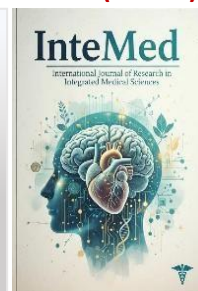




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Review Article

A Review of *Mustadi Yoga* in the Management of *KrutrimaVisha* (Artificial Poisoning):

A Classical Ayurvedic Drug Review

**Dr Sheetal Prakash Mirajkar
(Koparde),**

Ph.D. Scholar, HOD and
Associate Professor
,Department of Agadtantra,
Government Ayurved College,
Dharashiv,
drkopardesheetal@gmail.com

Dr Vishnu P. Joglekar,
²PhD. Guide, Ex. HOD and
Professor,
Department of Agadtantra,
Tilak Ayurved
Mahavidyalaya.
Pune,
joglekar.vp@gmail.com

Dr Pravin K. Koparde.
Associate Professor.
Department of Rasashastra,
Government
Ayurved College,
Dharashiv,
drkoparde@gmail.com

ABSTRACT

Background: *Krutrima Visha* (artificial or concocted poison) is described in *Ayurveda* as a toxic substance prepared by combining different poisonous and non-poisonous materials. *Mustadi Yoga*, described in *Bharat Bhaishajya Ratnavali* Part IV, is a simple but potent formulation indicated for the rapid management of severe artificial poisoning. It consists of *Musta* (*Cyperus rotundus*), *Tandulodaka* (rice-wash water), and *Ghrita* (ghee).

Objective: To review the classical references, pharmacological properties, probable mode of action, and therapeutic significance of *MustadiYoga* in the management of *KrutrimaVisha*.

Methods: A narrative review was conducted using classical Ayurvedic texts, published literature, pharmacognostic studies, and contemporary scientific evidence on the ingredients of *MustadiYoga*.

Results: *Musta* possesses *Deepana*, *Pachana*, *Vishaghna*, *Tridosha-shamaka*, and antioxidant activities. *Tandulodaka* acts as an *Anupana*, enhancing drug absorption while maintaining hydration. *Ghrita* serves as a *Yogavahi*, facilitating drug delivery, reducing toxicity, and protecting body tissues. Together, these ingredients provide

detoxifying, anti-inflammatory, antioxidant, gastroprotective, and hepatoprotective effects that support the management of artificial poisoning.

Conclusion: *Mustadi Yoga* represents a classical Ayurvedic antidotal formulation with promising therapeutic potential in *KrutrimaVisha*. Although traditional evidence strongly supports its use, systematic experimental and clinical studies are needed to establish its efficacy and safety according to modern scientific standards.

Keywords: *MustadiYoga*, *KrutrimaVisha*, *Artificial Poisoning*, *Ayurveda*, *Cyperus rotundus*, *Vishaghna*, *BharatBhaishajyaRatnavali*

Introduction

Ayurveda describes *Visha* (poison) [1] as a substance capable of producing severe disturbances in the normal physiological functions of the body. Among the various types of poisons, *KrutrimaVisha* refers to artificial or compounded poisons prepared by mixing poisonous and non-poisonous substances. Such poisons often exhibit delayed or unpredictable toxic manifestations and require immediate intervention.

Ancient Ayurvedic scholars have emphasized the importance of early administration of *Vishaghna*

formulations. One such formulation is *MustadiYoga*, described in *BharatBhaishajyaRatnavali* Part IV, [2] specifically for the management of rapidly progressing *KrutrimaVisha*.

The classical reference states: The finely triturated root of *Ambudhara* (*Musta*), [3] prepared with *Tandulodaka* (rice-wash water) [4] [5] and mixed with *Ghrita* (ghee), [6] when administered orally, rapidly neutralizes severe artificial poison.

Although the formulation contains only three ingredients, each possesses unique pharmacological attributes that collectively contribute to detoxification and restoration of physiological balance.

Materials and Methods

Study Design - This study is a narrative literature review.

Data Sources - This study aims at critically analyzing the classical concept, treatment approach, pharmacological actions, and likely mechanism of action of *MustadiYoga* for the treatment of *KrutrimaVisha* (poisoning by artificial means). The information was gathered, collated, and analyzed from the classical and scientific literature sources to obtain an all-round view of the medicine.

Raw Ingredients of *MustadiYoga*

- ***Musta* (*Cyperus rotundus* Linn.)** – Root/Rhizome [3]
- ***Tandulodaka*** – Fresh rice-wash water obtained by washing clean rice with potable water [4] [5]
- ***Ghrita*** – Cow's ghee [6]

Procedure for Preparation of *MustadiYoga*[7]

The procedure for preparation was based on the classical reference provided in *Bharat Bhaishajya Ratnavali*. The dried root (rhizome) of *Musta* was processed by cleaning and making it into a fine powder form. The fine powder was made into a paste using fresh *Tandulodaka* (rice-wash water). Later on, sufficient amount of *Ghrita* (cow's ghee) was added to the paste to get the homogenous formulation which could be taken orally.

The relevant information about the classical uses, *Ayurvedic* pharmacology (*Rasa*, *Guna*, *Veerya*, *Vipaka*, and *Karma*), phytochemistry, pharmacology, and therapeutic uses of the herbal drugs used were systematically studied. The collected data were critically analyzed to elucidate the mechanism of action of *MustadiYoga* in *KrutrimaVisha* from both *Ayurvedic* and modern viewpoints.

Results -

Table No. 1 Composition of *MustadiYoga*[7]

Ingredient	Botanical Name	Part Used	Function
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<i>Musta</i>	<i>Cyperus rotundus</i> Linn.	Rhizome/Root	Main antidotal drug
<i>Tandulodaka</i>	Rice-wash water	Liquid medium	Vehicle (Anupana)
<i>Ghrita</i>	Cow ghee	Clarified butter	<i>Yogavahi</i> and detoxifying medium

Table No. 2 *Ayurvedic* Pharmacological Properties of *Musta* (*Cyperus rotundus*) [8]

Property	Description
<i>Rasa</i>	<i>Tikta, Katu, Kashaya</i>
<i>Guna</i>	<i>Laghu, Ruksha</i>
<i>Veerya</i>	<i>Sheeta</i>
<i>Vipaka</i>	<i>Katu</i>
<i>Karma</i>	<i>Deepana, Pachana, Vishaghna, Tridosha Shamaka</i>

Table No. 3 *Ayurvedic* Pharmacological Properties of *Tandulodaka*[9, 10]

Property	Action
Cooling	Reduces burning sensation
Nutritive	Supports hydration
Mild absorbent	Facilitates drug delivery

Table No. 4 *Ayurvedic* Pharmacological Properties of *Ghrita* [11]

Property	Action
<i>Yogavahi</i>	Enhances drug absorption
<i>Rasayana</i>	Tissue nourishment
<i>Vishaghna</i>	Reduces toxicity
<i>Medhya</i>	Neuroprotective

Phytochemical Constituents of *Musta*[12] - Major constituents include: *Cyperene*, *Cyperotundone*, *Rotundone*, *Flavonoids*, *Phenolic compounds*, *Sesquiterpenes*, *Essential oils*, *Tannins*, *Alkaloids*

Table No. 5 Reported Pharmacological Activities of *Musta* [12]

Activity	Scientific Evidence
Antioxidant	Free radical scavenging
Anti-inflammatory	COX inhibition
Hepatoprotective	Prevents liver damage
Gastroprotective	Reduces gastric injury

Antimicrobial	Broad-spectrum activity
Analgesic	Pain reduction
Antipyretic	Fever reduction
Immunomodulatory	Enhances immunity

Probable Mode of Action in *KrutrimaVisha* According to *Ayurveda*

The therapeutic action of *Mustadi Yoga* in the management of *Krutrima Visha* can be understood through its classical Ayurvedic properties and the synergistic action of its ingredients.

- **VishaghnaKarma:** *Musta* is recognized as a *Vishaghna* drug that helps neutralize and eliminate the toxic effects of *KrutrimaVisha*, thereby preventing the progression of systemic toxicity.
- **Deepana and Pachana:** *Musta* stimulates *Agni* (digestive and metabolic fire) and promotes the digestion of *Ama* (metabolic toxins), facilitating the breakdown and elimination of toxic substances from the body.
- **Ghrita for Ojas Protection:** *Ghrita* acts as a *Yogavahi* and *Rasayana*, protecting *Ojas*, nourishing body tissues, and minimizing the harmful effects of toxins on vital organs, particularly the nervous system.
- **Role of Tandulodaka:** *Tandulodaka* serves as an effective *Anupana* (vehicle), facilitating the preparation and administration of the formulation while supporting hydration and improving the assimilation of the active ingredients.
- **TridoshaShamana:** The combined formulation helps pacify the aggravated *Vata*, *Pitta*, and *KaphaDoshas*, restoring physiological balance and promoting recovery from poisoning.

Modern Perspective

Based on the reported pharmacological activities of its individual ingredients, the probable mechanism of action of *MustadiYoga* may involve multiple complementary pathways:

- **Antioxidant activity:** The phytoconstituents of *Cyperus rotundus* scavenge free radicals and reduce oxidative stress induced by toxic substances, thereby protecting cells from damage.
- **Hepatoprotective effects:** *Musta* may protect liver cells and support hepatic detoxification processes, enhancing the metabolism and elimination of toxins.

- **Anti-inflammatory activity:** The formulation may suppress inflammatory mediators, thereby reducing tissue injury and preventing complications associated with poisoning.
- **Gastroprotective action:** *Musta* and *Tandulodaka* may help protect the gastrointestinal mucosa, reduce irritation, and potentially limit further absorption of toxic substances.
- **Neuroprotective role of Ghrita:** *Ghrita* possesses antioxidant and nourishing properties that may help protect neural tissues from toxin-induced damage and support normal neurological function.
- **Enhanced bioavailability:** The lipid-rich nature of *Ghrita* may improve the absorption and delivery of lipophilic phytoconstituents, thereby enhancing the overall therapeutic efficacy of the formulation.

Thus, the combined Ayurvedic and modern perspectives suggest that *MustadiYoga* exerts a multifaceted therapeutic effect by promoting detoxification, protecting vital organs, reducing oxidative stress and inflammation, and restoring physiological homeostasis during *KrutrimaVisha*.

Discussion

KrutrimaVisha represents artificially prepared or compounded poisons that can produce severe and rapidly progressing systemic manifestations. According to *Ayurveda*, timely intervention with *Vishaghna* formulations is crucial to prevent the spread of toxins and minimize damage to vital organs. *Bharat Bhaishajya Ratnavali* recommends *MustadiYoga* as an emergency formulation for such conditions, highlighting its ability to rapidly counteract the effects of severe artificial poisoning.

Although the formulation contains only three ingredients, it exemplifies the Ayurvedic principle of synergistic drug action. *Musta* (*Cyperus rotundus*) serves as the principal antidotal herb and is traditionally known for its *Vishaghna*, *Deepana*, *Pachana*, and *TridoshaShamana* properties. Modern pharmacological studies have reported antioxidant, anti-inflammatory, hepatoprotective, antimicrobial, and gastroprotective activities of *Cyperus rotundus*, which may help reduce oxidative stress, protect vital organs, and support detoxification during poisoning. *Ghrita* (ghee) is regarded as an ideal vehicle in *Ayurveda* because of its *Yogavahi* property, which enhances the absorption and therapeutic efficacy of herbal drugs. It is also considered *Rasayana* and *Medhya*, helping to nourish tissues, protect the nervous system, and mitigate the harmful effects of

toxins. Experimental evidence suggests that the lipid-rich nature of ghee may improve the bioavailability of lipophilic phytoconstituents while exerting antioxidant and anti-inflammatory effects.

Tandulodaka (rice-wash water) functions as an appropriate *Anupana* (vehicle) that facilitates the administration of the formulation. It provides hydration, possesses mild demulcent properties, and may help protect the gastrointestinal mucosa. Rice-derived starches and polysaccharides may also contribute to soothing the digestive tract and supporting recovery following toxic exposure.

Overall, the combined action of *Musta*, *Tandulodaka*, and *Ghrita* suggests a multi-targeted approach involving detoxification, reduction of oxidative stress and inflammation, protection of the liver and gastrointestinal tract, and restoration of physiological balance. However, while the therapeutic potential of the individual ingredients has been demonstrated in experimental studies, scientific evidence evaluating the efficacy of *MustadiYoga* as a complete formulation remains limited. Therefore, further pharmacological investigations and well-designed clinical trials are required to validate its traditional claims and establish its role in evidence-based management of poisoning.

Conclusion

MustadiYoga is a classical *Ayurvedic* formulation described in *Bharat Bhaishajya Ratnavali* for the management of *KrutrimaVisha* (artificial poisoning). The combination of *Musta* (*Cyperus rotundus*), *Tandulodaka* (rice-wash water), and *Ghrita* (ghee) reflects the *Ayurvedic* concept of synergistic drug action, where each ingredient contributes to detoxification and restoration of physiological balance. *Musta* acts as the principal *Vishaghna* (antidotal) drug, while *Tandulodaka* serves as an appropriate vehicle and *Ghrita* enhances drug absorption, protects tissues, and supports recovery.

From an *Ayurvedic* perspective, the formulation promotes *Deepana*, *Pachana*, *TridoshaShamana*, and *Ojas* protection, thereby helping to counteract the toxic effects of *KrutrimaVisha*. Modern pharmacological studies on *Cyperus rotundus* also demonstrate antioxidant, anti-inflammatory, hepatoprotective, gastroprotective, and antimicrobial activities, providing scientific support for many of its traditional therapeutic claims. However, these findings are primarily based on studies of the individual ingredient rather than the complete formulation.

Although classical *Ayurvedic* literature strongly recommends *Mustadi Yoga* for severe artificial poisoning, scientific evidence on the

formulation as a whole remains limited. Therefore, further research involving phytochemical standardization, experimental efficacy studies, toxicity evaluation, and well-designed clinical trials is needed to validate its efficacy and safety. Such investigations will help bridge traditional *Ayurvedic* knowledge with modern evidence-based medicine and may establish *Mustadi Yoga* as a promising complementary formulation in the management of toxin-induced disorders.

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