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Guda (Jaggery) *Agnikarma*: A Critical Appraisal of Its Therapeutic Role in Ayurvedic Practice

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Abstract : *Agnikarma*, a para-surgical procedure described in classical Ayurvedic texts such as the *Sushruta Samhita*, is widely indicated in the management of *Vata–Kapha* predominant disorders, particularly where conventional treatments are inadequate. Among the various materials used, *Guda* (jaggery) is uniquely employed for *Mridu Agnikarma* due to its distinct physicochemical and therapeutic properties. This review aims to critically evaluate the role and utility of *Guda* in *Agnikarma* by analyzing classical references and available contemporary evidence. A narrative review was conducted using Ayurvedic texts and modern databases including PubMed and Google Scholar. Classical descriptions highlight *Guda* as possessing *Snigdha*, *Madhura*, and *Sara* qualities, which facilitate controlled heat delivery, uniform thermal distribution, and reduced tissue trauma, thereby enhancing patient comfort and minimizing complications. From a modern perspective, its hygroscopic nature and heat-retaining properties may contribute to sustained localized therapeutic effects such as analgesia and improved tissue healing. Compared to metallic instruments, *Guda* offers a cost-effective, easily accessible, and less invasive alternative; however, challenges such as lack of standardization and limited clinical evidence persist. Thus, *Guda Agnikarma* appears to be a promising modality, warranting further scientific validation and clinical research.

Keywords: *Agnikarma, Tapta Guda, Ayurveda, Dahan, Dahanopaya, Shalya Tantra*

AIM

To critically appraise the therapeutic role, scientific rationale, and clinical applications of *Guda (Jaggery) Agnikarma* in *Ayurvedic* practice through a comprehensive review of classical literature and contemporary evidence.

OBJECTIVES

- To review the classical Ayurvedic references related to *Guda (Jaggery) Agnikarma.*
- To describe the properties (*Rasapanchaka*) and therapeutic significance of *Guda* used in *Agnikarma*.
- To analyze the probable mode of action of *Guda Agnikarma* from both Ayurvedic and modern scientific perspectives.
- To evaluate the reported clinical indications, therapeutic benefits, and limitations of *Guda Agnikarma*.
- To compare *Guda Agnikarma* with other *Agnikarma* materials such as *Panchadhatu Shalaka* and *Rajata Shalaka*, where evidence is available.

INTRODUCTION

Agnikarma is one of the most significant *Anushastra* (para-surgical) processes described in *Ayurveda* and is viewed as the treatment of option for diseases that is challenging to manage with *Bheshaja*, *Kshara Karma*, or *Shastra Karma*, with classical texts stressing its low repetition rate after proper application [(1).] The therapeutic effect of *Agnikarma* is accomplished through controlled thermal cauterization, which alleviates *Vata* and *Kapha* disorders, relieves pain, improves local circulation, eliminates obstruction in the body channels (*Srotas*), and encourages tissue healing [(2)]. Among the assorted and manifold materials described for *Agnikarma*, *Guda* (jaggery) occupies a unique place due to its *Madhura Rasa*, *Guru* and *Snigdha Guna*, *Ushna Veerya*, and *Madhura Vipaka*, allowing it to deliver sustained heat while displaying *Vatahara*, *Brimhana*, and wound-healing attributes [(3)]. Compared with traditional metallic cauterization, *Guda Agnikarma* may generate a more controlled and gentler thermal effect, potentially minimize tissue harm while maintaining therapeutic effectiveness. Despite its reference in classical *Ayurvedic* literature, this modality remains inadequately examined in modern and current practice, with limited scientific evidence regarding its indications, standardization, mechanism of action, and clinical results. Modern physiological studies have demonstrated that controlled therapeutic heat enhances microcirculation, modulates pain pathways, stimulates collagen remodeling, and accelerates tissue repair, thereby offering a scientific reasoning for the therapeutic advantages linked to *Agnikarma* [(4)]. Therefore, a crucial appraisal of *Guda* (Jaggery)

Agnikarma is warranted to correlate classical Ayurvedic principles with present-day and recent scientific evidence and to evaluate its potential role in evidence-based Ayurvedic clinical practice.

MATERIALS AND METHODS

A complete and thorough literature search was performed utilizing electronic databases comprising PubMed, Google Scholar, Scopus, AYUSH Research Portal, DHARA (Digital Helpline for Ayurvedic Research Articles), and IndMED. The search plan included combinations of the keywords *Guda Agnikarma*, Jaggery cauterization, *Agnikarma*, *Ayurvedic* heat therapy, Para-surgical processes, and Therapeutic cautery in *Ayurveda* [5,6]. Classical *Ayurvedic* literature, incorporating *Sushruta Samhita, Charaka Samhita, Ashtanga Hridaya,* and *Ashtanga Sangraha*, together with their authoritative commentaries, was examined to identify references related to *Agnikarma*, *Guda* as a *Dahana Upakarana*, indications, contraindications, operative processes, and therapeutic principles [7–10]. The inclusion criteria comprised classical references, initial study articles, review articles, clinical studies, experimental studies, and case reports released in English or Sanskrit tackling *Agnikarma*, *Guda*, or their therapeutic applications. Duplicate articles, conference abstracts without total and whole content, non-relevant studies, and publications lacking sufficient scientific or classical evidence were excluded [11]. Data were extracted under predefined headings, comprising classical references of *Guda Agnikarma, Ayurvedic* characteristics of *Guda*, classes of *Agnikarma*, indications, contraindications, likely systems of action, clinical applications, benefits, limitations, and available scientific evidence. The recovered information was critically analyzed by comparing classical Ayurvedic concepts with contemporary and ongoing scientific evidence to identify therapeutic relevance, strengths, limitations, and future inquiry viewpoints [12].

PROPERTIES OF *GUDA* - [13]

Dahanopakarana	***Rasa***	***Guna***	***Virya***	***Vipaka***	***Prabhava***
Guda	*Madhura*	*Guru, Snigdha*	*Ushna*	*Madhura*	*Vatahara* but increase *Pitta* and *Rakta*

COMPOSITION OF JAGGERY (PER 100GM)[14] -

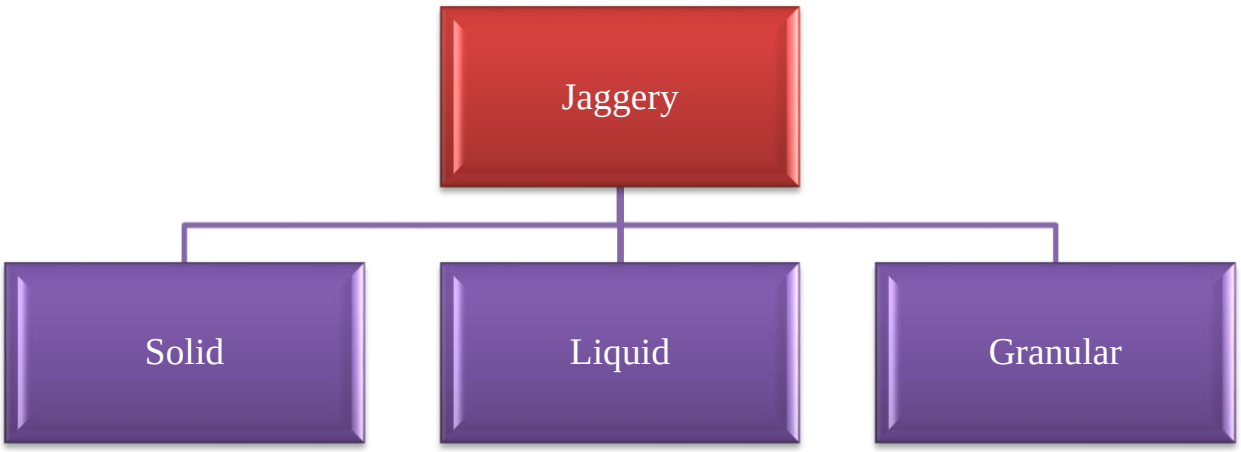
Particulars	**Mineral content of different forms of jaggery**		
	Solid	**Liquid**	**Granular**
Moisture(%)	3 - 10	30 - 35	1 - 2
Reducing sugars(%)	9 - 15	15 - 25	5 - 9
Non - Reducing sugars(%)	65 - 85	40 - 60	80 - 90
Protein(%)	0.4	0.5	0.4
Fat(%)	0.1	0.1	0.1
Total proteins(%)	0.6 - 1	0.75	0.6 - 1
Calorific value(%)	383	300	383

NUTRITIONAL COMPONENTS OF JAGGERY (PER 100GM)[14] -

Components	**Range**
Calcium	40–100 mg
Magnesium	70–90 mg
Potassium	1056 mg
Phosphorus	20–90 mg
Sodium	19–30 mg
Iron	10–13 mg
Manganese	0.2–0.5 mg
Zinc	0.2–0.4 mg
Copper	0.1–0.9 mg
Chloride	5.3 mg

Vitamin A	3.8 mg
Vitamin B1	0.01 mg
Vitamin B2	0.06 mg
Vitamin B5	0.01 mg
Vitamin B6	0.01 mg
Vitamin C	7.00 mg
Vitamin D2	6.50 mg
Vitamin E	111.30 mg
Vitamin PP	7.00 mg
Protein	280 mg
Phenolics	280–320 mg

TYPES OF JAGGERY -



Solid Jaggery

Liquid jaggery

Granular Jaggery

TYPES OF *GUDA* -

1. *Nava Guda*

2. *Purana Guda* - More than 1 year old

PROCEDURE

1. ***Purva Karma***

Patient Preparation

- Explain the procedure and obtain written informed consent.
- Confirm the diagnosis and assess the indication for *Agnikarma*.
- Rule out contraindications (fever, uncontrolled diabetes, bleeding disorders, local skin infection, pregnancy in certain sites, etc.).
- Record baseline assessment (pain score, tenderness, range of motion if applicable).
- Position the patient comfortably according to the affected region.

Materials Required

- Pure jaggery (*Guda*)
- Stainless steel spoon or ladle for melting jaggery
- Spirit lamp/gas burner/electric heater
- Dressing materials
- Antiseptic solution (Povidone-iodine/Chlorhexidine)
- Cooling medium (Aloe vera pulp or *Ghrita* if required)

Local Preparation

- Clean the treatment site with antiseptic solution.
- Allow the skin to dry.
- Mark the *Agnikarma* points if necessary.
- Ensure adequate lighting and maintain aseptic precautions.

2. ***Pradhana Karma***

Preparation of *Tapta Guda*

- Heat purified jaggery in a stainless-steel spoon until it becomes semi-liquid/molten.
- Ensure uniform heating without burning or carbonization.
- The jaggery should attain a therapeutic temperature suitable for controlled cauterization.

Application

- Apply the molten jaggery in small drops over the predetermined painful/tender points.
- Multiple applications may be given according to the lesion size and patient tolerance.
- Allow each application to cool naturally before repeating if required.

3. ***Paschat Karma***

Immediate Care

- Allow the treated area to cool naturally.
- Apply *Ghrita / Shatadhauta Ghrita / Kumari* (Aloe vera) gel, or another suitable soothing agent.

Observation

Assess for:

- Patient comfort
- Colour changes
- Pain response

Patient Advice

- Keep the treated area clean and dry.
- Avoid rubbing or scratching the area.
- Follow dietary advice according to Ayurvedic principles if included in the protocol.
- Report immediately if excessive pain, swelling, discharge, or fever develops.

Follow-up

- Assess pain relief using VAS or another pain scale.
- Record adverse events, if any.
- Repeat *Agnikarma* as per study protocol or clinical indication (e.g., weekly sittings).

THERAPEUTIC BENEFITS

- **Deep Penetration**: Acts as a *Snigdha dravya* (unctuous substance) with a high specific heat capacity, allowing heat to reach deeper structures like *Sira* (vessels), *Snayu* (ligaments/tendons), *Sandhi* (joints), and *Asthi* (bones) more effectively than dry metal rods (*Rooksha Dahanopakarana*)[15].
- **Pain and Spasm Relief**: Instantly pacifies local Vata dosha accumulation to alleviate chronic tendon and joint pain[16].
- **Inflammation Resolution**: Helps resolve localized soft-tissue inflammation and accelerates healing in repetitive strain injuries like computer elbow or tendonitis[17].
- **Improved Mobility**: Restores normal range of movement in stiff joints by relaxing local muscle fibers and nerve endings[18].

RESULT

The present essential appraisal demonstrates that *Guda* (Jaggery) *Agnikarma* is a scientifically plausible and typically confirmed para-surgical modality described in classical *Ayurvedic* literature. Classical texts recognize *Guda* as one of the fitting *Dahana Upakaranas* because of its capability to retain and transmit heat uniformly, making it useful for controlled superficial thermal cauterization [19].

The review indicates that the therapeutic action of *Guda Agnikarma* is primarily linked to:

- Effective *Vata-Kapha shamana* through the *Ushna* (hot), *Tikshna* (penetrating), and *Sukshma* (understated and slight) properties of thermal therapy.
- Relief of pain (*Shoola*), stiffness (*Stambha*), and localized swelling (*Shotha*) by enhancing local circulation and decreasing tissue congestion.
- Stimulation of tissue healing through controlled thermal injury, arising in enhanced blood flow, enhanced metabolism, and accelerated repair systems.
- Minimal repetition in selected persistent musculoskeletal disorders when compared with conservative medical management solely, as reported in various *Agnikarma* studies [20].

The appraisal further indicates that Guda offers various practical advantages over metallic cautery in selected superficial lesions:

- Better adaptability to irregular body surfaces.
- Uniform heat distribution with comparatively controlled burns.
- Easy availability, low cost, and minimal instrumentation requirements.
- Reduced patient apprehension due to its comparatively less intimidating application.

DISCUSSION

Guda (Jaggery) *Agnikarma* is a unique para-surgical procedure in Ayurveda that demonstrates the practical application of controlled thermal therapy through the use of a natural and readily available material. Classical Ayurvedic literature recognizes *Agnikarma* as an effective intervention for disorders predominantly caused by *Vata and Kapha Dosha*, particularly those presenting with pain, stiffness, inflammation, and chronic musculoskeletal involvement. The use of jaggery as a cauterizing medium reflects the Ayurvedic principle of selecting therapeutic materials based on their physical properties and clinical suitability. Its ability to provide gradual and sustained heat may facilitate pain relief, improve local blood circulation, reduce muscle spasm, enhance tissue metabolism, and promote healing, findings that are also supported by the physiological effects of thermotherapy described in modern medicine. Moreover, *Guda Agnikarma* is inexpensive, easily available, simple to administer, and requires minimal infrastructure, making it a practical option in routine Ayurvedic practice, especially in resource-constrained settings. However, the current evidence supporting its therapeutic efficacy is largely derived from classical descriptions, case reports, observational studies, and narrative reviews, with limited high-quality clinical research specifically evaluating *Guda* as the cauterizing medium. The absence of standardized protocols regarding the quality of jaggery, temperature regulation, duration of application, treatment frequency, and objective outcome measures limits reproducibility and wider clinical acceptance. Therefore, future research should focus on conducting well-designed multicentric randomized controlled trials, developing standardized operating procedures, and employing advanced diagnostic and assessment tools such as thermal imaging, histopathological evaluation, inflammatory biomarkers, and patient-reported outcome measures to establish its safety, mechanism of action, long-term efficacy, and cost-effectiveness. Such scientific validation will not only strengthen the evidence base for Guda Agnikarma but also facilitate its integration into evidence-based and integrative healthcare while preserving the fundamental principles of classical *Ayurvedic* surgery.

CONCLUSION

Guda (Jaggery) *Agnikarma* is a unique and valuable para-surgical modality in *Ayurveda* that reflects the practical application of classical thermal therapy using a basic, economical, and easily accessible natural substance. Based on the available classical explanations and present-day and recent literature, it appears to be an effective therapeutic approach for relieving pain, stiffness, and localized inflammatory conditions, especially in disorders associated with *Vata–Kapha* predominance, by providing controlled thermal stimulation that enhances local circulation and encourages tissue healing. Its affordability, ease of application, and minimal necessity for specialized instruments make it a feasible choice in routine *Ayurvedic* practice. However, the present scientific evidence is limited by a lack of standardized treatment protocols, small-scale clinical studies, and inadequate high-quality comparative study. Therefore, although *Guda Agnikarma* shows significant therapeutic potential and remains clinically relevant, its broader approval in evidence-based practice necessitates exhaustive and stringent scientific validation through well-designed clinical trials, standardized methodology, and long-term outcome evaluation. Integrating the principles of classical *Ayurveda* with

modern research methodologies will be crucial for establishing its safety, effectiveness, and therapeutic role in contemporary integrative medical care.

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