% of the global population is expected to be affected by myopia by the year 2050. This alarming trend necessitates preventive and therapeutic strategies that extend beyond conventional optical correction.

In Ayurveda—the condition resembling early-stage myopia can be conceptually aligned with Timira, particularly in its initial manifestation where the vitiation of Vata and Pitta doshas affects the visual apparatus without any gross structural degeneration. Timira, in its early stages, is considered a manageable and potentially reversible condition when addressed promptly through an integrated regimen involving Ahara (dietary regulation), Vihara (lifestyle modifications), Netra Kriya Kalpa (ocular therapeutic procedures), and internal medication.

Among the therapeutic modalities, Guduchyadi Rasakriya stands out as a classical polyherbal formulation described in various Ayurvedic texts. It is known for its Rasayana (rejuvenative), Chakshushya (eye-strengthening), and Tridosha-shamana (dosha-pacifying) properties. The formulation comprises herbs like Guduchi (*Tinospora cordifolia*), Saindhava, Madhu—each renowned for their antioxidant, neuroprotective, and vision-enhancing effects.

This conceptual paper aims to explore the theoretical and practical rationale for incorporating Guduchyadi Rasakriya as an adjuvant therapy in the holistic management of simple myopia.

MYOPIA

1. Definition

Myopia, or near-sightedness, is a type of refractive error in which parallel light rays entering the eye come to focus in front of the retina when the eye is in a relaxed (non-accommodative) state, resulting in blurred distance vision.

2. Classification

Myopia can be classified based on its severity and underlying cause:

• By Degree:

- Low Myopia: Less than -3.00 diopters (D)
- Moderate Myopia: Between -3.00 D and -6.00 D
- High Myopia: Greater than -6.00 D

• By Type:

- Simple Myopia: The most common form, resulting from a mismatch between the eye's axial length and its refractive power.
- Pathological (Degenerative) Myopia: A progressive form associated with degenerative changes in the retina, choroid, and sclera.
- Pseudo-Myopia: Caused by accommodative spasm; temporary and reversible.

3. Etiology and Risk Factors

Myopia arises from a combination of genetic predisposition and environmental factors:

- **Genetic:** Children with myopic parents have an increased risk.
- **Environmental:**
 - Prolonged near work (e.g., reading, screen time)
 - Inadequate outdoor activity
 - Poor visual habits
- **Anatomical:** Primarily due to elongation of the eyeball (axial length) or changes in the curvature of the cornea or lens.

4. Pathophysiology

Myopia results from a disruption in emmetropization—the process that guides normal eye growth to achieve accurate retinal focus. In myopia, either the eye grows too long or the refractive power of the cornea/lens is excessive for the axial length.

Characteristic changes include:

- Elongated axial length
- Retinal and choroidal thinning
- Scleral weakening and remodeling

5. Clinical Features

Common symptoms include:

- Blurred vision for distant objects
- Eyestrain or headaches, especially with distance viewing
- Squinting to improve clarity

6. Diagnosis

Diagnostic evaluation involves:

- Visual acuity assessment
- Refraction testing (objective and subjective)
- Measurement of axial length (optical biometry)
- Retinal examination to identify any degenerative changes

7. Management

Treatment options include:

- **Optical Correction:** Spectacles or contact lenses
- **Medications:** Low-dose atropine eye drops to slow progression
- **Surgical Interventions:** LASIK, PRK, or intraocular lens implantation
- **Myopia Control Strategies:**
 - Orthokeratology (overnight corneal reshaping lenses)
 - Promoting outdoor activity

- Limiting screen time and near work

8. Complications

Advanced or progressive myopia can lead to severe complications, such as:

- Retinal detachment
- Myopic macular degeneration
- Glaucoma
- Early-onset cataract

Timira –

1. Definition:

Timira is a progressive eye disorder described in Ayurveda, characterized by visual disturbances. It initially presents as dimness or blurring of vision and can gradually lead to complete loss of sight if not treated appropriately.

2. Etymology:

The term Timira is derived from the Sanskrit root “Tam,” meaning darkness. It refers to a condition where a person experiences darkness or blurred vision despite open eyes.

3. Nidana (Etiology / Causative Factors):

Timira is primarily a result of dosha imbalance (Vata, Pitta, Kapha), especially when Vata aggravates and invades the visual pathway. Contributing factors include:

- Excessive eye strain
- Suppression of natural urges
- Intake of dry, cold, or incompatible foods
- Night watching and lack of sleep
- Mental stress and fatigue

4. Samprapti (Pathogenesis):

According to Ayurveda, the disease begins when vitiated doshas, especially Vata and Pitta enter and affect the **first and second Patala** (layers) of the eye. This interferes with the normal visual function, leading to blurring or dimness of vision. In later stages, other doshas may get involved, leading to degeneration of deeper ocular tissues.

5. Rupa (Clinical Features):

Symptoms of Timira vary based on the stage and dosha involvement:

- Blurred or cloudy vision
- Difficulty in seeing distant or near objects
- Appearance of black spots, flashes, or darkness
- Diplopia (double vision)
- Progressive loss of vision

6. Stages of Timira (as per Patala involvement):

Ayurveda classifies Timira into four stages based on the affected Patala (anatomical layers of the eye):

- **1st & 2nd Patala:** Early stages with functional vision disturbances (similar to refractive errors like myopia/hypermetropia).
- **3rd & 4th Patala:** Deeper involvement leading to organic changes and potential blindness (comparable to retinal or optic nerve pathologies).

7. Sadhya-Asadhyata (Prognosis):

- Timira affecting the first two patalas is considered Sadhya (curable with proper treatment).
- Involvement of the deeper two patalas is often Krichra Sadhya or Asadhya (difficult or incurable), depending on the degree of damage.

8. Management (Chikitsa):

- Treatment is based on the stage, dosha involvement, and general health of the patient. It includes:
- **Shodhana** (Purification therapies): Nasya (nasal therapy), Virechana (purgation), and Basti (medicated enema).

- **Shamana** (Palliative treatments):
- Use of Rasayana dravyas like Triphala, Yashtimadhu, Guduchi
- Ghrita preparations such as Triphala Ghrita, Jeevaniya Ghrita
- Nasya Karma with medicated oils like Anu Taila
- Anjana karma

Rasayana and Chakshushya Herbs:

Yashtimadhu, Guduchi, Madhu, Triphala

GUDUCHYADI RASAKRIYA ANJANA

GUDUCHI:

- Scientific name: *Tinospora cordifolia*
- Family: Menispermaceae
- Doshaghata: Tridoshaghna, Rasayana

Pharmacodynamics	Guduchi
Rasa	Katu - Tikta - Kashay
Guna	Laghu
Veerya	Ushna
Vipaka	Madhur
Karma	Mitigates Tridosha, Rasayana

Guduchi (*Tinospora cordifolia*), also known as Amrita or Giloy, is a well-known medicinal plant in Ayurveda. Its therapeutic potential is attributed to a wide range of chemical constituents, mainly found in its stem, leaves, and roots.

Major Chemical Constituents of Guduchi are -

1. Alkaloids - These compounds exhibit anti-inflammatory, antipyretic, and antimicrobial activities.
2. Diterpenoid Lactones - Known for immunomodulatory and hepatoprotective actions.
3. Glycosides - These contribute to antioxidant and adaptogenic effects.
4. Steroids - Show anti-inflammatory and lipid-lowering activity.
5. Phenolics & Flavonoids - Provide antioxidant, anti-diabetic, and anti-aging benefits.
6. Polysaccharides - Known for immunostimulant effects.

MADHU:

- Scientific name: Mel (*Apis mellifera*)
- Doshaghata: Kapha-Pittaghna, Netrya

Pharmacodynamics	Madhu
Rasa	Kashaya
Guna	Ruksha
Veerya	Sheeta
Vipaka	Madhur
Karma	Mitigates Kapha-Pitta, Netrya

Honey is a natural sweet substance produced by bees (*Apis mellifera*) from the nectar of flowers. It contains a wide variety of chemical constituents that contribute to its nutritional, medicinal, and antimicrobial properties.

Major Chemical Constituents of Honey are -

1. Sugars (Approx. 95-99% of dry matter) - Provide energy and contribute to viscosity and sweetness.
2. Water - Influences shelf life and microbial stability.
3. Organic Acids - Contribute to the acidic pH (3.4-6.1) and antimicrobial activity.
4. Proteins and Enzymes - Responsible for bioactivity and preservation.
5. Amino Acids - Proline (most abundant), Tyrosine, Phenylalanine, Glutamic acid, Aspartic acid Proline is used as a marker for honey maturity and authenticity.
6. Vitamins - Present in trace amounts; contribute to antioxidant properties.

7. Minerals - Potassium (most abundant), Calcium, Magnesium, Sodium, Iron, Zinc, Phosphorus, Manganese

8. Support nutritional and healing properties.

9. Phenolic Compounds and Flavonoids - Act as antioxidants, anti-inflammatory, and antimicrobial agents.

10. Other Components

Hydroxymethylfurfural (HMF) – Indicator of honey freshness/heat

Aromatic compounds – Give honey its characteristic flavor

Pollen grains – Help identify botanical and geographical origin

SAINDHAVA:

- Common name: Rock Salt
- Doshaghata: Tridoshaghna, Netrya

Pharmacodynamis	Saindhava
Rasa	Lavana
Guna	Snigdha
Veerya	Ushna
Vipaka	Madhur
Karma	Mitigates Tridosha, Netrya

Saindhava as

also known Saindhava

Lavana, is commonly referred to as Rock Salt or Himalayan Pink Salt in English. It is one of the five salts (pañca lavaṇa) described in Ayurveda and is considered the most sattvic (pure) among them.

Chemical Constituents of Saindhav (Rock Salt) are -

1. Major Components

- Sodium chloride (NaCl) → 95-98% - Main salt component responsible for its salty taste.
- Trace Minerals (Vary by origin and purity) - These contribute to its pink color, therapeutic value, and mineral richness:

Element	Form	Function
Potassium (K)	KCl	Supports nerve & muscle function
Calcium (Ca)	CaCO ₃ or CaSO ₄	Bone health, electrolyte balance
Magnesium (Mg)	MgCl ₂ or MgSO ₄	Muscle function, anti-inflammatory
Iron (Fe)	Fe ₂ O ₃	Gives pink color, combats anemia
Zinc (Zn)	ZnO or ZnCl ₂	Immune support
Copper (Cu)	CuO	Antioxidant properties
Iodine (I)	(Trace levels)	Supports thyroid function (not always sufficient)
Sulphates (SO ₄ ²⁻)	CaSO ₄ , MgSO ₄	Detoxifying and laxative effects

Ayurvedic Properties - Believed to improve digestion, pacify Vata and Kapha, and enhance taste perception without causing burning or aggravation like common salt.

DISCUSSION:

From an Ayurvedic perspective, the therapeutic effects of Guduchyadi Rasakriya Anjana may be attributed to -

- **Rasa - Kashaya - tikta - katu - lavana** rasa help in tridosha shaman.
- **Virya- Ushna virya** helps in balancing vata and kapha and thus reducing srotorodha.
- **Vipaka - Madhur Vipaka** helps in balancing Vatapitta.
- **Karma and Prabhava - Rasayana** action of Guduchi, Chakshushya Prabhava of saindhava and lavana help in rejuvenation of eyes.

Considering the collective attributes of Rasa (taste), Virya (potency), Vipaka (post-digestive effect), Karma (action), and Prabhava (specific action) inherent in the constituents of Guduchyadi Rasakriya Anjana, the formulation primarily exhibits a Tridosha Shamak and Chakshushya effect. This means it effectively

pacifies the imbalances of Vata, Pitta and Kapha doshas, thereby promoting overall doshic equilibrium and eye health.

The signs & symptoms of Simple Myopia are found can be correlated with Timira.

Anjana therapy may work through several mechanisms:

1. **Chakshushya (Vision-Enhancing) Properties:** The herbal components in Anjana formulation, such as Guduchi, Saindhava, Honey are known for their vision-enhancing properties. These ingredients nourish and strengthen ocular tissues, potentially improving visual acuity.
2. **Lekhana (Scraping) Action:** Certain Anjana formulations possess a scraping action that helps in removing accumulated Kapha-related obstructions in the ocular channels, thereby restoring clarity of vision.
3. **Anti-inflammatory and Antioxidant Effects:** Oxidative stress contributes to retinal fatigue, accommodation strain, and early scleral elongation by damaging ocular cells. Anjana formulation enriched with natural antioxidants help neutralize free radicals, protecting eye tissues and supporting visual health.

CONCLUSION:

The present study essentially aims to evaluate the effectiveness of Guduchyadi Rasakriya Anjana in the management of simple myopia.

The conceptual exploration of Guduchyadi Rasakriya Anjana as an adjunctive therapy in simple myopia (Prathama Patalagata Timira) highlights its potential efficacy in enhancing visual acuity and alleviating associated symptoms.

The formulation's Chakshushya and Rasayana Karma and antioxidant and anti-inflammatory properties may contribute to reducing oxidative stress and inflammation in ocular tissues, thereby addressing key factors involved in the progression of myopia. Moreover, the Rasakriya form of Anjana facilitates effective ocular absorption, enhancing its therapeutic action.

These findings underscore the promise of Guduchyadi Rasakriya Anjana as a complementary approach in the management of simple myopia.

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