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**POTENTIAL OF LEMON PEEL EXTRACT AS A
NATURAL HAND SANITIZER**

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SANITIZER**

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This Final Year Project Report entitled “**The Potential of Lemon Peel Extract as a Natural Hand Sanitizer**” was submitted by Muhammad Amirruddin bin Ismail in partial fulfilment of the requirement for the Degree of Bachelor of Sciences (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

THE POTENTIAL OF LEMON PEEL EXTRACT AS A NATURAL HAND SANITIZER

Currently, the usage of alcohol-based hand sanitizer has arisen due to its lower cost production and its nature in inhibiting bacteria. Unfortunately, often use of alcohol-based hand sanitizer can cause harm to the user, such as skin dryness and eye irritation. The formulated hand sanitizer was prepared in four different formulations with concentration 0%, 10%, 20% and 30% of lemon peel extracts. The phytochemical compound was tested qualitatively, the antibacterial activity towards *Staphylococcus aureus* and *Escherichia coli* were tested using disc diffusion method and the physical properties were tested using organoleptic, pH and spreadibility test. The phytochemical analysis and analysis of bioactive compounds are done, the lemon peel extracts are found to have saponin, flavonoid and tannin. The result showed that 30% formulated hand sanitizer was the most effective concentration in inhibiting *S. aureus* and *E. coli* which were 7.33 mm and 6.33 mm respectively. The physical properties test showed that the gel was turned into yellow and have lemon scent. The results of the pH showed all of the hand sanitizer were in recommended ranges which is 4.5 to 6.5. The results for the spreadibility also showed all of the hand sanitizer were in recommended ranges which is 5-7 cm. Application of 30% formulated hand sanitizer was found to have the potential in becoming the formulation of non-alcohol hand sanitizer because it meets all physical requirement even though it is lacking in antibacterial properties.

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