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A REVIEW ON MEDICATED OILS USED IN JANU BASTI AND THEIR MECHANISM OF ACTION

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ABSTRACT

Janu Basti is a specialized Ayurvedic therapeutic procedure widely used in the management of knee joint disorders, particularly osteoarthritis and degenerative conditions resulting from Vata vitiation. The efficacy of Janu Basti is closely linked to the selection of medicated oils, each possessing distinct therapeutic actions based on their composition and dosha relevance. This review emphasizes the pharmacological significance of commonly employed oils, including Mahanarayana Taila, known for its potent Vata-pacifying and anti-inflammatory properties; Sahacharadi Taila, effective in alleviating stiffness and improving mobility; and Ksheerabala Taila, which offers nourishing and neuroprotective effects, especially in chronic degenerative cases. Additional oils like Dhanwantaram Taila and Murivenna are noted for their analgesic, anti-arthritic, and tissue-repairing actions, making them suitable for specific clinical presentations. The paper also examines select contemporary formulations that integrate classical Ayurvedic principles with broader polyherbal synergies. These newer compound oils, often standardized and supported by emerging clinical evidence, reflect the evolving landscape of Ayurvedic practice in musculoskeletal care. By reviewing both traditional and modern oil formulations, this study highlights the critical role of oil selection in maximizing the therapeutic benefits of Janu Basti. It aims to guide practitioners in choosing appropriate oils tailored to individual patient profiles, thereby enhancing treatment efficacy in knee joint disorders.

Keywords: Ayurvedic Therapies; Janu Basti; Medicated Oils; Osteoarthritis; Vata Disorders

INTRODUCTION

Knee osteoarthritis (OA) and allied degenerative knee disorders are fast becoming one of the most disabling musculoskeletal problems worldwide, eroding quality of life and imposing an ever-growing socioeconomic burden[1,2]. Conventional management i.e. analgesics, intra-articular injections, physiotherapy, and eventual joint replacement offers symptomatic respite but seldom halts cartilage attrition or addresses the multifactorial genesis of pain, swelling, and restricted gait. Ayurvedic medicine approaches the same clinical spectrum through the lens of Sandhigata Vāta, a subtype of Vāta imbalance characterized by the desiccation (rukṣatā), roughness (khārata), and loss of cohesive integrity (sandhi-granthi-bheda) of synovial structures[3,4]. Within this paradigm, restoring unctuousness (snehana) and warmth (svedana) to the joint is considered pivotal for relieving pain (śūla) and crepitus (sparśe śabda), as well as for arresting further structural decay[5].

Janu Basti (literally "knee ponding") epitomizes this strategy. Classified under external oleation procedures (bāhya snehana), it entails constructing a dough reservoir traditionally from finely ground black gram (Māṣa piṣṭa) or, where gluten-free variants are preferred, from Godhūma (wheat) or Shastika (red rice) flour, around the patella and suprapatellar region[6,7]. Warm medicated oil is then gently poured into the well until the patellar apex is submerged, and its temperature is maintained between 38 °C and 42 °C for 20–40 minutes. This seemingly simple set-up accomplishes several therapeutic goals simultaneously: (i) sustained thermotherapy that enhances local circulation, reduces synovial viscosity, and promotes vasodilation[8,9]; (ii) steady transdermal delivery of lipophilic phytoconstituents that penetrate peri-articular tissues, reaching even the deeper structures of cartilage and subchondral bone[10]; and (iii) mechanical cushioning and lubrication that directly lessen articular friction[11] (Figure 1).

While the procedure's hardware is simple, its clinical success hinges on the software i.e. the medicated oil (taila) selected. Classical texts devote entire chapters to the nuanced pairing of oils with tridosha patterns, tissue depth, chronicity, and concomitant systemic disorders[12,13]. Mātrā (dose), ukta-kāla (time of administration), and samyak lakṣaṇa (signs of adequate saturation) are exhaustively described[14], but the guiding principle remains constant: the chosen oil must counteract vāta guṇas: dryness, lightness, coldness, subtlety, and mobility without provoking *pitta* or kapha. Consequently, oils rich in oleaginous, heavy, and warming properties, fortified with vātahara herbs, are the mainstay[15,16].

Figure 1: Procedure of Janu Basti and different ingredients used in preparation of oils for Janu Basti.

Among them, Mahanārāyaṇa Taila enjoys pride of place[17,18]. Built on a sesame-oil base and infused with up to fifty botanicals including Aśvagandhā (*Withania somnifera*), Bala (*Sida cordifolia*), Pṛśniparṇī (*Uraria picta*), and Devadāru (*Cedrus deodara*) it delivers a broad spectrum of withanolides, alkaloids, and lignans that collectively provide anti-inflammatory, chondroprotective, and myorelaxant effects. Its warming energy (uṣṇa vīrya) counters stiffness, while aromatic resins such as Gūgul (*Commiphora mukul*) aid synovial regeneration[19]. Sahacarādi Taila, conversely, is formulated specifically to relieve stiffness and radiating pain in weight-bearing joints[20,21]. Derived from Sahacara (*Barleria prionitis*), its iridoid glycosides and flavonoids modulate prostaglandin synthesis, making it particularly useful in acute exacerbations. Clinically, practitioners favor Sahacarādi Taila when kapha-anubandha (viscous synovial effusion) is prominent, as its relatively lighter viscosity promotes rapid absorption without leaving a tacky residue. For chronic, atrophic presentations marked by marked cartilage thinning and dry crepitus, Kṣīrabala Taila a gentle, milk-cooked oil containing Bala offers dual nourishment and nervine calming[22,23]. The lactonic phase enhances solubility of steroidal phytochemicals and facilitates their passage across cell membranes, an advantage in patients with age-related thinning of majja dhātu (bone marrow) and rasāyana depletion. Dhanvantaram Taila, routinely employed in postpartum care, has gained modern relevance for perimenopausal women with knee OA[24,25]. Enriched with Yashtimadhu (*Glycyrrhiza glabra*) and Shatavari (*Asparagus racemosus*), it modulates hypothalamic-pituitary-adrenal responses, offering systemic anti-stress benefits while acting locally on collagen integrity. Meanwhile, Murivenna, a Kerala special, combines coconut oil with Indian madder (Manjiṣṭhā) and Kanyā (*Aloe vera*), excelling in acute sprains where soft-tissue microtears coexist with degenerative pathology[26].

Recent decades have witnessed the advent of contemporary polyherbal oils that infuse classical logic with industrial standardization. Examples include Peedantak oil[27], Rumalaya liniment[28] and Orthoherb cream/thermagel[29], whose fixed-dose compositions guarantee batch-to-batch consistency and have begun to generate encouraging data in randomized clinical trials. These formulations frequently incorporate modern extraction techniques supercritical CO_2, microwave-assisted decoction that concentrate active fractions without residual solvents, thereby increasing transdermal flux[30].

Mechanistic studies, though still emerging, suggest several pathways by which oils used in Janu Basti exert joint-protective actions: inhibition of nuclear factor-κB signaling, down-regulation of matrix metalloproteinase (MMP-1, MMP-3, MMP-13), and up-regulation of anabolic markers such as type II collagen and aggrecan[31]. The oil's lipid matrix acts as both carrier and active agent, improving the biomechanical environment of cartilage by re-establishing boundary lubrication and reducing coefficient of friction. Moreover, the reservoir's gentle hydrostatic pressure produces a pseudo-effusion, encouraging exchange between intra- and extra-articular fluids and helping flush out inflammatory mediators. Patient-reported outcomes echo these biological insights. Trials comparing Janu Basti to conventional hot water fomentation repeatedly demonstrate superior reductions in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain and stiffness subscales, with benefits persisting beyond the immediate treatment window[32]. Importantly, such improvements correlate positively with practitioner-guided oil selection; mismatched oils can aggravate swelling or induce *pitta*-dominant burning sensations, underscoring the need for individualized assessment.

Given this background, a focused synthesis of the oils employed in Janu Basti is both timely and clinically valuable. Practitioners navigating the expanding pharmacopeia require clarity on which oils best suit distinct phenotypes early-stage saṁjñābhraṁśa (functional disturbance) vs. late-stage sthāna-saṁśraya (structural lodging); lean vāta-pitta constitutions vs. stocky kapha profiles; acute flare-ups vs. chronically dry, attritional joints. Likewise, researchers designing controlled interventions need a reference point for standardizing oil choice to reduce heterogeneity and enhance reproducibility[33]. Therefore, the present review consolidates classical directives, empirical bedside observations, and contemporary biomedical evidence regarding the key medicated oils used in Janu Basti. By mapping each oil's phytochemical signatures, bio-pharmacological actions, and clinical indications, we aim to provide a practical decision-support framework that can refine therapeutic precision and amplify patient benefit.

CLASSICAL MEDICATED OILS COMMONLY USED IN JANU BASTI

The therapeutic effectiveness of Janu Basti depends largely on the judicious selection of medicated oil, aligned with the individual's doṣha predominance and the nature of the joint pathology. The following oils are widely used in clinical practice, each with distinct indications based on classical references and pharmacological actions.

Mahanarayana Taila

A potent Vāta-pacifying formulation, Mahanārāyaṇa Taila is enriched with Rasāyana and Bālya herbs such as Aśvagandhā (*Withania somnifera*), Bala (*Sida cordifolia*), Pṛśniparṇī, and Devadāru (Table 1). It is highly effective in managing neuromuscular disorders, degenerative joint conditions, and chronic stiffness. Its nourishing and anti-inflammatory properties make it ideal for deep tissue penetration, strengthening Asthi and Majjā Dhātu, and promoting mobility.

Ksheerabala Taila (101)

A gentle, nourishing oil prepared through repeated processing of Bala with cow's milk and sesame oil, Kṣīrabala Taila is especially suited for chronic Vāta-Pitta conditions (Table 2). It offers neuroprotective, calming, and strengthening effects, making it beneficial for dry, painful joints with underlying inflammation. Its cooling Vīrya balances Pitta, while its unctuousness pacifies Vāta, making it useful in elderly or debilitated patients. Processed 101 times; each cycle evaporates the aqueous phase, concentrating lipophilic actives.

Dhanwantaram Taila

Traditionally used in postnatal care and for neurological rehabilitation, Dhanvantaram Taila is effective in both inflammatory and degenerative musculoskeletal conditions. It strengthens ligaments, nourishes Snāyu and Sandhi, and is especially beneficial in women with osteoarthritic changes linked to hormonal imbalances. Its systemic Rasāyana action helps restore joint health in chronic cases (Table 3).

Sahacharadi Taila

This formulation combines Sahacara (*Barleria prionitis*) with Daśamūla, targeting Vāta-Kapha disorders. It is particularly effective in managing stiffness, swelling, and reduced joint mobility (Table 4). Sahacarādi Taila enhances flexibility and circulation, making it useful in conditions where heaviness, coldness, and stagnation predominate. Its warming nature facilitates deeper penetration and pain relief.

Pinda Taila

Piṇḍa Taila contains Manjiṣṭhā (*Rubia cordifolia*), Sarivā, and other Rakta-śodhana herbs, making it suitable for Pitta-Rakta dominant conditions such as rheumatoid arthritis (Table 5). It provides excellent anti-inflammatory and cooling effects, relieves burning sensations, and reduces erythema and swelling. Piṇḍa Taila is particularly helpful in joints with *Pitta* aggravation and inflammatory pain.

Narayana Taila

Often used interchangeably with or as a variant of Mahanārāyaṇa Taila, Nārāyaṇa Taila contains Daśamūla, Rasnā, and Aśvagandhā, and is indicated for generalized Vāta disorders **(**Table 6). It supports musculoskeletal strength, reduces fatigue, and promotes joint function. It is especially useful in cases of muscular wasting, fatigue, and chronic degenerative joint disease.

Table 1: The composition of Mahanarayana Taila.

Ingredient (Saṃskṛt)	Botanical name	Mode of action[#]	Qty*
Taila (base)	*Sesamum indicum* oil	VP • AI	**6.144 kg**
Aśvagandhā	*Withania somnifera*	R • AI • AN	12 g
Bala	*Sida cordifolia*	VP • R	12 g
Bilva	*Aegle marmelos*	AI • VP	12 g
Gokṣura	*Tribulus terrestris*	VP • AN	12 g
Prasārinī	*Paederia foetida*	AN • VP	12 g
Kalka group (e.g. Rasnā, Kuṣṭha, Mañjiṣṭhā, Yaṣṭimadhu, Śatāvarī, etc.)	—	AI • VP • R	**96 g each**
Ajadugdha	Goat's milk	VP • R	6.144 L
Śatāvarī svarasa	*Asparagus racemosus* juice	R • C	6.144 L

*Classical reference: Āyurveda Sāra Saṅgraha; 17 edition, 662; proportion : 1 (Taila):4 (Drava):1/4 (Kalka)
[#]anti-inflammatory = AI, Vāta-pacifying = VP, Rasāyana = R, Analgesic = AN, Cooling-antipitta = C

Table 2: The composition of Ksheerbala Taila (101).

Ingredient (Saṃskṛt)	Botanical name	Mode of action[#]	Qty*
Bala (Kalka)	*Sida cordifolia* root	VP • R • AN	10 g
Bala decoction		VP • AI	160 mL
Kṣīra	Cow's milk	C • R	160 mL
Taila (base)	*Sesamum indicum* oil	VP • AI	40 mL

*Classical reference: Ashtanga Hridayam Vatarakta Chikitsa 22/45-46, Charaka Samhita Chikitsa Sthana 29th Chapter (Vatarakta)
[#]anti-inflammatory = AI, Vāta-pacifying = VP, Rasāyana = R, Analgesic = AN, Cooling-antipitta = C

Table 3: The composition of Dhanwantaram Taila.

Ingredient (Saṃskṛt)	Botanical name	Mode of action[#]	Qty*
Bala mūla decoction	*Sida cordifolia* root	VP • R	4.608 kg herb in 36.864 L H_2O → 4.608 L
Kṣīra	Cow's milk	C • R	4.608 L
Taila (base)	*Sesamum indicum* oil	VP • AI	— (q.s.)
Yava, Kola, Kulattha	*Hordeum vulgare*, *Ziziphus jujuba*, *Dolichos biflorus*	AI • AN	768 g total
Daśamūla group	Ten roots	AI • VP	768 g
Medā–Kākolī group (Jīvanīya herbs)	see text	R • AI	6 g each
Aromatic dipana (Eḷā, Tvak, Pātra)	*Elettaria cardamomum*, *Cinnamomum verum*, *C. tamala*	AI • VP	6 g each

*Classical reference: Sahasrayogam, Taila Yoga Prakarana 1, Ashtanga Hridayam; proportion 1 (Taila):4 (Drava):1/4 (Kalka)
[#]anti-inflammatory = AI, Vāta-pacifying = VP, Rasāyana = R, Analgesic = AN, Cooling-antipitta = C

Table 4: The composition of Sahacharadi Taila.

Ingredient (Saṃskṛt)	Botanical name	Mode of action[#]	Qty*
Sahacara	*Strobilanthes ciliatus*	VP • AN	**4.8 kg**
Daśamūla coarse powder	Ten roots	AI • VP	480 g each
Abhiru (Śatāvarī)	*Asparagus racemosus*	R • C	2.4 kg
Paste drugs (e.g. Sevya, Kuṣṭha, Hima)	Vetiver, *Saussurea lappa*, Sandalwood	AI • C • AN	48 g each
Taila / Kṣīra	*Sesame* oil / Cow's milk	VP • AI / C	3.072 L each

Classical reference: Ashtanga Hridayam Chikitsa Sthana 29 / 66-68;* proportion 1 (Taila):4 (Drava):1/4 (Kalka)
[#]anti-inflammatory = AI, Vāta-pacifying = VP, Rasāyana = R, Analgesic = AN, Cooling-antipitta = C

Table 5: The composition of Pinda Taila.

Ingredient (Saṃskṛt)	Botanical name	Mode of action[#]	Qty*
Mañjiṣṭhā	*Rubia cordifolia*	AI • C • Rakta-śodhana	**455 g**
Sārivā	*Hemidesmus indicus*	C • AI	455 g
Sarjarasa	*Vateria indica* resin	AN • AI	186 g
Madhucchiṣṭa	Bees-wax	Emollient • Occlusive	280 g
Taila (base)	*Sesamum indicum* oil	VP • AI	6 L
Jala (drava)	Water	Decoction medium	24 L

*Classical reference: Charaka Samhita Chikitsa Sthana *29/123,* Ashtanga Hridayam Chikitsa Sthana 22/22; proportion 1 (Taila):4 (Drava):1/4 (Kalka)
[#]anti-inflammatory = AI, Vāta-pacifying = VP, Rasāyana = R, Analgesic = AN, Cooling-antipitta = C

Table 6: The composition of Narayana Taila.

Ingredient (Saṃskṛt)	Botanical name	Mode of action[#]	Qty*
Taila (base)	*Sesamum indicum* oil	VP • AI	10 mL (batch unit)
Bilva	*Aegle marmelos*	AI • VP	0.778 g
Aśvagandhā	*Withania somnifera*	R • AN	0.778 g
Brihatī / Kaṇṭakārī	*Solanum* spp.	AI • AN	0.778 g
Bala / Ati-bala	*Sida cordifolia* / *Abutilon indicum*	VP • R	0.778 g each
Agnimantha, Śyonaka, Pāṭalā	*Premna mucronata*, *Oroxylum indicum*, *Stereospermum suaveolens*	AI • VP	0.778 g each
Punarnavā, Gokṣura	*Boerhaavia diffusa*, *Tribulus terrestris*	AN • AI	0.778 g each

*Classical reference: Bhaishajya Ratnavali Vatavyadhi – 140 – 150; ratio: equal weights of 32–33 herbs per 100 parts sesame oil; table shows per-10 mL conversion. [#]anti-inflammatory = AI, Vāta-pacifying = VP, Rasāyana = R, Analgesic = AN, Cooling-antipitta = C

PRINCIPLES OF JANU BASTI THERAPY

Localized Snehana (Oleation) + Swedana (Sudation)

Pooling warm medicated oil in a dough ring keeps the joint between 38 °C and 42 °C for 20–40 min. Infrared-thermography and biochemical work show that this controlled hyper-thermia dilates arterioles, boosts lymph-flow and accelerates clearance of inflammatory mediators, while the lipid film softens peri-articular tissues. Sesame-based oils simultaneously act as lipophilic carriers; tracer studies demonstrate penetration from epidermis to bone marrow within ≈5 min, confirming true trans-dermal delivery rather than surface lubrication. Such dual Snehana-Swedana explains the superior fall in WOMAC pain/stiffness scores reported after Janu Basti compared with simple hot fomentation or passive physiotherapy[34].

Vātahara (Vata-pacifying) and Śūlahara (Analgesic) Actions

Degenerative knee OA corresponds to Sandhigata Vāta; hence oils are chosen for strong Vātashāmaka phytochemistry. Mahanārāyaṇa/Nārāyaṇa Taila delivers withanolides, guggulsterones and flavonoids that down-regulate NF-κB signalling, while Sahacharādi Taila provides iridoids that inhibit COX-2 and improve joint mobility[35]. A 2024 multicentric trial on 483 patients showed that topical Nārāyaṇa Taila, combined with oral Yogarāj Guggulu and Aśvagandhā, cut WOMAC totals by >40 % without adverse effects; earlier studies pairing the same oil with Rasnā-based decoctions echo these analgesic gains. Meta-analyses now place Janu Basti among the safest opioid-sparing options for chronic knee pain[36].

Improved Micro-circulation and Tissue Nutrition

Continuous warmth raises local metabolic rate (Q_{10} effect), augments synovial perfusion and lowers visco-elastic resistance[37]. Hyper-thermia also transiently increases skin permeability by disrupting stratum-corneum lipids, enhancing flux of steroidal phytoconstituents that nourish cartilage and sub-chondral bone. Doppler studies after a single session documented a 22 % rise in peri-patellar blood flow and a parallel 15 % drop in vascular resistance[38]; these hemodynamic shifts correlate with faster quadriceps recovery and gait speed.

Srotoshodhana (Channel Cleansing) and Dhātu Puṣṭi (Tissue Re-nutrition)

Ayurvedic classics hold that obstructed micro-channels (srotas) trap āma and vitiated Vāta. The mild pressure head created by the oil "pond" plus its osmotic gradient mobilises exudates towards superficial lymphatics, echoing modern concepts of interstitial solvent-drag[39]. Marma-guided Janu Basti protocols showed >80 % reduction in swelling and stiffness, attributed to restoration of prāṇavāha srotas flow and replenishment of depleted synovial lipids[40]. Terpene-rich formulations act as natural penetration enhancers, improving delivery of nutrients while expelling pro-inflammatory metabolites, the physiological counterpart of Dhātu Puṣṭi[41].

EMERGING COMPOUND OILS IN CLINICAL AND REHABILITATION PRACTICE

The evolving landscape of Ayurvedic therapeutics has witnessed the development of innovative compound medicated oils that integrate classical Sneha bases with synergistic herbal combinations[42]. These multi-herbal formulations are increasingly gaining traction in clinical settings for their enhanced efficacy in managing degenerative and inflammatory knee disorders, particularly those presenting as chronic Sandhigata Vāta with underlying inflammatory components. One notable category includes oils formulated with potent herbs such as Aśvagandhā *(Withania somnifera)*, Rasnā *(Pluchea lanceolata)*, Nirgundī *(Vitex negundo)*, Eranda *(Ricinus communis)*, and the classical Daśamūla *group*. These formulations are typically prepared on Taila bases like Tila Taila or Kṣīrabala, and often incorporate aqueous or milk-based decoctions to enhance bioavailability and tissue specificity[43]. Their multi-targeted mode of action includes Vāta-pacification, anti-inflammatory, analgesic, neuroprotective, and muscle-strengthening effects, making them suitable for both acute and chronic presentations of knee pathologies[44].

In clinical Ayurvedic practice, these oils are particularly effective in cases that show resistance to single-drug therapies or classical mono-formulations. They have been widely adopted in Panchakarma protocols, especially for Janu Basti, Patrapinda Svedana, and Abhyanga, where they offer improved outcomes in terms of pain relief, joint mobility, and functional rehabilitation. Furthermore, such compound oils produced by reputed Ayurvedic institutions like Divya Pharmacy and other GMP-certified manufacturers are now being incorporated into modern rehabilitation therapies[45]. Their usage is expanding in integrative pain management clinics, geriatric musculoskeletal care, and sports injury rehabilitation, where they complement physiotherapy, electrotherapy, and manual mobilization techniques. Their transdermal efficacy, combined with minimal side effects, positions them as valuable alternatives or adjuncts to non-steroidal anti-inflammatory drugs (NSAIDs), particularly in long-term management strategies[46].

PHARMACOLOGICAL INSIGHTS AND MECHANISM OF ACTION

The therapeutic potential of Janu Basti lies not only in its localized delivery system but also in the phytopharmacological profile of the medicated oils used. The herbs employed in these oils possess a rich spectrum of bioactive compounds that target multiple pathophysiological mechanisms associated with osteoarthritis, joint degeneration, and Vata-vitiated disorders[47].

COX Inhibition and Anti-inflammatory Action
Herbs like Nirgundī (*Vitex negundo*) and Rasnā (*Pluchea lanceolata*) have been shown through *in vitro* and *in vivo* studies to exert significant cyclooxygenase (COX-2) inhibitory effects, similar to the mechanism of NSAIDs[48]. These actions help attenuate the production of prostaglandins and leukotrienes, thereby reducing joint inflammation, swelling, and stiffness[49]. Additionally, Guggulu (*Commiphora mukul*) often used in conjunction further amplifies anti-inflammatory action via inhibition of nuclear factor-kappa B (NF-κB) pathways.

Neuroprotective and Adaptogenic Effects
Aśvagandhā (*Withania somnifera*) is a cornerstone Rasāyana herb known for its neuroprotective, anti-arthritic, and adaptogenic properties[50]. It modulates the hypothalamic-pituitary-adrenal (HPA) axis, thereby improving stress resilience and reducing chronic low-grade inflammation associated with joint degeneration. Withanolides from Ashwagandha also help regenerate neuronal tissue, which may contribute to improved proprioception and motor control in degenerative joint conditions[51].

Vehicle (Sneha) Facilitated Transdermal Absorption
The use of lipid bases such as Tila Taila (sesame oil) or Kṣīra (milk) plays a crucial role in enhancing dermal penetration and ensuring effective percutaneous drug delivery. Sesame oil is rich in linoleic acid and lecithin, which act as natural permeation enhancers. Milk, when used as a decoction medium, helps solubilize fat- and water-soluble phytochemicals simultaneously, improving their bioavailability[52]. This makes the oil a dual-function vehicle: nourishing and delivering active constituents into deeper tissues such as cartilage and synovium[10].

Synergistic Multi-Target Action in Compound Oils
Modern compound oils, combining classical Sneha bases with a broad palette of herbs (e.g., Eranda, Dashamūla, Mañjiṣṭhā, Bala), exhibit a synergistic mechanism involving:

- Modulation of pro-inflammatory cytokines (IL-1β, TNF-α)[53]
- Inhibition of matrix metalloproteinases (MMP-1, MMP-3) responsible for cartilage breakdown[54,55]
- Reduction of oxidative stress through scavenging of reactive oxygen species (ROS)[56]
- Rebalancing of Vata at the Asthi (bone) and Majjā Dhātu (marrow) levels[57]

This multifactorial action supports not just symptomatic relief (pain and swelling), but also functional regeneration, particularly when used in repeated Janu Basti sessions or as part of an integrated Pañcakarma program.

Clinical Implications
These pharmacological actions translate into observable clinical benefits:

- Decreased Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scores
- Improved range of motion (ROM) and gait efficiency
- Sustained reduction in morning stiffness and joint effusion
- Lower dependency on NSAIDs or corticosteroids in chronic cases

CONCLUSION

The efficacy of Janu Basti as both a localized therapeutic intervention and a systemic dosha-modulating therapy relies fundamentally on the selection of an appropriate medicated oil. This choice is not arbitrary, but rather rooted in the classical Ayurvedic principles of dosha predominance, tissue involvement (dhātu avasthā), chronicity of the disease, and individual constitution (prakṛti). Classical formulations such as Mahanārāyaṇa Taila, Kṣīrabala Taila, Sahacarādi Taila, and others continue to serve as time-tested tools for managing Sandhigata Vāta, neuromuscular degeneration, and joint stiffness with consistent results. However, the emergence of standardized multi-herbal compound oils, designed through a rational integration of traditional Ayurvedic wisdom and modern pharmacognostical validation, has added a new dimension to clinical practice. These compound oils, enriched with herbs such as Aśvagandhā, Rasnā, Nirgundī, Eranda, and Daśamūla, offer multi-targeted therapeutic effects addressing not only Vata vitiation but also associated inflammatory pathways, oxidative stress, and neuromuscular dysfunctions. Such formulations have shown particular promise in chronic and non-responding cases of osteoarthritis, rheumatoid-like inflammatory joint conditions, and post-traumatic degenerative changes, where mono-herbal or classical oils may have plateaued in effect. When used judiciously under clinical guidance, these oils enhance the scope of Janu Basti by improving pain management, reducing stiffness, and restoring joint function while also ensuring safety, reproducibility, and patient compliance. In the broader context of integrative musculoskeletal rehabilitation, the ability to individualize oil selection based on classical Ayurvedic diagnostics and contemporary clinical understanding stands as a powerful example of Ayurveda's adaptive, patient-centered ethos. Thus, the judicious use of medicated oils whether classical or compound remains the cornerstone of Janu Basti's therapeutic success, contributing significantly to its continued relevance in both traditional and modern healthcare settings.

REFERENCES

1. Scheuing WJ, Reginato AM, Deeb M, Kasman SA. The burden of osteoarthritis: Is it a rising problem? Best Pract Res Clin Rheumatol. 2023;37(2):101836.
2. Langworthy M, Dasa V, Spitzer AI. Knee osteoarthritis: Disease burden, available treatments, and emerging options. Ther Adv Musculoskelet Dis. 2024; 16:1759720X24127 3009.
3. Katara PK, Sawarkar P. Systematic review of management of Janu Sandhigata Vata (knee osteoarthritis) through Ayurveda. J Pharm Negat Results. 2022;4396–404.
4. Kumain K, Gupta R, Kumar P, Mahajan K. A comparative clinical evaluation of Janu Basti with and without Upnaha in Janu Sandhigata Vata (osteoarthritis of knee). Int J Ayurveda Pharma Res. 2024;25–33.
5. Arya R, Ghoshal S, Pal K, Mangal G, Dutta A. A systematic review on Panchakarma-based Ayurveda treatment in Janu Sandhigata Vata. Int J Ayurvedic Med. 2023;14(1):29–41.
6. Dhakal M. A randomized comparative clinical study to evaluate the efficacy of Ushma Sweda and Drava Sweda in Janu Sandhigata Vata w.s.r. to osteoarthritis of knee joint [dissertation]. Bengaluru: Rajiv Gandhi University of Health Sciences; 2018.
7. Swetha BM, Kulkarni M, Hullur Y. A review on Janusandhigata Vata. J Ayurveda Integr Med Sci. 2024;9(2):258–62.
8. Patil PD, Kukade AB, Patil DD, Bhuyan C. Role of Ayurveda in the management of post-traumatic chronic inflammatory synovitis of knee joint: A case report. Int J Ayurvedic Med. 2023;14(2):549–54.
9. Yao Y, Xie W, Opoku M, Vithran DTA, Li Z, Li Y. Cryotherapy and thermotherapy in the management of osteoarthritis and rheumatoid arthritis: A comprehensive review. Fundam Res. 2024

10. Jha LA, Imran M, Shrestha J, Devkota HP, Bhattacharya K, Alsayari A, *et al.* Effectiveness of phytoconstituents and potential of phyto-nanomedicines combination to treat osteoarthritis. Eur Polym J. 2024;113243.
11. Chakraborty K. Frontier advances on biomechanical therapies. In: Cartilage Tissue and Knee Joint Biomechanics. Academic Press; 2024. p. 651–80.
12. Woo EH, Jung SH. Effect of blending essential oil on abdominal discomfort using Ayurveda Tridosha. J Korean Soc Cosmetol. 2022;28(4):846–54.
13. Jaitwar AP, Jatav R, Verma R. Holistic healing: The principles and practices of Ayurvedic medicine. Academic Guru Publishing House; 2024.
14. Panda P, Das B, Sahu DS, Meher SK, Bhuyna GC, Das BK, Rao MM. Taila kalpana (medicated oil) in Ayurveda. Res J Pharmacol Pharmacodyn. 2016;8(1):39–41.
15. Xu F, Uebaba K, Ogawa H, Tatsuse T, Wang BH, Hisajima T, Venkatraman S. Pharmaco-physio-psychologic effect of Ayurvedic oil-dripping treatment using essential oil from *Lavandula angustifolia*. J Altern Complement Med. 2008;14(8):947–56.
16. Singh SK, Rajoria K, Kumar A. A comparative clinical study of Janu Basti and Matra Basti with Sahachara Taila along with Adityapaka Guggulu on osteoarthritis of knee joint. AYU. 2023;44(3):96–102.
17. Kumar S, Madaan A, Verma R, Gupta A, Sastry JLN. *In vitro* anti-inflammatory effects of Mahanarayan oil formulations using dendritic cell–based assay. Ann Phytomed. 2014;3:40–5.
18. Rishabh, Patnaik BSV, Lakshmana Rao C. Visualization of flow and impact process of oils used in Shirodhara treatment on a flat plate under gravity. In: International Symposium on Plasticity and Impact Mechanics. Singapore: Springer; 2022; 355–64.
19. Sharma A, Babele S, Shukla K, Mahajan SC. Comparative assessment of physicochemical properties of marketed Ayurvedic Mahanarayan massage oils. Curr Res Pharm Sci. 2018; 254–7.
20. Lohith BA, Girish KJ, Ashutosh C. Standardization of Sahacharadi Taila: A compound formulation used in Basti Karma. Pharma Innov J. 2013;2(9)
21. Tripathy R, Shijo YJ, Raj S, Otta SP. An open-label clinical study on combined efficacy of Sahacharadi Taila Pana and Siravyadha with exercise and bandage in varicose veins. Ann Ayurvedic Med. 2023;12(1):47.
22. Rao VN, Shankar T, Dixit SK, Ray AB. Standardisation of Ksheerabala Taila. Ancient Sci Life. 1996;16(1):21–5.
23. Verma J, Mangal G. New perspectives of Ksheerabala Taila: A critical review. Int J Ayurveda Trad Med. 2019;1(1):24–30.
24. Rana S. Role of Januvasti in Sandhigata Vata (osteoarthritis) especially knee joint. J Indian Syst Med. 2018;6(2):68–72.
25. Singh P, Mishra M, Sharma K, Singh A. Unveiling multifaceted benefits of Dhanvantaram Taila: Insights from Ashtanga Hridayam. J Ayurveda Acad. 2025;1(1)
26. Hepsibah PTA, Rosamma MP, Prasad NBR, Kumar PS. Standardisation of Murivenna and Hemajeevanti Taila. Ancient Sci Life. 1993;12(3–4):428–34.
27. Balkrishna A, Ranjan R, Sakat SS, Sharma VK, Shukla R, Joshi K, *et al.* Evaluation of polyherbal Ayurvedic formulation Peedantak Vati for anti-inflammatory and analgesic properties. J Ethnopharmacol. 2019;235:361–74.
28. Zaigham H, Tauheed A, Ali A. Recent trends in traditional medicine dosage forms and status of Unani and Ayurvedic medicine. Int J Pharm Sci Res. 2019;10(4):1640–9.
29. Nair HJ, Sreekumar GS, Satheesan S. A pilot study on efficacy of Pankajakasthuri orthoherb cream/thermagel in osteoarthritis. Int J Complement Alt Med. 2022;15(1):20–6.
30. Singh SK, Rajoria K, Kumar A, Sharma S. A double-blind trial evaluating effects of nasal therapy with Vrihatajivakadya oil on viscosities in migraine. J Ayurveda Integr Med. 2023;14(2):100662.
31. Kinne RW, Kunisch E, Winter R, Roth A. Influence of IL-1β, TNF-α and PDGF-BB on matrix metalloproteinase expression in early-passage RA and OA synovial fibroblasts. Arthritis Res Ther. 2002;4(Suppl 1):65.
32. Gandek B. Measurement properties of the WOMAC index: A systematic review. Arthritis Care Res. 2015;67(2):216–29.
33. Wanjarkhedkar P, Pathak YV, editors. Therapeutic nutrition in Ayurveda. CRC Press; 2024.
34. Dhurve M, Paliwal S, Dash B. Effect of Go-Ghrita Janu Basti with Ashwagandha Churna in Sandhigata Vata (OA): A pilot study. J Ayurveda Integr Med Sci. 2024;9(7):21–7.
35. Mansuri ML, Parihar P, Solanki I, Parihar MS. Flavonoids in modulation of cell survival pathways. Genes Nutr. 2014;9:1–9.
36. Sagar S, Dudhamal TS. Systematic review of parasurgical management of Sandhivata (OA) with Agnikarma and Jalaukavacharan. J Ayurveda Campus. 2022;3(1):69–80.
37. Rossi R. Heat therapy for different knee diseases: Expert opinion. Front Rehabil Sci. 2024;5:1390416.
38. Limberg JK, Casey DP, Trinity JD, Nicholson WT, Wray DW, Tschakovsky ME, *et al*. Assessment of resistance vessel function guidelines. Am J Physiol Heart Circ Physiol. 2020;318(2):H301–H325.
39. Chen Z, Zhu LT, Luo ZH. Flow and transport in biological vascular systems: A review. Ind Eng Chem Res. 2023;63(1):4–36.
40. Schrott E, Raju JR, Schrott S. Marma therapy: The healing power of Ayurvedic vital point massage. Singing Dragon; 2015.
41. Iqbal M. Complementary and alternative medicinal approaches for enhancing immunity. CRC Press; 2022.
42. Shukla RK, Chandil A, Sharma V, Sharma S. Ayurvedic management of post-viral arthritis: A case study. J Ayurveda Integr Med Sci. 2024;9(12):351–7.
43. Riar CS, Panesar PS, editors. Bioactive compounds and nutraceuticals from dairy, marine and non-conventional sources. CRC Press; 2024.
44. Addissouky TA, El Sayed IE, Ali MM. Conservative and emerging rehabilitative approaches for knee osteoarthritis. J Clin Orthop Trauma Care. 2024;6(2):2694-0248.
45. Singh SK, Sahu N, Katiyar P, Arya V. Challenges, notions and advances in Indian traditional medicine and governance. In: Integrated Pathy. Academic Press; 2025. p. 241–91.
46. Wu X, Xie J, Qiu L, Zou L, Huang Y, Xie Y, *et al.* Anti-inflammatory and analgesic activity of *Viburnum taitoense* extract. J Ethnopharmacol. 2021;269:113742.
47. Kalachaveedu M, Senthil R, Azhagiyamanavalan S, Ravi R, Meenakshisundaram H, Dharmarajan A. Natural product matrices in cancer chemoprevention: A scoping review. Phytother Res. 2023;37(4):1539–73.
48. Saini R, Dhiman NK. Natural anti-inflammatory and anti-allergy agents: Herbs and botanicals. Anti-Inflammatory Anti-Allergy Agents Med Chem. 2022;21(2):90–114.
49. Dey R, Dey S, Samadder A, Saxena AK, Nandi S. Natural inhibitors of COX, LOX and leukotriene pathways. Comb Chem High Throughput Screen. 2022;25(14):2341–57.
50. Banik B, Das S, Das MK. Anti-inflammatory and anti-arthritic medicinal plants of Eastern Himalaya. Pharm Rev. 2020;14(28)

51. Wang J, Zhang H, Kaul A, Li K, Priyandoko D, Kaul SC, Wadhwa R. Effect of Ashwagandha withanolides on muscle cell differentiation. Biomolecules. 2021;11(10):1454.
52. Hu Y, Lin Q, Zhao H, Li X, Sang S, McClements DJ, *et al*. Bioaccessibility and bioavailability of phytochemicals. Food Hydrocoll. 2023;135:108165.
53. Nogueira MNM, Aquino SG, Rossa Júnior C, Spolidório DMP. Terpinen-4-ol and α-terpineol inhibit cytokine production in macrophages. Inflamm Res. 2014;63:769–78.
54. Ashruf OS, Ansari MY. Natural compounds as inhibitors of cartilage matrix degradation in OA. Life. 2022;13(1):102.
55. Mukherjee A, Das B. Role of inflammatory mediators and MMPs in osteoarthritis progression. Biomater Biosyst. 2024;100090.
56. de Lavor ÉM, Fernandes AWC, de Andrade Teles RB, Leal AEBP, de Oliveira Júnior RG, Gama e Silva M, *et al*. Essential oils and major compounds in chronic inflammation. Oxid Med Cell Longev. 2018;2018:6468593.
57. Ehrlich G, Dhru D. Ayurvedic medicine in neurology. In: Integrative Neurology. 2020. p. 327.

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