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Journal Name: The Cochrane database of systematic reviews

IF: 11.1

Title: Non-invasive management strategies for molar-incisor hypomineralization (MIH) in children

Author: Kumari P.; Dhull K.S.; Lewis S.R.; Dutta B.; Bagchi A.; Gugnani N.; Pathi J.; Singh D.K.; Sahoo N.; Bhuyan L.

Details: Volume-7, 15th July, 2026

Abstract: OBJECTIVES: This is a protocol for a Cochrane Review (intervention). The objectives are as follows: To assess the benefits and harms of non-invasive management strategies for molar incisor hypomineralization (MIH) in children aged six to 14 years.



URL: <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD016369/full>





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Journal Name: BMC Oral Health

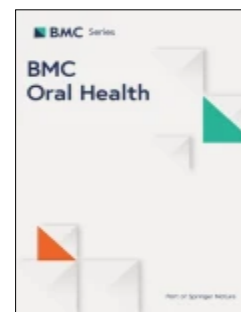
IF: 3.8

Title: Chitosan pulpotomy medicaments versus conventional agents in primary teeth: a systematic review and meta-analysis

Author: Kumari P.; Dhull K.S.; Dutta B.; Bagchi A.; Sharva V.; Devraj I.M.

Details: Volume-26, Issue-1, December 2026

Abstract: Background: Vital pulpotomy is routinely performed to maintain radicular pulp vitality in carious primary molars, yet the long-standing use of formocresol persists despite concerns about potential cytotoxic, mutagenic, and systemic effects. Chitosan, a naturally derived polysaccharide with antibacterial, hemostatic, and regenerative properties, has been proposed as a more biocompatible pulpotomy medicament. Objective: To evaluate the radiographic and clinical results of conventional and chitosan-based pulpotomy medicaments (formocresol, ferric sulfate) in primary molars, based exclusively on randomized controlled trials. Methods: From database inception to January 15, 2026, a PRISMA-compliant systematic review and meta-analysis of randomized controlled trials was carried out in PubMed, Web of Science, Scopus, and the Cochrane Library. Cochrane RoB 2 was used to evaluate the risk of bias, and GRADE was used to score the certainty of the evidence. Mantel-Haenszel random-effect model was used to aggregate six-month clinical and radiographic success as risk ratios (RR) with 95% confidence intervals (CI). Results: Four parallel-group trials from India, involving 196 primary molars in children aged 4–9 years, met the inclusion criteria. Six-month clinical success was identical for chitosan and conventional agents (83/86, 96.5% vs. 83/86, 96.5%; RR 1.00, 95% CI 0.94–1.06; $I^2 = 0\%$), and radiographic success was likewise comparable (76/85, 89.4% vs. 73/85, 85.9%; RR 1.04, 95% CI 0.93–1.16; $I^2 = 0\%$). Conclusions: Chitosan-based pulpotomy medicaments provide short-term clinical and radiographic success rates comparable to formocresol and ferric sulfate and represent a biologically favorable alternative for pulpotomy in primary molars. Multicenter RCTs with 12–24-month follow-up and contemporary comparators are needed to clarify chitosan's role in pediatric pulp therapy guidelines. Trial registration: The study protocol was registered in the PROSPERO database (registration number CRD420251151362) on September 19, 2025.



URL: <https://link.springer.com/article/10.1186/s12903-026-09147-z>





SCHOLARLY PUBLICATIONS School of Dental Sciences KIIT Deemed to be University

Journal Name: Journal of applied oral science: revista FOB

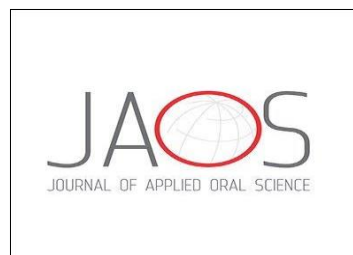
IF: 3.0

Title: Curcumin-loaded chitosan thermosensitive hydrogel with sustained release for periodontal applications: an in vitro evaluation

Author: Rao R.M.; Nikalje M.; Kumari S.; Tiwari R.; Dash K.C.; Shekhar S.; Sharma M.

Details: Volume-34, August 2026

Abstract: OBJECTIVE: Thermosensitive hydrogels have emerged as promising localized drug delivery systems for periodontal therapy. Curcumin possesses anti-inflammatory and antimicrobial properties but is limited by its poor solubility and bioavailability. This study aimed to develop and evaluate a curcumin-loaded chitosan thermosensitive hydrogel for periodontal application. METHODOLOGY: This in vitro experimental study included five groups as positive controls, negative control, blank chitosan hydrogel, free curcumin, curcumin-loaded hydrogel, and chlorhexidine (0.12%). The hydrogel was formulated using chitosan and β -glycerophosphate and was characterized for thermosensitive gelation and injectability. Drug release was assessed using dialysis. Cytocompatibility was evaluated in human gingival fibroblasts (HGF-1) using the MTT assay at 24, 48, and 72 h. The anti-inflammatory activity was assessed by measuring the levels of TNF- α and IL-1 β in LPS-stimulated cells. Antibacterial activity (MIC/MBC) and antibiofilm efficacy were tested against *Porphyromonas gingivalis* and *Aggregatibacter actinomycetemcomitans*. Data were analyzed using ANOVA with the appropriate post-hoc tests ($p < 0.05$). RESULTS: The curcumin-loaded hydrogel showed high cell viability (>90%) and significantly reduced TNF- α and IL-1 β levels when compared with free curcumin. It demonstrated improved antibiofilm activity (~74-79%) and lower MIC values than free curcumin, although slightly less effective than chlorhexidine. A sustained drug release profile (~81.6% at 14 days) following Korsmeyer-Peppas kinetics was observed. CONCLUSION: The curcumin-loaded chitosan thermosensitive hydrogel showed improved biological performance and sustained release when compared with free curcumin, suggesting its potential as a localized periodontal drug delivery system. Further in vivo studies are required to validate these findings.



URL: <https://www.scielo.br/j/jaosa/a/LJCVqv5G7FtqjVFRjfd6Th/?lang=en>

