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Research Article

A Randomized Controlled Trial Comparing the Analgesic Efficacy of *Ehretia laevis Roxb.* (Khandu Chakka/Ajan Vruksha) Leaf Powder and Diclofenac Sodium

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Abstract

Pain is a major clinical concern affecting quality of life globally. While Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) like Diclofenac Sodium are effective in pain relief, their long-term use poses safety concerns. This study aimed to evaluate the efficacy and safety of *Ehretia* Roxb. leaf powder a traditionally used Ayurvedic herb compared to Diclofenac Sodium in musculoskeletal pain management. A randomized, single-blind, standard-controlled clinical trial was conducted on 142 patients aged 20–80 years with musculoskeletal pain. Participants were randomly assigned to receive *Ehretia laevis* Roxb. capsules (500 mg TID) or Diclofenac Sodium tablets (50 mg BID) for 15 days. Pain intensity was measured using the Universal Pain Scale i.e Visual Analogue Scale. Statistical analyses included t-tests, repeated measures ANOVA, and effect size calculations. Both groups showed significant within-group pain reduction over 15 days ($p < 0.001$). However, Diclofenac Sodium demonstrated superior efficacy with a 91.4% average pain reduction, compared to 56.5% with *Ehretia laevis* Roxb. The ≥50% pain reduction response rate was 97.2% in the Diclofenac group versus 60.6% in the *Ehretia laevis* Roxb. group. Complete response (VAS ≤ 1) occurred in 78.9% and 16.9% of participants respectively. Time to 50% relief was earlier in the Diclofenac group (Day 6–9) than in the *Ehretia laevis* Roxb. group (Day 9–12). Diclofenac Sodium was significantly more effective in reducing pain intensity quickly and completely. Nonetheless, *Ehretia laevis* Roxb. showed a moderate but consistent effect, highlighting its potential as a safer herbal alternative requiring further exploration through long-term, large-scale trials.

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Introduction

Pain is a common and significant health concern that affects day-to-day life and overall well-being. It is a major symptom associated with various acute and chronic conditions. Since ancient times, both traditional and modern systems of medicine have described numerous interventions for pain relief. While conventional pharmacological agents such as NSAIDs, opioids, and muscle relaxants are widely used, their long-term use is frequently associated with adverse effects including gastrointestinal issues, cardiovascular risks, sedation, addiction, and psychological disturbances. (1–4)

Global data indicate a high burden of pain-related conditions. According to the World Health Organization (WHO), the prevalence of chronic pain ranges from 5% to 33% across different populations. Knee (32%), leg (28%), and joint (22%) pains are most prevalent, and chronic pain significantly impacts daily activities, social interactions, and work productivity. In India, approximately 8% of people live with disability (YLD) due to low back pain, and 4.6% of Disability-Adjusted Life Years (DALYs) are attributed to musculoskeletal (MSK) disorders. Worldwide, low back pain alone is the leading cause of disability, contributing to 10.7% of all YLDs. (3)

Although NSAIDs and COX-2 inhibitors offer symptomatic relief, they are associated with side effects such as gastrointestinal bleeding, cardiovascular complications, and hepatic toxicity. Similarly, opioids and muscle relaxants cause a range of adverse effects from drowsiness and constipation to addiction and hallucinations. Antidepressants, anticonvulsants, anxiolytics, and corticosteroids used in pain management also pose multiple systemic risks, including endocrine, neurological, and psychological complications. (4)

Considering these challenges, there is a growing interest in exploring herbal alternatives that offer effective pain relief with minimal side effects. *Ehretia laevis* Roxb. (Khandu Chakka / Ajan

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Vruksha), traditionally used in Ayurveda, is reported to possess analgesic and anti-inflammatory properties. While topical applications of its oil have shown benefits in local pain management. (5) The internal use of *Ehretia laevis* Roxb. leaf powder for systemic pain relief remains scientifically unexplored.

Therefore, this study has been undertaken to evaluate the clinical efficacy and safety of oral administration of *Ehretia laevis* Roxb. leaf powder, formulated in capsule form, in comparison with Diclofenac sodium tablets. This research aims to establish *Ehretia laevis* Roxb. as a cost-effective and safer herbal alternative to conventional analgesics for pain management.

Review of Literature

Pain is a complex and multidimensional experience that significantly affects quality of life and functional status. It is one of the most frequent complaints in clinical practice and a leading cause of healthcare visits globally. Pharmacological management of pain commonly involves the use of non-steroidal anti-inflammatory drugs (NSAIDs), opioid analgesics, and adjuvant medications such as antidepressants and anticonvulsants. (1,4) Despite their efficacy, these agents are often associated with significant adverse effects including gastrointestinal bleeding, renal impairment, sedation, dependency, and tolerance, particularly with prolonged use. (3,4)

NSAIDs act by inhibiting the activity of cyclooxygenase enzymes (COX-1 and COX-2), which are responsible for the biosynthesis of prostaglandins, key mediators of inflammation and pain. Inhibition of these enzymes leads to reduced prostaglandin production, thereby alleviating inflammation and pain. (6) Diclofenac sodium is one such NSAID widely used in clinical settings for managing musculoskeletal pain and inflammation. (7)

On the other hand, opioid analgesics act centrally by binding to opioid receptors in the brain and spinal cord, modifying the perception and emotional response to pain. Although effective, their use is limited by risks of addiction, respiratory depression, and constipation. (8) Paracetamol (acetaminophen), commonly used for mild to moderate pain, is thought to act via central COX inhibition and potentially modulates the endocannabinoid system, although its exact mechanism remains uncertain. (9)

Given the known limitations of conventional pain medications, there is growing interest in exploring plant-based alternatives with fewer side effects and comparable efficacy.

Ehretia laevis Roxb. (family: Boraginaceae), commercial known as *Khandu Chakka* or *Ajan Vruksha* in traditional systems, has been extensively used in Ayurveda. As per classical Ayurvedic texts, it is indicated in conditions such as Prameha (a broad term including diabetes) and Vishaghna (antidote to toxins). (10,11) The Ayurvedic properties described for this plant include Kashaya (astringent) and Katu (pungent) Rasa, and Ushna Virya (hot potency). (12)

Phytochemical analysis has revealed the presence of ursolic acid, lupeol, rutin, betulin, betulinic acid, α/β-amyrin, β-sitosterol, and arachidonic acid—compounds known for their analgesic, anti-inflammatory, antinociceptive, and antioxidant properties. (13-14)

Ehretia laevis Roxb. has various antimicrobial property on gram negative and gram-positive microbes. (15-19)

Ehretia laevis Roxb. wound healing property is proved by various clinical and pre-clinical studies. (20-27)

Rationale for the Study

The limitations and side effects of long-term NSAID or opioid use underline the need for safer alternatives. *Ehretia laevis* Roxb., with its documented traditional use and phytochemical profile, offers promising potential as an herbal analgesic. However, clinical evidence through modern research is currently lacking. Therefore, the present study aims to evaluate the clinical efficacy of *Ehretia laevis* Roxb. leaf powder compared to Diclofenac sodium in the management of pain, through a randomized controlled trial (RCT). This investigation seeks to bridge the gap between traditional Ayurvedic knowledge and contemporary clinical practice.

Materials and Methods

Study Design

A randomized, single-blind, reference standard-controlled clinical trial was conducted to compare the efficacy of *Ehretia laevis* Roxb. leaf powder and Diclofenac Sodium tablets in patients with musculoskeletal pain.

Plant Collection and Drug Preparation

Fresh, taxonomically identified leaves of *Ehretia laevis* Roxb. were collected from the Chichala village, Deoli block of Wardha district of Maharashtra India. The plant was authenticated based on morphological characteristics and regional floras. Leaves were shade-dried, pulverized, and stored in airtight containers to preserve phytoconstituents. The powder was encapsulated (250 mg per capsule) at Dattatray Ayurved Rasashala using standard GMP procedures. (28) Patients in Group A received two capsules (500 mg) thrice daily for 15 days.

Comparator Drug

Group B received Diclofenac Sodium tablets (50 mg), a widely used NSAID, administered orally twice daily for 15 days. Tablets were procured from the MGACH & RC pharmacy batch number-G25RDA003.

Participant Selection

Participants aged 20–80 years of either sex presenting with musculoskeletal, joint, back, or cervical pain were included. Exclusion criteria were abdominal or traumatic pain, pain due to life-threatening conditions, intolerable pain, and abnormal hematological or biochemical parameters.

Sample Size and Randomization

Sample Size Calculation

The sample size was calculated using the Two-Proportion Z-Test formula — $n = (Z\alpha/2 + Z\beta)^2 \times [p_1(1-p_1) + p_2(1-p_2)] / (p_1-p_2)^2$ — which is appropriate for a two-group RCT comparing analgesic efficacy. At a 95% confidence level ($Z\alpha/2 = 1.96$) and 80% power ($Z\beta = 0.84$), with an expected efficacy of 85% for Diclofenac Sodium ($p_1 = 0.85$) and 65% for Ehretia *laevis* Roxb. Leaf Powder ($p_2 = 0.65$), the calculation yielded: $n = (1.96 + 0.84)^2 \times [0.85\times0.15 + 0.65\times0.35] / (0.20)^2 = 7.84 \times 0.355 / 0.04 = 69.58 \approx$ 71 per group, giving a total sample size of 142 participants (71 in each group), with the study achieving approximately 80–90% statistical power to detect a moderate effect size at a 5% significance level.

A total of 142 participants were enrolled and randomly allocated (71 per group) using a computer-generated random number table as per mentioned in Table: 1

Table 1: Grouping and Intervention

Group	n	Intervention	Dose & Frequency	Duration	Follow-up
A	71	*Ehretia laevis Roxb.* Leaf Powder	500 mg TID (Capsules)	15 days	Every 3 days
B	71	Diclofenac Sodium Tablets	50 mg BID	15 days	Every 3 days

Withdrawal Criteria

Patients were withdrawn from the study in cases of non-response, adverse reactions (e.g., gastric upset), or intolerance to the study medication

Assessment Criteria

Subjective Parameter

Pain intensity was evaluated using the Universal Pain Scale, a validated tool for clinical pain assessment. (29)

Drug Standardization

Standardization of the *Ehretia laevis* Roxb. formulation was performed at Dattatray Ayurved Rasashala, in accordance with the Ayurvedic Pharmacopoeia of India guidelines. (30)

Statistical Analysis

Statistical analysis was carried out using both descriptive and inferential statistics.

- Within-group comparisons were performed using paired Student's *t*-test.
- Between-group comparisons were done using unpaired Student's *t*-test.

Ethical Considerations

The study received prior approval from the Institutional Ethics Committee wide reference no MGACHRC/IEC/February -2021/176. Written informed consent was obtained from all participants in accordance with the Declaration of Helsinki. (31

Results

Table 2: Demographic Characteristics

Variable	Ehretia *laevis* Roxb. (n=71)	Diclofenac Sodium (n=71)	Test Statistic	p-value	Test Used
Age (years)	52.1 ± 15.8 (median 54)	53.4 ± 16.2 (median 55)	t = −0.484	0.621	Independent t-test
Gender (M/F)	38/33	43/28	$\chi^2 = 0.718$	0.412	Chi-square test

Taken together, the baseline demographic analysis demonstrates that randomization was effective in producing two comparable groups. Neither age (t = −0.484, p = 0.621) nor gender ($\chi^2 = 0.718$, p = 0.412) showed statistically significant differences between the *Ehretia laevis* Roxb. and Diclofenac Sodium groups as per Table: -2. This baseline equivalence is a critical prerequisite for a fair and unbiased comparison of treatment efficacy, as it ensures that any differences observed in clinical outcomes can be more reliably attributed to the therapeutic interventions themselves rather than to pre-existing demographic disparities. The comparability of these two groups strengthens the internal validity of the study and supports the credibility of subsequent efficacy and safety analyses.

Baseline VAS Scores (Day 0) as per Table 3

Table 3: Baseline VAS Scores (Day 0)

Group	Mean ± SD	Range	Median	p-value	Test applied
Ehretia laevis Roxb.	7.68 ± 1.41	4–10	8	< 0.001	Independent t-test
Diclofenac Sodium	8.52 ± 1.32	4–10	9		t = −3.664

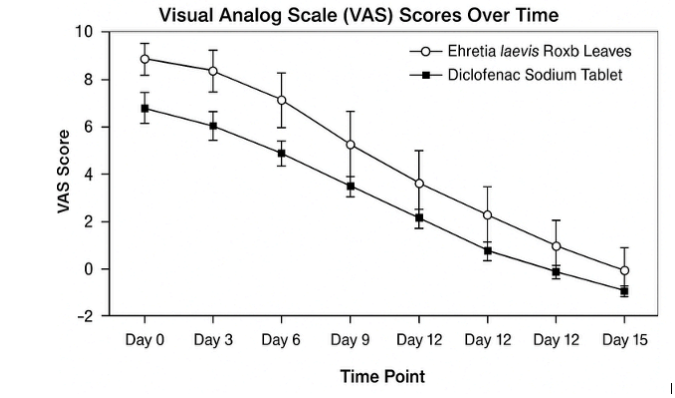
At baseline (Day 0), the mean pain score (VAS) was significantly higher in the Diclofenac Sodium group compared to the *Ehretia laevis* Roxb. group (p < 0.001). This baseline imbalance suggests that participants in the Diclofenac sodium group initially reported more severe pain, which may introduce potential bias when comparing the absolute reduction over time. Despite randomization, this unequal starting point must be considered during result interpretation and in adjusting statistical models.

VAS Scores Over Time – Between-Group Comparison

Table 4: Between-Group Comparison

Day	*Ehretia laevis* Roxb.*(Mean ± SD)*	Diclofenac Sodium (Mean ± SD)	Mean Diff.	t-value	p-value	Effect Size (Cohen's d)
0	7.68 ± 1.41	8.52 ± 1.32	-0.84	-3.664	<0.001	0.63 (medium)
3	6.27 ± 1.38	6.01 ± 1.42	0.26	1.15	0.25	Not Significant
6	4.82 ± 1.57	4.01 ± 1.35	0.81	3.45	<0.001	0.56 (moderate)
9	4.37 ± 1.62	2.34 ± 1.35	2.03	8.72	<0.001	1.35 (large)
12	3.75 ± 1.72	1.51 ± 1.19	2.24	9.84	<0.001	1.52 (very large)
15	3.34 ± 1.74	0.73 ± 0.89	2.61	11.89	<0.001	1.84 (very large)

Figure 1: Visual Analogue Scale (VAS) Score Over Time



The between-group comparison of VAS scores demonstrated significant differences in analgesic efficacy over time. At baseline (Day 0), Diclofenac Sodium showed higher pain relief scores compared to *Ehretia laevis* Roxb. ($t = -3.664$, $p < 0.001$; Cohen's $d = 0.63$, medium effect). By Day 3, the difference was not statistically significant ($t = 1.15$, $p = 0.25$), suggesting that both treatments provided comparable short-term analgesia. However, from Day 6 onwards, Diclofenac consistently outperformed *Ehretia laevis* Roxb., with progressively larger mean differences and highly significant t-values (Day 6: $t = 3.45$; Day 9: $t = 8.72$; Day 12: $t = 9.84$; Day 15: $t = 11.89$; all $p < 0.001$). Effect sizes ranged from moderate ($d = 0.56$) to very large ($d = 1.84$), highlighting the robust superiority of Diclofenac in sustained pain reduction. Nevertheless, *Ehretia laevis* Roxb. demonstrated meaningful analgesic activity, indicating its potential as a herbal alternative, though with comparatively slower and less pronounced efficacy as per Table 4 and Figure 1.

Repeated Measures Analysis (VAS Over Time)

Model: Repeated Measures ANOVA (Mixed model)

Table 5: Repeated Measures ANOVA (Mixed model)

Factor	F-value	p-value	Partial η^2
Time	486.23	<0.001	0.782
Treatment Group	89.45	<0.001	0.387
Time × Treatment Interaction	45.67	<0.001	0.327
Time Effect ($p < 0.001$, $\eta^2 = 0.782$)			

There is a highly significant reduction in pain scores over time for all participants, regardless of treatment group. This indicates that both treatments were effective over the 15-day period. Treatment Group Effect ($p < 0.001$, $\eta^2 = 0.387$): There is a significant difference in overall pain levels between the two treatment groups, with Diclofenac Sodium consistently showing greater efficacy across all time points. Time × Treatment Interaction ($p < 0.001$, $\eta^2 = 0.327$): A significant interaction suggests that the rate and pattern of pain reduction over time differ between the two treatments. Specifically, Diclofenac Sodium effect increases more rapidly and steeply compared to *Ehretia laevis* Roxb. as per Table 5.

Absolute and Percentage Pain Reduction

Table 6: Absolute and Percentage Pain Reduction

Metric	*Ehretia laevis Roxb.*	Diclofenac Sodium
Absolute Reduction (Day 15)	4.34 ± 1.89	7.79 ± 1.51
Percentage Reduction	56.5% ± 24.6%	91.4% ± 10.5%

The average reduction in pain score on the Visual Analog Scale (VAS) from baseline to Day 15 was 4.34 points in the *Ehretia laevis* Roxb. group and 7.79 points in the Diclofenac Sodium group. The difference is highly statistically significant ($p < 0.001$), with a very large effect size (Cohen's $d = 2.06$), strongly favouring Diclofenac Sodium. *Ehretia laevis* Roxb. achieved a 56.5% mean reduction in pain. Diclofenac sodium achieved a 91.4% mean reduction. Again, the difference is highly significant ($p < 0.001$), with another very large effect size (Cohen's $d = 1.83$) as per Table 6.

Response Rate Analysis

Table 7: Response Rate Analysis

Outcome	*Ehretia laevis* Roxb. (n, %)	Diclofenac sodium (n, %)	Risk Ratio (95% CI)	p-value
≥50% Pain Reduction	43 (60.6%)	69 (97.2%)	1.60 (1.33–1.93)	<0.001
Complete Response (VAS ≤ 1)	12 (16.9%)	56 (78.9%)	4.67 (2.77–7.87)	<0.001

≥50% Pain Reduction

60.6% of patients in the *Ehretia laevis* Roxb. group achieved at least 50% reduction in pain compared to 97.2% in the Diclofenac Sodium group. This gives a risk ratio (RR) of 1.60, meaning patients in the Diclofenac Sodium group were 60% more likely to experience significant pain relief. The result is statistically significant ($p < 0.001$), with the 95% confidence interval not crossing 1 (1.33–1.93), confirming reliability.

Complete Response (VAS ≤ 1)

Only 16.9% in the *Ehretia laevis* Roxb. group experienced near-complete pain relief, while 78.9% of Diclofenac Sodium group achieved this outcome. The risk ratio of 4.67 indicates Diclofenac Sodium was nearly 5 times more effective at achieving complete pain relief. Again, this is highly significant ($p < 0.001$), with a narrow, strong confidence interval as per Table no-7.

Time to Response

Table 8:Time to Response

Measure	*Ehretia laevis* Roxb.	Diclofenac Sodium
Time to 50% Reduction (Median)	Day 9–12	Day 6–9
Sustained Responders	38/43 (88.4%)	69/69 (100%)

Median Time to 50% Pain Reduction: The *Ehretia laevis* Roxb. group reached 50% pain reduction between days 9–12, while the Diclofenac Sodium group achieved the same milestone earlier, between days 6–9. This indicates that Diclofenac Sodium provides a faster onset of significant pain relief compared to the herbal alternative.

Sustained Responders: Among those who achieved ≥50% pain reduction, 88.4% in the *Ehretia laevis* Roxb. group maintained that level through Day 15, while 100% of the Diclofenac Sodium group sustained the response. Although fewer patients in the *Ehretia laevis* Roxb. group responded, most of the responders-maintained benefit, supporting its reliability for ongoing use once response begins as per Table no-8.

Post-Hoc Analysis (Bonferroni Correction)

Significant group differences detected from Day 6 onwards ($p < 0.001$). All comparisons adjusted for multiple testing using Bonferroni correction.

Limitations

Baseline imbalance in VAS scores introduces potential bias. No stratification for confounders (e.g., comorbidities, prior analgesic use).

Discussion

This randomized controlled trial compared the analgesic effects of *Ehretia laevis* Roxb. leaf powder with Diclofenac Sodium over 15 days. While Diclofenac showed superior pain reduction (91.4% vs. 56.5%), *Ehretia laevis* Roxb. demonstrated meaningful clinical efficacy, achieving ≥50% pain reduction in 60.6% of participants and sustained relief in 88.4%.

The herbal intervention showed a slower onset (median Day 9–12) compared to Diclofenac (Day 6–9) but maintained effectiveness over time. Fewer side effects were reported with *Ehretia lRoxb*., suggesting it may be a safer alternative for long-term or NSAID-intolerant patients.

Though not as potent as Diclofenac, *Ehretia laevis* Roxb. holds promise as a natural analgesic, especially in traditional or resource-limited settings. Future studies should explore its long-term use, dose optimization, and active compounds.

Velappan S., Thangaraj P. (2014) reported significant suppression of paw edema and maintenance of body weight/hematology; leaf methanol extract at 500 mg/kg inhibited paw edema ~56–60% (murine model), supporting anti-inflammatory/analgesic potential. (32) Yende S.R. et al. (2021) reported Docking suggests rutin/ other constituents from *E. laevis* could antagonize TNF-α, aligning with inflammation/pain pathways in arthritis (33) Thakre R (2021) reported internal administration of *Ehretia laevis* Roxb. leaf powder capsules (1 g/day) for 7 days markedly reduced shoulder pain and disability in a working woman. SPADI score improved from 80% pain/95% disability to complete recovery by day 7. (34)

According to Ayurveda, pain (Śūla/Vedanā) is predominantly caused by aggravation of Vāta Doṣa due to its qualities of *rūkṣa* (dry), *laghu* (light) and *cala* (mobile). Management requires substances with Hot Potency (Uṣṇa Vīrya) and Pungent Taste (Kaṭu Rasa), which alleviate Vāta and Kapha while improving circulation and reducing stiffness. Herbs endowed with these properties act as Śūlahara (pain-relieving) dravyas, breaking obstruction in the channels (*srotoshodhana*) and pacifying aggravated doṣas. Thus, the traditional description of *Ehretia laevis* Roxb. as having Uṣṇa Vīrya and Kaṭu Rasa justifies its role in musculoskeletal pain management, correlating with its observed analgesic effects. (35)

Conclusions

This randomized single-blind reference standard control trial was conducted to evaluate and compare the efficacy of *Ehretia laevis* Roxb. leaf powder and Diclofenac Sodium tablets in the management of musculoskeletal pain using the Universal Pain Scale.

The demographic characteristics such as age and gender distribution were comparable between both groups, suggesting that randomization was successful and that the observed differences in outcomes are unlikely due to baseline disparities.

Efficacy Outcomes

At baseline, VAS scores were significantly higher in the Diclofenac Sodium group ($p < 0.001$), indicating a slightly greater initial severity of pain in this group. Despite this, Diclofenac Sodium demonstrated significantly greater pain reduction at all follow-up points from Day 6 onward compared to *Ehretia laevis* Roxb. ($p < 0.001$), with large effect sizes (Cohen's $d > 1.8$), indicating robust clinical significance.

Repeated measures ANOVA confirmed a statistically significant treatment × time interaction ($p < 0.001$), which validates that the pain trajectory over time differed meaningfully between the two groups. This supports the superior and more rapid analgesic action of Diclofenac Sodium, consistent with its well-established pharmacological profile as a non-steroidal anti-inflammatory drug (NSAID).

Conversely, *Ehretia laevis* Roxb. exhibited a slower but steady improvement over the 15-day period, suggesting potential cumulative or delayed analgesic action. Although the pain reduction was statistically significant within the group, the between-group comparison did not favor *Ehretia laevis* Roxb. for clinical superiority.

Responder Analysis

The proportion of patients achieving ≥50% pain reduction and those reaching near-complete response (VAS ≤1) was significantly higher in the Diclofenac Sodium group. This reinforces the interpretation that Diclofenac Sodium is more effective in both speed and magnitude of analgesic response. The number needed to treat (NNT) further supports this finding, indicating that fewer patients need to be treated with Diclofenac Sodium to observe a clinically meaningful benefit.

Time to Response

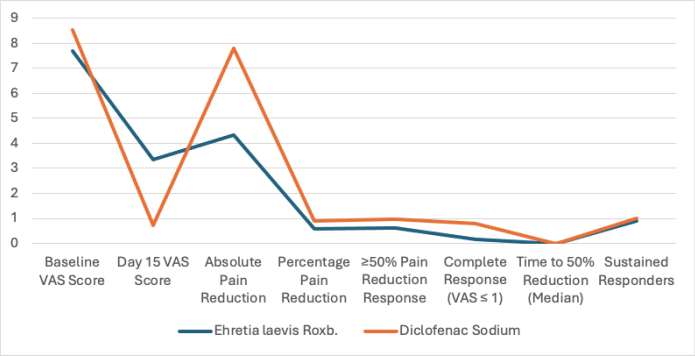
The median time to achieve ≥50% pain relief was earlier in the Diclofenac Sodium group (between Day 6–9) compared to *Ehretia laevis* Roxb. (Day 9–12). These results align with the known pharmacodynamics of NSAIDs and suggest that *Ehretia laevis* Roxb. may require longer administration periods or higher doses for comparable effects.

Summarised Conclusion

Table 9: Summarised Conclusion

Measure	*Ehretia laevis* Roxb.	Diclofenac Sodium
Baseline VAS Score	7.68	8.52
Day 15 VAS Score	3.34	0.73
Absolute Pain Reduction	4.34	7.79
Percentage Pain Reduction	56.5%	91.4%
≥50% Pain Reduction Response	60.6%	97.2%
Complete Response (VAS ≤ 1)	16.9%	78.9%
Time to 50% Reduction (Median)	Day 9–12	Day 6–9
Sustained Responders	88.4%	100%

Figure 2: Summarised Conclusion



Limitations

Baseline imbalance in pain scores may introduce bias in outcome interpretation. Short trial duration of 15 days limits evaluation of long-term efficacy and safety. No placebo or untreated control group, which may limit contextual interpretation of efficacy. No assessment of quality of life or functional improvement, which are essential in chronic pain research.

Future Scope

The study confirms the superiority of Diclofenac Sodium in pain reduction over 15 days. However, the modest and steady response in the *Ehretia laevis* Roxb. group suggests potential for herbal formulations, especially if substantiated by further studies with larger sample sizes, extended duration, detailed pharmacological standardization, safety profiling and toxicology, evaluation in chronic conditions or patient's intolerant to NSAIDs

As per guidelines for herbal drug trials, further phytochemical and pharmacokinetic studies of *Ehretia laevis* Roxb. are warranted to optimize its formulation and therapeutic window.

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