FORMULATION AND EVALUATION OF A HERBO MINERAL TOOTHPASTE FOR IMPROVING ORAL HYGIENE AND GINGIVAL HEALTH

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Abstract

Oral hygiene is an important component of general health maintenance and the growing concerns about the detrimental effects of synthetic dentifrices have led to the evolution of safer herbal alternatives. The present study aims to prepare and standardize Herbo-mineral toothpaste formulation for effective oral health and hygiene. Objectives To formulate a formulation based on selected herbal constituents, to study the pharmacological properties related to oral care and to standardize quality control of the final product. The toothpaste was prepared by mixing 10 ml of herbal decoction with chemical base and natural herbal treatments like Pongamia pinnata and Elettaria cardamomum. The formulation was evaluated physically, chemically and phytochemically. Physical testing indicated a light greyish hue, good fragrance, beautiful creamy texture, and sweet taste. The pH was found to be 7.59 at 28.4 °C showing near-neutral compatibility with oral cavity. The foamability had a foaming power of 7. The moisture content was 4.819% and the relative density was 0.5161. The Spreadability was 6.67×10^{-5} Nm (6.67 g cm^{-1}). The phytochemical analysis revealed the presence of large secondary metabolites such as alkaloids (26.5%), tannins (7.365% as tannic acid equivalent), phenols (1.76% as gallic acid equivalent) and flavonoids (9.825% as catechin equivalent). Thin-layer chromatography utilizing ethyl acetate, toluene, hexane, and formic acid (4.5:3.5:1:1) found nine different peaks. The results revealed that the prepared herbal toothpaste was within the permissible physicochemical parameters and contained bioactive compounds beneficial for oral health care. More clinical studies and further evaluation are suggested to confirm its therapeutic effect in maintaining oral hygiene and gingival health.

Keywords: Herbo mineral toothpaste, Oral hygiene, Gingival health, Evaluation, antimicrobialactivity