

A CRITICAL REVIEW OF MAHALUNG SWARASA (CITRUS MEDICA LINN.) IN KAPHAJA KARNASHOOLA WITH SPECIAL REFERENCE TO OTITIS EXTERNA

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❖ ABSTRACT

Karnashoola is one of the common disorders of ear described under *Karnaroga* in *Ayurveda*. Depending upon *Dosha* predominance, *Karnashoola* is classified into *Vataja*, *Pittaja* and *Kaphaja* types. *Kaphaja Karnashoola* is characterized by earache associated with heaviness, itching, swelling and ear discharge due to aggravated *Kapha Dosha*. *Acharya Vagbhata* has advocated the use of *Bijapura (Mahalung) Swarasa* in *Kaphaja Karnashoola* in *Uttarasthan*. *Bijapura* possesses *Ushna*, *Tikshna*, *Kapha-Vatahara* and *Shoolahara* properties which help in reducing *Kapha* obstruction and relieving pain. Modern pharmacological studies on *Citrus medica* Linn. have demonstrated anti-inflammatory, antimicrobial and antioxidant activities. These findings provide scientific support for its traditional use. The present review critically evaluates the *Ayurvedic* rationale and contemporary pharmacological evidence supporting the role of *Mahalung Swarasa* in *Kaphaja*

Karnashoola with special reference to Otitis Externa.

KEYWORDS: *Kaphaja Karnashoola, Mahalung Swarasa, Citrus medica* Linn., *Bijapura, Otitis Externa, Karnaroga, Ayurveda.*

❖ INTRODUCTION

Disorders affecting the external ear significantly influence an individual's quality of life because the auditory apparatus possesses highly sensitive neural innervation and a delicate anatomical structure.^[1] In *Ayurvedic* literature, *Acharya Sushruta* and *Acharya Vagbhata* have described *Karnashoola* in detail and classified it according to the predominance of the vitiated *Doshas*.^[2,3] Among these, *Kaphaja Karnashoola* develops when aggravated *Kapha Dosh* in association with *Vata Dosh* obstructs the *Karnasrotas*, producing symptoms such as heaviness of the ear, itching, swelling, a feeling of blockage and mild persistent pain.^[4]

Modern medical science describes Otitis Externa as an inflammatory condition affecting the epithelial lining of the external auditory canal. The disorder is frequently associated with prolonged moisture exposure, minor trauma to the canal or alteration of its naturally acidic pH, which can create favourable conditions for the proliferation of pathogenic microorganisms, particularly *Pseudomonas aeruginosa* and *Staphylococcus aureus*.^[5]

Patients generally present with otalgia, pruritus, oedema, aural fullness and ear discharge, features that closely resemble the clinical manifestations described for *Kaphaja Karnashoola* in *Ayurveda*.^[6]

Although topical antibiotic and corticosteroid ear preparations remain the standard treatment for Otitis Externa, their prolonged or repeated use may be associated with adverse effects including contact hypersensitivity, antimicrobial resistance and disease recurrence. These concerns have encouraged interest in safe and effective *Ayurvedic* topical therapies. *Mahalung Swarasa* (*Citrus medica* Linn. fruit juice) has been recommended in classical *Ayurvedic* texts for *Karna Purana* (*Karna Bindu*) owing to its therapeutic properties.^[7]

The present review aims to evaluate the traditional *Ayurvedic* rationale of *Mahalung Swarasa* together with available pharmacological evidence supporting its potential role in the management of inflammation of the external auditory canal.

❖ AIMS AND OBJECTIVES

➤ Aim

To critically review the therapeutic role of *Mahalung Swarasa* (*Citrus medica* Linn.) in the management of *Kaphaja Karnashoola* with special reference to Otitis Externa based on classical *Ayurvedic* literature and contemporary scientific evidence.

➤ Objectives

1. To review the concept of *Kaphaja Karnashoola* as described in the *Ayurvedic* classics.
2. To study the *Dravyaguna* properties of *Mahalung (Bijapura)* with reference to its *Rasapanchaka* and therapeutic actions.
3. To analyze the therapeutic role of *Mahalung Swarasa* in the management of *Kaphaja Karnashoola*.
4. To correlate the clinical features of *Kaphaja Karnashoola* with Otitis Externa.
5. To explain the probable mode of action of *Mahalung Swarasa* based on *Ayurvedic* principles and modern pharmacological evidence.

❖ MATERIALS AND METHODS

The present study is a narrative literary review based on both classical *Ayurvedic* literature and contemporary scientific publications. The *Ayurvedic* review was carried out using authentic classical texts, including *Ashtanga Hridaya*, *Charaka Samhita*, *Sushruta Samhita*, *Bhavaprakasha Nighantu*, *Sharangadhara Samhita* and standard *Dravyaguna Vigyana* textbooks. Relevant commentaries, such as *Sarvangasundara* by *Arunadatta* and *Ayurveda Rasayana* by *Hemadri*, were also consulted wherever applicable.

The modern scientific review was conducted using published research articles, review papers, pharmacological studies and standard ENT textbooks. Relevant literature pertaining to *Citrus medica* Linn., its phytochemical constituents, pharmacological activities and the clinical aspects of Otitis Externa was collected from indexed scientific databases including PubMed, Google Scholar, Scopus and other peer-reviewed sources.

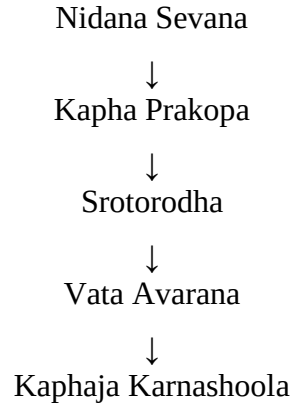
The collected information was critically analyzed and systematically correlated with the *Ayurvedic* concepts of *Kaphaja Karnashoola* to evaluate the probable therapeutic role and mechanism of action of *Mahalung Swarasa*.

❖ KAPHAJA KARNASHOOLA^[2,4]

Excessive consumption of *Guru*, *Snigdha*, *Sheeta* and *Abhishyandi Ahara*, along with a sedentary lifestyle, lack of physical activity and *Divaswapna* (daytime sleep) leads to the

aggravation of *Kapha Dosha*. The aggravated *Kapha* obstructs the normal functioning of the *Srotas* resulting in *Vata Avarana* and the development of *Kaphaja Karnashoola*.

➤ **Samprapti**



➤ **Lakshana**

- *Karnashoola* – Ear pain
- *Gaurava* – Heaviness in the ear
- *Kandu* – Itching
- *Shotha* – Swelling
- *Kapha Srava* – Mucoid or purulent ear discharge
- *Mandaruja* – Mild to dull aching pain

❖ **CLASSICAL REFERENCE**

Acharya Vagbhata has described the local administration of *Bijapura (Mahalung) Swarasa* in the management of *Kaphaja Karnashoola* in the *Karnaroga Adhyaya* of *Ashtanga Hridaya (Uttarasthan, Chapter 18)*.

➤ **Sanskrit Verse^[8]**

रसेन बीजपूरस्य कपित्थस्य च पूरयेत् ।

सूक्तेन पूरयित्वा वा फेनेनान्वचूर्णयेत् ॥

➤ **Meaning**

The affected ear should be filled (*Karnapoorana*) with the fresh juice (*Swarasa*) of *Bijapura (Mahalung)* or *Kapittha*. Alternatively, medicated *Sukta* (fermented preparation) or medicinal

foam along with appropriate medicinal powder may be used according to the clinical condition.

➤ Clinical Significance

This classical reference highlights the importance of *Mahalung Swarasa* as a local therapeutic measure (*Karnapoorana*) for *Kaphaja Karnashoola*. Owing to its *Ushna*, *Tikshna*, *Kapha-Vatahara* and *Shoolahara* properties, it is believed to relieve pain, reduce *Kapha*-induced obstruction and improve the condition of the affected ear. This classical indication forms the *Ayurvedic* basis for evaluating the therapeutic potential of *Citrus medica* Linn. in conditions resembling Otitis Externa.

❖ REVIEW OF MAHALUNG

Matulunga (commonly known as *Mahalung* in Marathi and Hindi) is an important medicinal fruit extensively documented in classical *Nighantus* such as *Bhavaprakasha Nighantu*, *Dhanvantari Nighantu* and *Raja Nighantu* for its *Deepana*, *Pachana*, *Sroto-shodhaka* and *Shoolahara* properties.^[9]

Table 1: Pharmacodynamic Attributes (*Rasa-Panchaka*) of *Mahalung* (*Citrus medica* Linn).^[9,10]

Parameter	Classical Property / Attribute
Botanical Name	<i>Citrus medica</i> Linn.
Family	Rutaceae
Vernacular Name	Mahalung, Bijapura, Citron
Rasa (Taste)	<i>Amla</i> (Sour), <i>Madhura</i> (Sweet - mature fruit)
Guna (Qualities)	<i>Laghu</i> (Light), <i>Snigdha</i> (Unctuous), <i>Tikshna</i> (Penetrating)
Veerya (Potency)	<i>Ushna</i> (Warm)
Vipaka (Post-digestive)	<i>Amla</i> (Sour)
Karma (Action)	<i>Kapha-Vata Shamaka</i> , <i>Sroto-shodhaka</i> , <i>Shoolahara</i>

❖ MODERN PHARMACOLOGICAL PROFILE

Table 2: Major phytoconstituents of *Citrus medica* Linn. and their pharmacological significance.

Phytoconstituent	Pharmacological Significance
Flavonoids	Potent antioxidant and anti-inflammatory activity ^[11,12]
Hesperidin	Antioxidant, anti-inflammatory and vasoprotective effects. ^[12,13]
Limonene	Antimicrobial, anti-inflammatory and analgesic properties. ^[12,13]
Citral	Antibacterial, antifungal and antioxidant activity. ^[12,13]

Essential Oils	Broad-spectrum antimicrobial and anti-inflammatory effects. ^[12,13]
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➤ Reported Pharmacological Activities

- **Anti-inflammatory:**^[11,12] Reduces inflammatory mediators and tissue edema.
- **Antibacterial:**^[11,12,13] Inhibits the growth of pathogenic microorganisms associated with ear infections.
- **Antioxidant:**^[11,12] Neutralizes free radicals and protects tissues from oxidative damage.
- **Analgesic:**^[11,13] Helps in relieving pain associated with inflammatory conditions.
- **Immunomodulatory:**^[11,13] Enhances the body's immune response and supports tissue healing.

❖ MODERN CORRELATION WITH OTITIS EXTERNA

Kaphaja Karnashoola shares several clinical features with Otitis Externa, an inflammatory condition of the external auditory canal. The similarity in their clinical presentation suggests a possible correlation between the two conditions, although they are not identical disease entities.

Table 3: Clinical Comparison between *Kaphaja Karnashoola* and Otitis Externa.^[4,6]

Symptom / Feature	Kaphaja Karnashoola	Otitis Externa
Primary Pain	<i>Manda Ruk</i> (Dull, heavy ear pain)	Otalgia (exacerbated by movement of tragus/pinna)
Itching	<i>Kandu</i> (Prominent feature)	Pruritus in external auditory canal
Edema / Congestion	<i>Shotha / Stambha</i>	Canal erythema & lumen narrowing
Discharge	<i>Kaphaja Srava</i> (Thick, whitish/clear)	Otorrhea (serous, purulent, or mucoid)
Sensation	<i>Gaurava</i> (Heaviness in ear & head)	Sensation of fullness or ear blockage

❖ MODE OF ACTION & THERAPEUTIC RATIONALE

When *Mahalung Swarasa* is administered as *Karna Purana* or drop-wise instillation (*Karna Bindu*), it acts via both classical Ayurvedic dynamics and physiological mechanisms.

➤ Ayurvedic Perspective (*Samprapti Bhanga*)

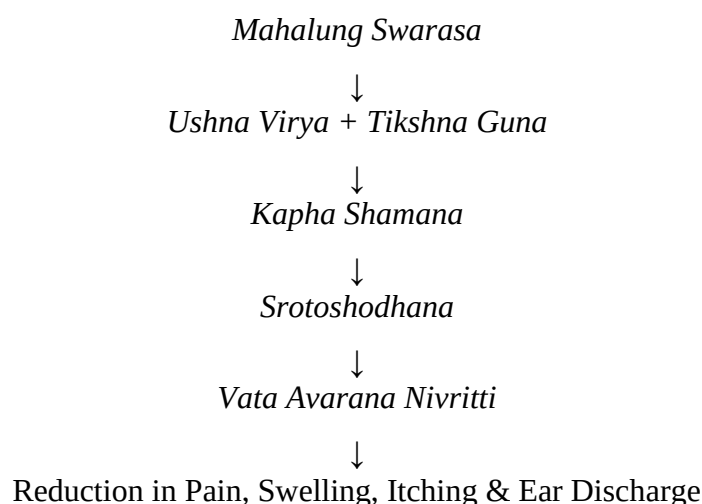
- **Pacification of Kapha:** The *Ushna Veerya* and *Tikshna Guna* of *Mahalung* directly counteract the *Sheeta* (cold), *Guru* (heavy) and *Manda* (dull) properties of vitiated *Kapha*.^[9]

- **Relief of Pain (*Shoolahara*):** The predominant *Amla Rasa* and *Ushna Veerya* pacify localized *Vata*, relieving canal spasm, tightness, and earache.^[10]
- **Clearing Channels (*Srotoshodhana*):** The penetrating (*Tikshna*) quality liquefies stagnant exudates and earwax, restoring normal canal aeration.^[4]

➤ **Modern Pharmacological Perspective**

- **Acidification of the external auditory canal:** The healthy human external auditory canal maintains an acidic pH (5.0–5.7), which serves as an innate defense mechanism against bacterial and fungal proliferation.^[14] Moisture or debris increases canal pH, predisposing it to infection. *Mahalung Swarasa* contains high levels of citric acid (pH ~2.2–3.0), which rapidly re-acidifies the canal, creating an unfavorable microenvironment for pathogens such as *Pseudomonas aeruginosa* and *Candida species*.^[11,12]
- **Anti-inflammatory action:** Flavonoids present in *Citrus medica* Linn, including hesperidin and naringin, suppress pro-inflammatory pathways (COX-2, TNF- α), thereby reducing canal wall erythema and mucosal swelling.^[11,12]
- **Analgesic & local anesthetic effects:** Essential oil components such as limonene exhibit analgesic and anti-inflammatory properties by modulating peripheral nociceptive pathways.^[11-13]
- **Biofilm disruption:** Citric acid acts as a chelating agent that may disrupt bacterial biofilms and reduce microbial adherence, thereby supporting the management of persistent external ear infections.^[15]

➤ **Proposed Mechanism of Action**



❖ **CLINICAL APPLICATION GUIDELINES**

- **Formulation:** Freshly extracted *Mahalung Swarasa*, filtered through a sterile muslin cloth to remove solid plant debris.
- **Method of Administration:** Local ear instillation (*Karna Bindu / Karna Purana*).
- **Posology:** Generally administered as 2–4 lukewarm drops in the affected ear under clinical supervision.
- **Duration:** May be continued for a short duration depending on the clinical response and the integrity of the tympanic membrane.

➤ **Contraindications and Precautions**

- **Tympanic Membrane Perforation:** Acidic drops are strictly contraindicated in cases of perforated eardrum to prevent middle ear mucosal irritation.^[5]
- **Acute Suppurative Otitis Media (ASOM):** Must be avoided in middle ear suppurative conditions.
- **Otoscopic Verification:** Drum integrity should be confirmed via otoscopy prior to initiating treatment.

❖ **DISCUSSION**

Kaphaja Karnashoola is a *Kapha*-predominant disorder in which aggravated *Kapha Dosha* causes *Srotorodha* (obstruction of channels) leading to the secondary involvement (*Avarana*) of *Vata Dosha*. This pathogenesis manifests clinically as ear pain (*Karnashoola*), heaviness (*Gaurava*), itching (*Kandu*), swelling (*Shotha*) and ear discharge (*Kapha Srava*). These clinical features closely resemble those observed in Otitis Externa, an inflammatory disorder of the external auditory canal.

Acharya Vagbhata has specifically recommended the local application (*Karnapoorana*) of *Mahalung Swarasa* (*Citrus medica* Linn.) in the management of *Kaphaja Karnashoola*. According to the principles of *Dravyaguna*, *Mahalung* possesses *Amla Rasa*, *Laghu* and *Tikshna Guna*, *Ushna Virya* and *Amla Vipaka* which collectively exhibit *Kapha-Vatahara*, *Shoolahara*, *Deepana*, *Pachana* and *Srotoshodhaka* actions. These properties help alleviate *Kapha*-induced obstruction restore the normal movement of *Vata*, and relieve the symptoms associated with the disease.

Modern studies show that *Citrus medica* Linn. contains several active plant compounds including flavonoids, hesperidin, limonene, citral and essential oils. These compounds are known to reduce inflammation, fight microbes, protect tissues from oxidative stress, relieve

pain and support the body's immune response. Therefore, they may be useful in reducing swelling, infection and pain in inflammatory conditions of the external ear canal.

The local administration of *Mahalung Swarasa* enables direct action on the affected tissues, which may enhance its therapeutic efficacy by reducing edema, controlling infection and promoting symptomatic relief. This dual explanation, based on *Ayurvedic* principles and modern pharmacological evidence, provides a rational basis for the traditional use of *Mahalung Swarasa* in *Kaphaja Karnashoola*.

However, the available evidence is predominantly derived from classical *Ayurvedic* literature and experimental pharmacological studies. Well-designed preclinical investigations and randomized controlled clinical trials are required to establish the safety, efficacy, optimal dosage and standardization of *Mahalung Swarasa* in the management of *Kaphaja Karnashoola* and clinically comparable conditions such as Otitis Externa.

❖ CONCLUSION

Mahalung Swarasa (*Citrus medica* Linn.) as described by *Acharya Vagbhata* in the management of *Kaphaja Karnashoola* represents an important *Ayurvedic* local therapeutic intervention (*Karnapoorana*). Its *Ushna Virya*, *Tikshna Guna*, *Kapha-Vatahara* and *Shoolahara* properties provide a rational *Ayurvedic* basis for alleviating *Kapha*-induced obstruction, relieving pain and reducing the associated symptoms of the disease.

Contemporary pharmacological studies have demonstrated that *Citrus medica* Linn. possesses anti-inflammatory, antimicrobial, antioxidant and analgesic activities, which support its traditional therapeutic use in inflammatory conditions resembling Otitis Externa. The integration of classical *Ayurvedic* concepts with modern scientific evidence suggests that *Mahalung Swarasa* may serve as a promising local therapeutic option for the management of *Kaphaja Karnashoola*.

However, the current evidence is primarily based on classical literature and experimental studies. Therefore, further preclinical studies, formulation standardization and well-designed randomized controlled clinical trials are required to establish the safety and efficacy of *Mahalung Swarasa* for routine clinical use.

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