ABSTRACT

This research aims to develop environmentally friendly toothpaste using green mussel shell powder and basil leaf extract as primary ingredients. Green mussel shell powder, sourced from abundant cultivation of green mussels (*Perna Viridis*) along the nearby coast of Bogor, Indonesia, is usually discarded as waste but is repurposed in this study as an alternative abrasive material in eco-friendly toothpaste production. The manufacturing process involves preparing green mussel shell powder, extracting basil leaves, and producing the toothpaste itself. Despite the inclusion of chemicals like Glycerol, Sorbitol, Sodium Bicarbonate, and Magnesium Carbonate, the primary focus remains on utilizing green mussel shells for their abrasive properties. Research findings demonstrate that compositions 1, 2, and 3 meet SNI standards for Hg, Cd, and Pb metal content, with pH values and sucrose content below maximum SNI limits. All toothpaste compositions exhibit consistent viscosity without compromising cleaning efficacy. Organoleptic evaluations reveal that TOOTH toothpaste generally outperforms commercial alternatives and displays superior antimicrobial properties. Composition 3 proves to be the most effective. It's evident that higher green mussel powder content enhances cleaning effectiveness, indicating a positive correlation between green mussel powder content and toothpaste efficacy. This research holds promise for advancing sustainable and innovative environmentally friendly dental care products.

Keywords: Toothpaste, Basil leaves, Green mussel shells, Green mussel shell waste, toothpaste effectiveness