BIOLOGICAL PROPERTIES AND SENSORY EVALUATION OF PINEAPPLE (*Ananas comosus*) PEEL ANTIBACTERIAL HAND CREAM

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ABSTRACT

BIOLOGICAL PROPERTIES AND SENSORY EVALUATION OF PINEAPPLE (*Ananas comosus*) PEEL ANTIBACTERIAL HAND CREAM

Pineapple ranks among the top cultivated fruits in tropical regions like Malaysia. The fruit's flesh has been widely consumed and processed into various products such as canned pineapple and jam. However, other parts of pineapple, particularly the peels, are often discarded as agricultural waste. This study aimed to utilize pineapple peels waste into the formulation of antibacterial hand cream using different concentration of crude extract obtained through maceration with 75% ethanol as the solvent. Additionally, the study aimed to evaluate the hand cream's potential as an antioxidant and antibacterial agent using the DPPH assay and agar disc diffusion methods respectively. The highest scavenging activity achieved was 94.03% by Formulation 4 at the concentration of 192 µg/mL. According to the zone of inhibition in antibacterial test, the hand cream formulations were more effective towards *S. aureus* (Gram-positive bacteria) than *E. coli* (Gram-negative bacteria). The highest inhibition towards *S. aureus* was 12.8±0.62 mm by Formulation 4, while only Formulation 4 exhibited an activity against *E. coli* with inhibition zone of 11±0.41 mm. FTIR analysis was conducted to identify the functional groups present in pineapple peel crude extract. The physical quality of the hand cream was also evaluated through pH, centrifugation, moisture content and organoleptic tests. No significant changes in color, odor, or consistency were observed after three weeks of storage at room temperature. The study concluded that most of the biological activities and physical quality of the hand cream formulation increased with higher concentrations of the pineapple peel crude extract.

TABLE OF CONTENTS