



ORIGINAL RESEARCH PAPER	Dentistry
COMPARING EFFICACY OF AMOXICILLIN AND KABASURA KUDINEER TABLET IN POST EXTRACTION DENTAL CARE	KEY WORDS:

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ABSTRACT	Dental extractions, often required due to gum disease, tooth decay, or injury, can lead to complications such as pain, swelling, and infection afterward. Amoxicillin, a commonly used antibiotic, effectively prevents infections but doesn't directly reduce inflammation or support tissue repair. Kabasura kudineer tablet, an herbal remedy made with ingredients like Guggul, Tinospora cordifolia, and Licorice, has drawn attention for its anti-inflammatory, immune-boosting, and antimicrobial properties, making it a possible alternative or supplement to traditional antibiotics. This study evaluated the effectiveness of Amoxicillin and Kabasura kudineer tablet in post-extraction recovery using a split-mouth clinical trial with 30 patients needing bilateral tooth extractions. Researchers measured pain, swelling, infection, and healing at 1, 3, and 5 days post-surgery using tools like the Visual Analog Scale (VAS), swelling grades, infection occurrence, and healing indices. Amoxicillin consistently proved to be more effective in alleviating pain, swelling, and infection, with significant improvements noted on Days 3 and 5 ($p \leq 0.05$). Although kabasura kudineer tablet was less effective in these specific areas, it showed potential in boosting the immune response and supporting the healing process, as suggested by similar healing scores on Day 3. By Day 5, Amoxicillin achieved better overall healing outcomes compared to Kabasura kudineer tablet. These results support the use of Amoxicillin as the first-line treatment for complications following tooth extraction. However, Kabasura kudineer tablet may be a suitable alternative or supplementary option, particularly for individuals seeking herbal or natural remedies or those considered to be at low risk.
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INTRODUCTION Tooth extraction is one of the most common minor surgical procedures performed in dental practice. While generally safe, post-operative infections remain a notable complication, particularly in patients with poor oral hygiene, systemic conditions, or complex extractions. To mitigate such risks, antibiotics like amoxicillin are routinely prescribed to prevent or manage infection and promote optimal healing. However, the overuse and misuse of antibiotics have contributed significantly to the rise of antimicrobial resistance (AMR), now recognized as a major global health threat. This growing concern underscores the need for alternative therapeutic strategies that are both effective and safer in the long term Traditional medicine systems, such as Ayurveda and Siddha, have long utilized polyherbal formulations to manage infections and enhance immune function. One such formulation is Kabasura Kudineer, a classical Siddha preparation comprising multiple herbs known for their antipyretic, anti-inflammatory, and antimicrobial properties. Initially popularized during the COVID-19 pandemic for its antiviral and immune-modulatory benefits, Kabasura Kudineer has since attracted research interest for its broader therapeutic applications, including respiratory and systemic infections. Despite its widespread traditional use, clinical evidence supporting its efficacy in dental infections is still limited and warrants rigorous scientific investigation. Among the active phytoconstituents found in Kabasura Kudineer is <i>Andrographis paniculata</i> (Burm. f.) Wall. ex Nees, a medicinal plant extensively studied for its antimicrobial, anti-inflammatory, and immunostimulatory activities. In their comprehensive review, Hossain et al. (2021) detail the phytochemical profile and pharmacological actions of <i>Andrographis paniculata</i>, highlighting its promising	antimicrobial properties and clinical safety profile across a variety of infections. The authors emphasize its role as a potential adjunct or alternative to conventional antimicrobial therapies, particularly in the face of rising antibiotic resistance (Hossain et al., 2021). Given the urgent need for safe and effective alternatives to antibiotics, this study seeks to compare the clinical efficacy of Kabasura Kudineer tablets with amoxicillin in managing post-extraction infections. Using a split-mouth randomized clinical trial design, this research allows for direct intra-patient comparison, thereby minimizing individual variability and enhancing the reliability of outcomes. The study evaluates clinical indicators such as post-operative pain, swelling, pus discharge, and wound healing, with the aim of determining whether Kabasura Kudineer could serve as a viable herbal alternative to standard antibiotic prophylaxis or therapy in dental practice. By integrating traditional knowledge with modern clinical research methods, this study hopes to contribute to the growing body of evidence supporting the rational use of phytotherapeutics in dentistry, offering new insights into herbal approaches to infection control and post-operative care. MATERIAL AND METHODS Study Design: A split-mouth clinical trial was carried out in the Department of Oral and Maxillofacial Surgery at Adhiparasakthi Dental College and Hospital, Melmaruvathur, to assess the effectiveness of Kabasura kudineer tablet versus Amoxicillin in post-extraction care. The study involved 30 participants who required the extraction of similar teeth on both sides of the mouth (such as contralateral premolars or molars) to ensure consistency in healing outcomes by reducing
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anatomical variability.

Ethical Approval:

The trial received approval from the Institutional Ethical Committee of Adhiparasakthi Dental College and Hospital, Melmaruvathur.

Inclusion Criteria:

- Patients who provided informed consent
- Aged between 18 and 70 years
- Medically healthy individuals needing tooth extraction due to chronic periodontitis, irreversible pulpitis, or for therapeutic reasons
- Patients undergoing multiple extractions in opposite arches during the same visit
- No known allergies to Kabasura kudineer tablet or Amoxicillin

Exclusion Criteria:

- Patients unwilling to participate
- Individuals with medical conditions
- Pregnant or breastfeeding women with diabetes or HbA1c > 6
- Patients on current steroid therapy
- History of allergy or adverse reactions to antibiotics or pain relievers

Intervention And Procedure:

First Appointment:

One tooth was extracted under local anesthesia using aseptic techniques.

After the first extraction, patients were instructed to take Kabasura kudineer tablets three times a day for five days, following meals.

Second Appointment (Scheduled two weeks later to allow for healing from the initial extraction):

The tooth on the opposite side was extracted under local anesthesia using aseptic techniques.

Following this procedure, patients were prescribed Amoxicillin 500 mg (ALMOX-500) to be taken three times daily after meals for five days.

Ingredients:



Outcome Measures:

Pain Assessment:

Visual Analog Scale (VAS) scores were recorded on days 1, 3, and 5 post-extraction
 0: No pain/discomfort
 1–3: Mild pain/discomfort
 4–6: Moderate pain/discomfort
 7–10: Severe pain/discomfort

Swelling

Clinical examination and scoring given on days 1, 3, and 5. Generalized Scoring System for Facial Swelling

1. **Grade 0:** No swelling.
2. **Grade 1:** Mild swelling, localized to a specific area (e.g., eyelid, cheek).

3. **Grade 2:** Moderate swelling, extending beyond the initial site but not affecting the entire face.
4. **Grade 3:** Severe swelling, affecting a large portion of the face, but not causing functional impairment (e.g., ability to open eyes or mouth).
5. **Grade 4:** Extreme swelling, leading to significant functional impairment (e.g., inability to open eyes or mouth fully, difficulty breathing if associated with airway structures).

Infection Control:

Presence of infection (e.g., purulence, erythema) was evaluated by a blinded clinician on days 1, 3 and 5.

Healing Progress: Soft tissue healing was assessed using the Landryetalindex at 1 week.

Score 1: Very poor healing, with tissue breakdown or infection.

Score 2: Poor healing, characterized by delayed epithelialization and inflammation.

Score 3: Fair healing, with in complete epithelialization and mild inflammation.

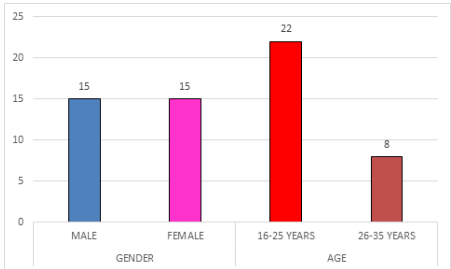
Score 4: Good healing, with complete epithelialization but slight redness.

Score 5: Excellent healing, with complete epithelialization and no inflammation or redness.

Table 1 Age And Gender Distribution Of Study Participants

PARAMETER	OPTIONS	FREQUENCY	PERCENTAGE
GENDER	MALE	15	50
	FEMALE	15	50
AGE	16-25 YEARS	20	67
	26-35 YEARS	10	33

Table 1 and Graph 1 Age and Gender Distribution of Study Participants in which Gender Distribution: The study had an equal representation of genders, with 15 males (50%) and 15 females (50%). This suggests that the gender distribution was balanced, reducing potential gender bias in the study outcomes. Age Distribution: The majority of the participants (20 individuals, 67%) were in the age group of 16-25 years, indicating that younger individuals constituted a significant portion of the study sample. The remaining participants (10 individuals, 33%) belonged to the age group of 26-35 years. This highlights a smaller representation of slightly older individuals in the study. The study sample was evenly divided between males and females. However, it was skewed toward younger participants, with a majority in the 16-25 age range.



Graph 1 Age And Gender Wise Distribution Among The Study Subjects

Table 2 Represents The Intergroup Comparison Between The Amoxicillin And Kabasura Kudineer Tablet Combinations In 1 Day/ 3 Day And 5 Days Follow Up Interval In Vas Score By Using Independent T Test

INTER VAL	GROUPS	MEAN	S.D	95% CONFIDENCE INTERVAL		Sig
				LOWER	UPPER	
DAY 1	AMOXICILLIN	4.47	1.975	-.418	1.484	.31

	KABASURA KUDINEER TABLET	4.13	1.664			2
DAY 3	AMOXICILLIN	2.20	1.329	-1.212	.012	.00
	KABASURA KUDINEER TABLET	2.66	1.031			00
DAY 5	AMOXICILLIN	1.17	.885	-1.653	-.814	0.0
	KABASURA KUDINEER TABLET	2.20	.737			00

*P value less than or equal to 0.05 is considered statistically significant difference

Table 2: Intergroup Comparison of Amoxicillin and Kabasura kudineer tablet Combinations Based on VAS Score

The table presents the comparison of Visual Analog Scale (VAS) scores between the two groups (Amoxicillin and Kabasura kudineer tablet combinations) at 1-day, 3-day, and 5-day follow-up intervals using an independent t-test. **Day 1:** There is no statistically significant difference in the VAS scores between the two groups on Day 1, as the p-value is greater than 0.05. **Day 3:** There is a statistically significant difference in the VAS scores between the two groups on Day 3. The p-value (0.0000) indicates that the difference is highly significant, with Amoxicillin showing a lower mean VAS score compared to Kabasura kudineer tablet. **Day 5:** There is a statistically significant difference in the VAS scores between the two groups on Day 5. The p-value (0.000) confirms a significant reduction in VAS scores in the Amoxicillin group compared to the Kabasura kudineer tablet group. **Day 1:** No significant difference in VAS scores between Amoxicillin and Kabasura kudineer tablet groups. **Day 3 and Day 5:** Significant differences were observed, with Amoxicillin showing better pain reduction compared to Kabasura kudineer tablet, as indicated by the lower mean VAS scores and statistically significant p-values (≤ 0.05).

Table 3 Represents The Intergroup Comparison Between The Amoxicillin And Kabasura Kudineer Tablet Combinations In 1 Day/ 3 Day And 5 Days Follow Up Interval In Swelling Score By Using Independent T Test

INTER VAL	GROUPS	MEAN	S.D	95% CONFIDENC E INTERVAL	Sig	
				LOWE R	UPPE R	
DAY 1	AMOXICILLIN	.73	.818	-.874	-.126	.02
	KABASURA KUDINEER TABLET	1.03	.630			1
DAY 3	AMOXICILLIN	.80	.741	-.780	-.087	.00
	KABASURA KUDINEER TABLET	1.10	.598			1
DAY 5	AMOXICILLIN	.50	.598	-.814	-.253	0.0
	KABASURA KUDINEER TABLET	.83	.483			1

*P value less than or equal to 0.05 is considered statistically significant difference

Table 3: Intergroup Comparison of Amoxicillin and Kabasura kudineer tablet Combinations Based on Swelling Scores The table presents a comparison of swelling scores between the Amoxicillin and Kabasura kudineer tablet groups at 1-day, 3-day, and 5-day follow-up intervals using an independent t-test. **Day 1:** There is a statistically significant difference in swelling scores between the two groups on Day 1. The Amoxicillin group demonstrated lower swelling compared to the Kabasura kudineer tablet group. **Day 3:** A statistically significant difference in swelling scores is observed on Day 3.

The Amoxicillin group again showed lower swelling compared to the Kabasura kudineer tablet group, with a highly significant p-value (0.001). On Day 5, there is a statistically significant difference in swelling scores between

the two groups. The Amoxicillin group continued to demonstrate lower swelling compared to the Kabasura kudineer tablet group. Across all three follow-up intervals (Day 1, Day 3, and Day 5), the Amoxicillin group consistently exhibited significantly lower swelling scores than the Kabasura kudineer tablet group, as evidenced by the p-values (≤ 0.05). The trend suggests that the Amoxicillin combination was more effective in reducing swelling over time compared to the Kabasura kudineer tablet combination.

Table 4 Represents The Intergroup Comparison Between The Amoxicillin And Kabasura Kudineer Tablet Combinations In 1 Day/ 3 Day And 5 Days Follow Up Interval In Infection Score By Using Independent T Test

INTER VAL	GROUPS	MEAN	S.D	95% CONFIDENC E INTERVAL	Sig	
				LOWE R	UPPE R	
DAY 1	AMOXICILLIN	1.93	1.029	.075	1.258	.01
	KABASURA KUDINEER TABLET	1.47	1.259			1
DAY 3	AMOXICILLIN	.70	.576	-.613	.147	.87
	KABASURA KUDINEER TABLET	1.07	.880			4
DAY 5	AMOXICILLIN	.63	.830	-1.343	-.324	0.0
	KABASURA KUDINEER TABLET	1.27	1.089			4

*P value less than or equal to 0.05 is considered statistically significant difference

Table 4: Intergroup Comparison of Amoxicillin and Kabasura kudineer tablet Combinations Based on Infection Score This table compares the infection scores between the two groups (Amoxicillin and Kabasura kudineer tablet combinations) at 1-day, 3-day, and 5-day follow-up intervals using Day 1: There is a statistically significant difference in infection scores between the two groups on Day 1. Amoxicillin shows a higher mean infection score compared to Kabasura kudineer tablet ($p = 0.011$). **Day 3:** There is no statistically significant difference in infection scores between the two groups on Day 3, as the p-value (0.874) is greater than 0.05. **Day 5:** There is a statistically significant difference in infection scores between the two groups on Day 5. The Amoxicillin group shows a significantly lower mean infection score compared to the Kabasura kudineer tablet group ($p = 0.04$). **Day 1:** A statistically significant difference is observed, with Amoxicillin showing a higher mean infection score than Kabasura kudineer tablet. **Day 3:** No significant difference in infection scores is observed between the two groups.

Day 5: A significant difference is seen, with the Amoxicillin group showing a lower infection score compared to Kabasura kudineer tablet. This indicates that while Amoxicillin may initially have a higher infection score, it becomes more effective than Kabasura kudineer tablet in reducing infections over time.

Table 5 Represents The Intergroup Comparison Between The Amoxicillin And Kabasura Kudineer Tablet Combinations In 1 Day/ 3 Day And 5 Days Follow Up Interval In Healing Index By Using Independent T Test

INTER VAL	GROUPS	MEAN	S.D	95% CONFIDENC E INTERVAL	Sig	
				LOWE R	UPPE R	
DAY 1	AMOXICILLIN	3.27	1.059	.210	1.123	.00
	KABASURA KUDINEER TABLET	2.80	.476			
DAY 3	AMOXICILLIN	3.16	.454	-.040	.373	.32
	KABASURA	3.14	.304			1

	KUDINEER TABLET					
DAY 5	AMOXICILLIN	4.07	.715	.351	1.315	0.0
	KABASURA	3.03	1.067			0
	KUDINEER TABLET					

*P value less than or equal to 0.05 is considered statistically significant difference

Table 5: Intergroup Comparison of Amoxicillin and Kabasura kudineer tablet Combinations Based on Healing Index

This table compares the healing index between the two groups (Amoxicillin and Kabasura kudineer tablet combinations) at 1-day, 3-day, and 5-day follow-up intervals using an independent t-test.**Day 1:**There is a statistically significant difference in the healing index on Day 1. Amoxicillin shows a higher healing index compared to Kabasura kudineer tablet ($p = 0.00$), indicating better initial healing.**Day 3:**No statistically significant difference is observed in the healing index on Day 3, as the p-value (0.321) is greater than 0.05. Both groups show comparable healing progress at this interval.**Day 5:**A statistically significant difference is observed in the healing index on Day 5. Amoxicillin shows a higher healing index compared to Kabasura kudineer tablet ($p = 0.00$), indicating better healing outcomes in the Amoxicillin group over time.**Day 1:** Statistically significant difference, with Amoxicillin showing better healing than Kabasura kudineer tablet. **Day 3:** No significant difference; both groups exhibit similar healing progress.**Day 5:** Statistically significant difference, with Amoxicillin demonstrating superior healing outcomes compared to Kabasura kudineer tablet. These findings suggest that Amoxicillin provides a more effective and sustained impact on the healing process compared to Kabasura kudineer tablet, especially at the initial and later stages of the follow-up.

DISCUSSION
Comparative Evaluation of Amoxicillin and Kabasura kudineer tablet in Post-Extraction Dental Care

The comparison between Amoxicillin and Kabasura kudineer tablet in managing post-extraction dental care sheds light on key aspects such as treatment effectiveness, safety, and the overall approach to managing common post-operative concerns like infection prevention, pain relief, and wound healing.

1. Effectiveness In Preventing Infection

One of the primary goals following tooth extractions is preventing infection. Amoxicillin, a commonly prescribed broad-spectrum antibiotic, is effective against frequent oral pathogens like Streptococcus and Fusobacterium, helping to prevent conditions such as pericoronitis and dry socket by inhibiting bacterial growth. It is a well-established method with documented success in dental procedures. However, the frequent use of antibiotics like Amoxicillin can contribute to antibiotic resistance, reducing their long-term efficacy. Overuse in dental settings can encourage resistant strains of oral bacteria. Additionally, antibiotics may disrupt the natural microbial balance in the mouth, potentially leading to secondary infections like oral thrush.

In contrast, Kabasura kudineer tablet is a herbal formulation that supports post-operative recovery through a different mechanism. Rather than directly killing bacteria, Kabasura kudineer tablet boosts the body's immune response. It contains herbal ingredients such as Guggul and Echinacea, known for their anti-inflammatory and antimicrobial properties. While it may not be as potent as Amoxicillin in eliminating bacteria directly, Kabasura kudineer tablet can enhance the body's natural defenses, which may help reduce infection risk—particularly in individuals with a lower risk of complications or those preferring a more holistic, plant-based approach to healing.

2. Management of Pain and Swelling

Following dental extractions, inflammation at the extraction site often leads to discomfort and swelling. While Amoxicillin is effective in preventing infections, it does not directly target pain or inflammation. Therefore, additional medications such as NSAIDs (like ibuprofen) are typically used to control these symptoms. However, long-term use of NSAIDs can cause side effects, including gastrointestinal irritation and kidney issues. In contrast, Kabasura kudineer tablet contains herbal ingredients such as Tinospora cordifolia, which possess natural anti-inflammatory effects. These properties may help reduce swelling and pain after dental procedures. Additionally, Kabasura kudineer tablet's immune-boosting action may promote faster recovery and lessen the need for conventional pain medications, making it a potentially safer and more natural option—particularly for patients who are sensitive to standard analgesics.

3. Healing And Tissue Repair

Successful post-extraction recovery depends on efficient tissue regeneration. While Amoxicillin plays an important role in preventing infection, it does not directly support tissue healing. Kabasura kudineer tablet, however, may enhance the healing process by strengthening the immune response. Tinospora cordifolia, one of its main ingredients, has been shown to boost immune cell activity and reduce inflammation, contributing to quicker and more effective recovery. By minimizing excessive inflammation, Kabasura kudineer tablet may promote better tissue repair, though more studies are needed to confirm its direct impact on wound healing.

4. Patient Adherence And Side Effects

Amoxicillin is generally easy to use and well tolerated. However, side effects such as gastrointestinal upset or allergic reactions can lead some patients to discontinue treatment, potentially increasing the risk of post-operative infections.

Kabasura kudineer tablet, being a natural herbal formulation, tends to have fewer side effects and may be more appealing to individuals who prefer alternative or plant-based therapies. This could lead to better patient satisfaction and compliance. Still, unfamiliarity with Kabasura kudineer tablet might affect patients' confidence in its effectiveness and adherence to its use.

5. Combined Use And Synergistic Effects

A combined treatment approach using both Amoxicillin and Kabasura kudineer tablet may be beneficial for patients undergoing complex or high-risk dental extractions. While Amoxicillin addresses infection prevention, Kabasura kudineer tablet can support recovery by reducing inflammation and enhancing healing. Together, they may offer a more holistic and effective post-operative care strategy. However, further clinical research is necessary to fully evaluate the benefits of combining these therapies—particularly in relation to infection rates, pain management, swelling reduction, and recovery time.

CONCLUSION

The comparison between Amoxicillin and Kabasura kudineer tablet in post-extraction dental care highlights the distinct roles each treatment plays. Amoxicillin remains the standard choice for infection prevention, particularly in patients at higher risk. However, increasing concerns about antibiotic resistance and the potential side effects associated with antibiotic use have sparked interest in alternative therapies such as Kabasura kudineer tablet.

Kabasura kudineer tablet offers a holistic approach to recovery, thanks to its anti-inflammatory, antimicrobial, and immune-boosting properties. While it may not match Amoxicillin's direct antibacterial strength, its ability to support the immune system and reduce inflammation positions it as a promising natural option that could reduce reliance on additional medications.

Ultimately, the choice between Amoxicillin and Kabasura kudineer tablet should be guided by individual patient considerations, including susceptibility to infection, interest in natural remedies, and concerns over side effects. In some cases, a combined approach may be beneficial—utilizing the infection-fighting power of Amoxicillin alongside Kabasura kudineer tablet's recovery support—to promote better outcomes and a smoother healing process.

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