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A COMPREHENSIVE REVIEW ON PISHTI KALPANA

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ABSTRACT

Pishti Kalpana, a classical Ayurvedic dosage form, refers to a finely ground preparation obtained through trituration (Bhavana) of minerals, gemstones, or calcium-rich substances with specific liquid media. This unique pharmaceutical process not only detoxifies the raw material by eliminating impurities but also enhances its bioavailability, rendering the final product therapeutically potent and comparable in efficacy to Bhasma formulations. Though traditionally aligned with Ayurvedic practice, Pishti Kalpana is also prominently utilized in Unani medicine systems. Commonly used substances in Pishti preparations include calcium-based compounds such as Mukta (pearl) and Pravala (coral), as well as various gemstones and semi-precious stones (Ratna and Upratna) like Manikya (ruby), Gomed (Zircon), Panna (emerald), and Neelam (sapphire). The choice of Bhavana media such as Gulab Arka (rose water), Kewda Arka, and Ghritkumari (Aloe vera juice) is therapeutically tailored according to the targeted pathology. Recent scientific interest in Pishti has surged due to its microfine particle size and rapid absorption potential, positioning it within the emerging domain of traditional nanomedicine. This review aims to provide a comprehensive overview of Pishti Kalpana, including its traditional manufacturing techniques, therapeutic indications, recent analytical studies, safety evaluations, and its relevance in modern pharmaceutics as a potential form of nano-delivery system.

Keywords: Pishti, Nanomedicine, Gems

INTRODUCTION

Ayurveda, a time-honored system of medicine originating in India, places paramount importance on utilizing natural remedies for disease management and overall health promotion. Among these formulations, Pishti holds a significant position. Pishti is a powdered preparation obtained from meticulous grinding of various Ratna (precious stones), Upratna (semi-precious stones), and Sudha-Sikta Vargiya Dravya (calcium-containing substances). Traditionally, Pishti has been employed in a wide range of ailments, including digestive disorders, respiratory diseases, and dermatological conditions.

The term "Pishti" is derived from the Sanskrit word Pist, meaning "finely ground," referring to its preparation involving repeated trituration (grinding) until a flour-like texture is obtained[1,2]. Minerals, gemstones, and calcium compounds undergo this trituration process with specific liquid media for a prescribed duration (generally seven days or as per classical references)[3]. This process imparts Sheet (cooling) and Soumya (calming) properties to Pishti, enhances its therapeutic activity, and removes potential toxicity, thereby ensuring both safety and efficacy.

In the context of modern medicine, nanomedicine has emerged as a novel therapeutic approach. Pishti may be considered a form of natural nanomedicine owing to its microfine particle size and enhanced bioavailability[4]. This extremely fine texture contributes to rapid absorption and potency in clinical use. Notable Pishtis include those prepared from Mukta (pearl), Praval (coral), Panna (emerald), Vajra (diamond), Neelam (blue sapphire), and Gomed (hessonite). Since gemstones are costly, caution is exercised to avoid heat processing, which may diminish their intrinsic properties. Instead, Pishti is processed with liquid media chosen for therapeutic purposes, such as rose water (Gulab)[5], Kevada Arq (screw pine distillate)[6], sandalwood (Chandan)[7], and saffron (Kesar)[8].

The Pishti preparation process closely resembles that of Anagnitapta Bhasma (incinerated powders prepared without direct application of fire). After purification, the raw substance is triturated with rose water or another prescribed liquid for a day and dried in sunlight, and this cycle is repeated for about a week[9]. The resulting Pishti possesses microfine particles comparable to Bhasma, allowing for quick absorption and assimilation. Hence, Pishti is recognized as one of the fastest traditional drug delivery systems in Ayurveda.

According to Siddhinandan Mishra, the conversion of Ratna (Precious stones) and Upratna (Semi-Precious stones) into Bhasma or Pishti is generally discouraged. He asserts that these substances possess inherent therapeutic properties attributed to their Prabhava (intrinsic essence or subtle potency), which may be compromised during pharmaceutical processing. Traditionally, the therapeutic effects of Ratna and Upratna have been harnessed through external use, primarily by wearing them as per Ayurvedic gem therapy. Mishra emphasizes that transforming high-grade gemstones into Bhasma or Pishti may lead to the loss of their subtle qualities. [10]

However, for medicinal purposes especially in oral formulations Pishti preparation is considered acceptable when using substandard, powdered, or lower-quality gem material. Notably, the Pishti manufacturing process does not involve direct heat (Anagnitapta), which helps preserve the chemical integrity and

bioactive potential of the original material. This makes Pishti a viable and safer alternative for internal administration of Ratna and Upratna, particularly when high-quality specimens are unavailable or impractical for therapeutic use in their original form.

Table 1: Different Pishtis and their Vargas

Varg	Dravyas
Ratna varg	Manikya, Mukta, Praval, Tarkshaya, Pushprag, Neelam, Gomed , Vaidurya
Upratna	Suryakant, Rajavrat, Vyomashm, Jaharmohra, Kaushyashma, Trinkant, Akik
Shukla varg/Sudha varg	Badrashma, Muktashukti,
Ras	Rasapishti, Navneet pishti, Gandha pishti

Preparation method

Purification (Shodhana): Purification marks the initial and fundamental stage in the preparation of Pishti. This step involves the essential detoxification (Shodhana) of mineral drugs and gemstones, ensuring their purity and therapeutic efficacy before further processing [1].

Grinding (Bhavana): Following purification, the drug material is subjected to grinding in a mortar with prescribed liquid media. The selected substance is triturated for an entire day, producing a fine powder of microfine consistency. In some classical references, Pishti is recommended to be kept exposed to moonlight during the night, a process repeated consistently for seven days or until the desired texture is achieved. This elaborate method highlights the precision and dedication required in Pishti preparation.

Role of Liquid Media: The choice of liquid media plays a critical role in determining the physicochemical and therapeutic characteristics of Pishti. Commonly used liquids include rose water (Gulab jal), distillate of Kevada (screw pine flower, Pandanus odoratissimus), banana leaf juice, and Chandanadi Arq (sandalwood distillate). Each medium imparts specific properties to the final preparation, enhancing its therapeutic potential depending on the raw material employed.

Preservation and Storage: Proper preservation and storage are essential to maintain the efficacy of Pishti medicines. They should be stored in airtight glass bottles, protected from moisture and water. This practice ensures stability of their therapeutic properties and prolongs shelf life.

Organoleptic Features: The defining attribute of Pishti lies in its fineness and delicacy. The color of a Pishti generally corresponds to its source substance, often presenting in a lighter hue than the original material.

Shelf life: 10 years. Due to its longer shelf life, it is considered one of the best formulations with ease in manufacturing [6].

PISHTI YOGAS

Table 2: Details of Various Pishti

Yog/Pishti	Ingredients	Media used	Colour and Properties	Anupan (Adjuvant)	Matra
Ras pishti[11]	Parad and Gandhak	Milk and other liquid media	-	-	-
Gandh pishti [12]		Devdali swaras	-	-	-
Navneet pishti [13]	Parad 12gm, Gandhak 3gm	-	Navneet Rupa (butter like) *Trituration in Scorching Sunlight	-	-
Patana pishti [14]	Parad, Svarna and Gandhak	-	Used For Patana Sanskar of Parad	-	
Manikya pishti [6]	Manikya (Ruby)	Rose water, Kewada Arka (Screw pine distillate), Bedmushk (Salix caprea)	Pink Colour, Rasa- Madhur, Virya- Sheet, Deepan, Vrishya, Kapha Vattanashak, Kshayrog-nashak, Medhya, Ayushya, Karmajvyadhi-nashak	-	¼–½ ratti
Mukta pishti [15]	Mukta (Pearl)	Rose water (3 days)	Rasa-Madhur, Virya-Sheet Vipaka-Madhur, Guna-Sheet, Laghu, Viryavardhak, Agnideptikar, Pushtikar, Vrishya, Ayushya, Dahnashak	-	¼–1 ratti
Muktashukti pishti [15]	Muktashukti (Pearl oyster shell)	Chandanadi Arka Trituration 7 days	Sheet, Amlatanashak, Udar-vaatahar	Butter, sugar, honey, milk	2-4 ratti
Prawal pishti [16]	Praval (Coral)	Rose water Trituration for 3 days	Pink Colour, Madhur, Laghu, Sheet, Deepan, Pachan, Netrya, Tridoshghna, Balya, Vrishya, Vishghna, Bhootaghna, Sukral,	Butter, cream, honey	½–2 ratti
Chandraputi Prawal [15]	Praval (Coral)	Rose water Trituration for 21 days	Useful in Pitta Vikar, Kshay, Raktapitta, Kasa, Shwasa, Visha, Unmad, Netravikar, Amlapitta, Vidah	-	½–1 ratti
Panna pishti [15]	Panna (Emerald)	Rose water	Pink Colour, Madhur, Sheet, Rochya, Pushtikar, Jwar, Chardi, Vish, Shwas, Mandagni, Arsha, Pandurog, Shosha, Oja	-	¼–1 ratti
Pusprag pishti [16]	Pushprag (Topaz)	Rose water	Pandura Colour, Guna-Laghu, Virya-Sheet, Vishghna, Chardi, Kapha-Vatahar, Agnimandhya, Dahand Kushthar, Deepan-Pachan, Medhya, Brihana, Ayushyakar, Arsh-nashak,	-	¼–1 ratti

Neelam pishti [16]	Neelam (Sapphire)	Rose water (5-6 days Trituration)	Tridoshghna, Vrishya, Balya, Deepan, Varnavardhak, Arshnashak, Kushtnashak, Tvachya, Papanashak.	Honey, butter, medicines	⅛–½ ratti
Gomed pishti[16]	Gomed (Hessonite)	Rose water (3-4 days Trituration)	Rasa-Amla, Guna-Ushna, Kapha-Pittanashak, Deepan-Pachan, Bhudhivardhak, Bhudhi-Smritivardhak	Honey, butter, cream	⅛–1 ratti
Vaidurya pishti[16]	Vaidurya (Cat's eye)	Rose water (5-6 days Trituration)	Rasa-Madhur, Virya-Sheet, Medhya, Bhudhi-prad, Ayushya, Balvardhak, Agni-Vardhak, Gulma Nashak,	-	¼–1 ratti
Rajavrat pishti [15]	Rajavrat (Lapis lazuli)	Rose water (4-5 days Trituration)	Rasa- Katu, Tikta, Virya-Sheet Guna-Snigdh, Karma-Deepan, Pachan, Vrishya, Brihana, Rasayan, Vishghna Tridoshnashak	-	½–1 ratti
Vyomashma pishti[16]	Vyomashma (Meteoric stone)	Rose water (4-5 days Trituration)	Hridya, used in Nidra-alpata and Antrik Vrana	Honey, butter, sugar, Arjuna bark decoction	2–8 ratti
Trinkant Pishti[16]	Trinkant (Tourmaline)	Rose water (2-3 days Trituration) (10 days for fine grinding)	Guna-Ruksha, Sheet, Slakshna Karma- Hridya, Indriya Prasadan, Grahi, Raktastambhak, Pitta-shamak.	Butter, sugar, honey; For Raktashrav or Krimi – with pomegranate juice, water	1–2 ratti
Kaushyashma pishti[16]	Kaushyashma	Rose water/Kewada Arka (3-4 days Trituration)	Virya-Sheet, Raktapittanashak, Raktastambhak, Useful in Prameh, Pradar, Dantpuya.	Honey and Milk, cream	2-4 ratti
Badrashma pishti [16]	Badrashma (Berite/Coral derivative)	Rose water/ Chandan arka (3-4 days Trituration)	Mutral, Pittanashak, Ashmarishoolhar, Mutraashmari-bhedak,	-	4-8 ratti
Akik pishti [15]	Akik (Agate)	Rose water (10 days Trituration)	Raktastambhak, Vrishya, Hridya, Medhya, Netraya	-	1-3 ratti

Table 3: Details of Compound Pishti Formulations

Yog / Formulation	Ingredients	Colour and Properties	Matra (Dose)
Navratna Kalpamruta[17]	Manikya (Ruby), Neelam (Sapphire), Tarkshya (Emerald), Pushprag (Topaz), Vaidurya (Cat's eye), Gomed (Hessonite), Mukta (Pearl), Rajavrat (Lapis lazuli), Praval Pishti (Coral), along with Bhasma of Roupya (Silver), Swarna (Gold), Loha (Iron), Yashada (Zinc), Abhraka (Mica); Shuddha Guggulu (purified resin of Commiphora mukul), Shuddha Shilajatu (purified asphaltum), Guduchi Satva (starch of Tinospora cordifolia), and Goghrita (cow's ghee)	Acts as a Rasayana (rejuvenator) and Vajikarana (aphrodisiac); provides strength, immunity, and longevity	**2 ratti**
Yakuti [18]	Manikya (Ruby), Tarkshya (Emerald), Mukta (Pearl), Praval (Coral), Trinkant Pishti (Amber Pishti), with Swarna (Gold) and other Churna (powders)	Potent Rasayana (rejuvenator) and Vajikarana (aphrodisiac); indicated for vitality, strength, and chronic conditions	-

PISHTI YOGS AND THEIR THERAPEUTIC INDICATIONS

Table 4: Therapeutic Indications of Different Pishti Preparations

Pishti Yog	Therapeutic Indication
Gandhak Pishti Ras[12]	Hikka (hiccup)
Manikya Pishti[14]	Vrishya (aphrodisiac), Kshayrognashak (anti-tubercular), Medhya (nootropic), Ayushya (promotes longevity), Karmajvyadhinashak (relieves karmic disorders)
Mukta Pishti[16]	Viryavardhak (enhances vitality), Agnideptikar (improves digestion), Pushtikar (nutritive), Vrishya (aphrodisiac), Ayushya (longevity promoter), Dahnashak (relieves burning sensation)
Prawal Pishti[15]	Deepan (appetizer), Pachan (digestive), Netrya (beneficial for eyes), Balya (strength promoter), Vrishya (aphrodisiac), Vishghna (antitoxic), Bhootaghna (psychotropic disorders), Sukral (spermatogenic)
Panna Pishti[16]	Rochya (enhances taste), Pushtikar (nutritive), Jwar (fever), Chardi (vomiting), Vish (poisoning), Shwas (dyspnea), Mandagni (low digestive fire), Arsh (piles), Pandurog (anemia), Shosh (emaciation), Oja (vital essence)
Pusprag Pishti[16]	Vishghna (antitoxic), Chardi (antiemetic), Kapha-Vata (balances doshas), Agnimandhya (corrects indigestion), Dah (burning), Kushta (skin diseases), Deepan-Pachan (appetizer and digestive), Medhya (nootropic), Brihana (nourishing), Ayushyakar (longevity), Arsh (piles)
Neelam Pishti[16]	Vrishya (aphrodisiac), Balya (strength promoter), Deepan (appetizer), Varnavardhak (improves complexion), Arshnashak (anti-piles), Kushtnashak (anti-skin disease), Tvachya (skin protective), Papanashak (alleviates sins/evil effects)
Gomed Pishti[16]	Deepan (appetizer), Pachan (digestive), Buddhi-vardhak (enhances intellect), Smriti-vardhak (improves memory)
Vaidurya Pishti[16]	Medhya (nootropic), Budhiprad (intellect enhancer), Ayushya (longevity), Balvardhak (strength promoter), Agnivardhak (improves digestion), Gulmanashak (relieves abdominal tumors)
Rajavrat Pishti[15]	Deepan (appetizer), Pachan (digestive), Vrishya (aphrodisiac), Brihana (nourishing), Rasayana (rejuvenator), Vishghna (antitoxic)
Vyomashma Pishti[16]	Hridya (cardiac tonic), Nidra-alpata (insomnia), Antrik Vrana (internal ulcers)

Trinkant Pishti[16]	Hridya (cardiac tonic), Indriya Prasadan (sense organ stabilizer), Grahi (absorbent), Raktastambhak (hemostatic), Pittashamak (pacifies Pitta)
Kaushyashma Pishti[16]	Raktapittanashak (anti-bleeding), Raktastambhak (hemostatic), Prameha (urinary disorders), Pradar (gynecological disorders), Dantpuya (pyorrhea)
Badrashma Pishti[16]	Mutral (diuretic), Pittanashak (pacifies Pitta), Ashmarishoolhar (relieves renal colic), Mutrashmaribhedak (lithotriptic, breaks urinary stones)
Navratna Kalpamruta[17]	Krimi (worms), Udara (abdominal disorders), Jalodara (ascites), Garbhashaya Poshanarth (nourishes uterus)
Yakuti [18]	Hriddaurbalya (cardiac weakness), Sannipata Jwara (fever due to deranged Tridosha), Swedadhikya (excessive sweating)

Potential Applications of Pishti as a Nanomedicine

Pishti, as a nanomedicine, exhibits promising potential across diverse applications in the medical field. It holds the prospect of targeted drug delivery, where nano-sized particles can be customized with ligands or antibodies for specific recognition of target tissues or cells. This precision allows for selective drug delivery, minimizing off-target effects and offering a transformative approach to diseases like cancer that require precise drug localization. Additionally, Pishti in its nanosized form may enhance the solubility and dissolution rates of drugs, ensuring improved bioavailability and optimal therapeutic concentrations. Engineered as controlled release systems, Pishti nanoparticles enable sustained drug release, prolonging therapeutic effects and reducing dosing frequency.

Table 5: Different Pishti samples and their sizes

Pishti	Size	Methods employed
Trinakantamani (Amber) Pishti[19]	701 nm in comparison to raw form (1-2 µm)	Analysis by scanning electron microscope
Mukta pishti[20]	62 nm	Dynamic light scattering and Nano-particle Tracking Analysis (NTA) Version 2.3 Build 0013
Manikya Pishti[21]	52 nm in comparison to raw ruby was 107.58	Dynamic light scattering and Nano-particle Tracking Analysis (NTA)
Akik pishti[22]	Raw 1604.6nm Shodit 1539.1nm Pishti 940.0 nm	SEM EDAX and manually Calculating by formulae dm/dt=kA (Cs-C) dm/dt = dissolution rate, A = surface area of solid, k = dissolution rate constant, Cs = saturation of drug, C = concentration of drug in solution
Hajral Yahud Pishti[23]	0.3–0.5 nm	Manual methods: Microscopy and Sieving Method

Most of the Pishti falls into the category of nanomedicine as mentioned above in Table 4, and exhibits better absorption and better bioavailability.

Analytical test of Pishti

In order to establish standardization for any preparation, it is essential to conduct an analysis of the product to uphold its quality. The Central Council for Research in Ayurvedic Sciences (CCRAS) provides various analysis techniques and parameters for this purpose[24].

Table 6: Analytical test for Pishti Kalpana

Test Parameters
Description
Colour
Odour
Taste
pH (1% aqueous extract)
Loss on drying at 105 C /Moisture content
Particle size
Total ash
Acid-insoluble ash
Sulphated ash
Water-soluble extractive
Alcohol- soluble extractive
Assay for element (s) (if available)
IR/XRF/XPS/XRD/SEM/EDX/AFM (As per requirement)
Nishchandrica (Lusterless)
Rekha pumatva (Fine enough to enter within lines of finger)
Varitara (Floats on water)
Nirdhoom (Smokeless)
Niswadu (Tasteless)
Apunarbhav (Irreversible)
Shelf life

Pishti (Processed Fine Powder)

Studies on various Pishti Kalpana

Several pharmacological and analytical studies have explored the safety and characterization of various Pishti Kalpana formulations. An acute and sub-chronic toxicity study conducted on calcium-based bhasma and pishti of marine origin including Shankha Bhasma, Kapardika Bhasma, Muktashukti Bhasma, Pravala Bhasma, and Pravala Pishti demonstrated a high safety margin. Notably, Pravala Pishti exhibited no signs of acute toxicity up to 5000 mg/kg in albino mice, suggesting its suitability for therapeutic use even at high doses. [25] In another analytical study, a comparative evaluation of Akik Pishti prepared using two different purification media—Gulab Arka and Kewda Arka was undertaken to assess their physicochemical and microscopic properties. UV-visible spectroscopy confirmed the identity of SiO_2 (Silicon Dioxide), while nanoparticle formation with mild agglomeration was observed under microscopy. Both methods yielded similar physicochemical profiles, supporting classical purification protocols.[26] Additionally, Trinakantamani (Amber) Pishti was characterized using FTIR, EDAX-SEM, and XRD techniques. Particle size analysis indicated a significant reduction in size post-trituration (701 nm vs. 1–2 µm in raw form), supporting improved bioavailability. While antimicrobial activity against Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa, and Salmonella typhimurium was evaluated via the well-diffusion method, no significant inhibition zones were observed. However, elemental analysis confirmed that heavy metal content remained within permissible limits, and the principal components—carbon, hydrogen, and oxygen—were consistent with Amber. This study represents the first reported effort to characterize and evaluate the antimicrobial properties of Trinakantamani Pishti, offering insights into its safety and physicochemical attributes. [19]

DISCUSSION

Rasaushadhis like Bhasma, Pishti, and other herbo-mineral formulations have held a significant place in Ayurvedic clinical practice. Among them, Pishti is particularly valued for its fine particle size, ease of assimilation, and therapeutic efficacy. Pishtis are typically prepared from calcium-rich substances, ratna (gems), and upratna (semi-precious stones), through a process involving purification (Shodhana), trituration (Bhavana) with specific liquid media, and drying typically without the use of Agni (heat). This unique preparation method is emphasized in Rasa Ratna Samuccaya and Rasatarangini, suggesting the avoidance of heat helps preserve the Sheet Guna (cooling properties) and delicate pharmacological attributes of these materials.

Pharmacological Basis and Therapeutic Use

Pishtis, especially those of coralline calcium, pearl, conch, and gem-origin substances, are traditionally classified as Pittashamak (pitta-pacifying), Stambhak (haemostatic), and Hridya (cardiotonic). For instance, Mukta Pishti is used for acid-peptic disorders, and Akik Pishti for cardiovascular health. While these uses are well documented in classical texts, modern evidence remains limited. A study on Mukta Pishti in acid peptic disorder patients reported significant symptomatic relief,[27] although larger clinical trials are necessary to establish efficacy and safety conclusively.

The claim of Trinakantamani Pishti exhibiting antibacterial activity against S. aureus, E. coli, P. aeruginosa, and S. typhimurium is supported by preliminary in vitro studies [19], but these findings are yet to be validated in vivo or through clinical models. Therefore, while Pishtis show promise as antimicrobial agents, this should be viewed as a potential area for future research rather than a confirmed indication.

Rationale for Non-Heating Preparation

The exclusion of Agni Sanyog in Pishti preparation, particularly for ratna and upratna, is a deliberate choice rooted in preserving their Rasa, Guna, and Virya as per Ayurvedic pharmacodynamics. Heat-sensitive substances like Mukta, Praval, and Neelam are believed to lose their therapeutic potency if exposed to high temperatures. Rasa Ratna Samuccaya (Chapter 5) clearly states, “Ratnani shita samskarena bhavayitavyani, na tu agni samskarena”, indicating the necessity of cold processing to retain their inherent cooling and subtle actions.

Standardization and Quality Control Challenges

Despite the traditional significance of Pishti, standardization remains a major hurdle. Particle size, a critical parameter influencing bioavailability, is rarely reported in classical formulations. However, recent studies employing SEM (Scanning Electron Microscopy) and DLS (Dynamic Light Scattering) indicate Pishti particles typically range between 100–500 nm, placing them in the nanoparticle domain. Yet, inconsistency in preparation methods, media, and drying conditions often leads to batch variation, affecting reproducibility.

Furthermore, the selection of liquid media such as Rose water, Kewda Arka, or Chandanadi Arka is typically based on the therapeutic aim. However, systematic comparison of these media on Pishti quality or clinical effect is lacking and warrants exploration.

Limitations and Scope

Despite their historical significance and therapeutic potential, the use and study of Pishti Kalpana are subject to several limitations. A primary concern lies in the potential toxicity associated with heavy metal and mineral content such as lead traces in Manikya and mercury in Trinakantamani which, although mitigated by classical Shodhana (purification) procedures, remain inadequately regulated due to the absence of universally accepted testing protocols. Furthermore, much of the current evidence supporting the efficacy of Pishtis is derived from anecdotal reports or limited-scale observational studies, with a dearth of well-designed randomized controlled trials (RCTs). Regulatory integration of Pishtis into mainstream healthcare is further hindered by the lack of pharmacopoeial standards, validated manufacturing protocols, and international regulatory acceptance. To address these gaps, future research should prioritize rigorous clinical evaluations particularly RCTs on formulations such as Mukta Pishti and Akik Pishti for acid-peptic and cardiovascular disorders, respectively. Toxicological profiling, including acute and chronic studies, is crucial to establish long-term safety, especially for mineral-based Pishtis. Additionally, standardization efforts should focus on developing comprehensive monographs in the Ayurvedic Pharmacopoeia, detailing specifications such as particle size (via SEM or DLS), pH, loss on drying, and elemental assay. Comparative studies on the use of different Bhavana media may also help elucidate their influence on physicochemical characteristics and clinical outcomes, thereby contributing to the rationalization and modernization of Pishti Kalpana within integrative medicine frameworks.

CONCLUSION

Pishti Kalpana represents a unique, heat-free pharmaceutical process designed to preserve the subtle properties of mineral and gem-based drugs. While traditional use highlights its importance in treating pitta-dominant and haemorrhagic conditions, modern research is still nascent. Integrating Pishti into contemporary medicine will require systematic standardization, rigorous safety validation, and evidence-based clinical research. With growing interest in nanomedicine and personalized therapy, offers a valuable yet underexplored opportunity in integrative healthcare

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