BIOLOGICAL PROPERTIES AND SENSORY EVALUATION OF PAPAYA (*Carica papaya*) SKIN ANTIBACTERIAL HAND CREAM

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ABSTRACT

BIOLOGICAL PROPERTIES AND SENSORY EVALUATION OF PAPAYA (*Carica papaya*) SKIN ANTIBACTERIAL HAND CREAM

Food wastage is a global and an emerging issue due to its adverse effect to the environment. Global demand for papaya from 2022 to 2027 is estimated to have a high growth, thereby contributing to a huge amount of organic waste, especially generated from skin part. This study aims to develop antibacterial hand cream containing papaya skin extracts and assess their biological properties as well as the physical quality. The present study yielded 11.68% yield of ethanolic crude extract obtained by maceration extraction, then developed into four hand cream formulations using concentrations of 0% (F1, control), 2.5% (F2), 5.0% (F3), and 7.5% (F4). The antioxidant activity was established via the DPPH method, and their inhibition scavenging activities ranging between 65.89%-95.05%. The antibacterial activity using disc diffusion method showed that the inhibition zone against S. *aureus* (gram positive) was inhibited with inhibition zones were 9 mm, 11 mm, 13 mm for F2, F2 and F4, respectively whereas the inhibition zone against E. *coli* were found to be inhibited with inhibition zones of 7 mm, 10 mm, and 11 mm for the same formulations. The physical quality evaluation includes pH, stability, and organoleptic, pointing that all of the formulations are at a suitable pH, ranging from 6.82 to 7.04 which fall within the SNI 16-4399-1997. All formulations were also stable, remained consistent, and no change in color over three weeks of observations. Thus, this study proves that the hand cream consisting of *Carica papaya* skin extract has the potential to be developed and commercialized as it is not only having an antibacterial effect, but also offers a safer and environmentally friendly product to the consumers.