

JBP

Journal of Biochemicals and Phytomedicine

eISSN: 2958-8561



Development of A Daily Oral Hygiene Product with Zinc Sulfate

Ihor Hrynovets ^{1*} , Mariana Storozhynska ¹ , Roman Lysiuk ² 

¹ Department of Drug Technology and Biopharmaceutics, Danylo Halytsky Lviv National Medical University, Pekarska Str. 69, 79010 Lviv, Ukraine

² Department of Pharmacognosy and Botany, Danylo Halytsky Lviv National Medical University, Pekarska Str. 69, 79010 Lviv, Ukraine

ARTICLE INFO

Article Type:
Research

Article History:

Received: 29 Jan 2025

Revised: 12 Mar 2025

Accepted: 3 Jun 2025

Available online: 23 Sep 2025

Keywords:

Anti-infective agents,
Zinc sulfate,
Clove oil,
Oral health,
Dental plaque,
Microbiota

** Corresponding author:*

E-mail: i_hrynovets@ukr.net

ABSTRACT

Introduction: Proper oral care is essential for overall health. The effectiveness of daily hygiene depends on its thoroughness and personalization. Without regular cleaning, the oral cavity accumulates pathogenic microbes, damaging soft tissues and hard tooth structures, compromising bodily integrity. This study aimed to evaluate oral hygiene products and develop an effective daily-use preventive rinse.

Methods: We reviewed studies on dental diseases and hygiene products via PubMed, Scopus, and Web of Science. The rinse was developed considering ingredient properties and regulatory guidelines. Microbiological safety, organoleptic, and physicochemical properties were tested.

Results: Mouthwashes enhance oral hygiene by mechanically cleaning teeth, gums, and interdental spaces, removing debris and pathogens. Regular use prevents disease and improves tissue blood flow. Based on existing evidence, we formulated a rinse containing zinc sulfate (inhibits plaque and calculus) and clove oil (antimicrobial and antioxidant). A scalable production process was designed. Quality was assured through organoleptic, physicochemical, and microbiological tests.

Conclusion: The developed antimicrobial and anti-inflammatory rinse is suitable for daily use, improving interdental cleaning and reducing microbial load.

Please cite this paper as:

Hrynovets IS, Storozhynska MV, Lysiuk RM. Development of a daily oral hygiene product with zinc sulfate. Journal of Biochemicals and Phytomedicine. In press. doi: 10.34172/jbp.2025.x.

Journal Pre-proof