

**ANTIBACTERIAL PAPER FROM *Solanum tuberosum*, *Zingiber officinale*
AND *Citrus sinensis* PEELS**

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**Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Biology
in the Faculty of Applied Sciences
University Teknologi MARA**

JULY 2022

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ABSTRACT

ANTIBACTERIAL PAPER FROM *Solanum tuberosum*, *Zingiber officinale* AND *Citrus sinensis* PEELS

The scientific names for potatoes, ginger, and oranges are *Solanum tuberosum*, *Zingiber officinale*, and *Citrus sinensis* respectively. These fruits and vegetables are well-known for their flavour and widespread use in cuisine. However, peels from foods like potatoes, ginger, and oranges are rarely be used in cooking because of their physical characteristics. The good news is that numerous studies have demonstrated the abundance of antibacterial compounds found in peels, which can aid in preventing the spread of bacteria strains. Due to their antibacterial characteristics, *Solanum tuberosum*, *Zingiber officinale*, and *Citrus sinensis* peels were used to make antibacterial papers. *Escherichia coli* and *Bacillus licheniformis* were used as the assay organisms. All the peels were extracted by maceration method. The extracts were formulated with A4 paper to produce antibacterial paper. The antibacterial activity of each crude extract and antibacterial paper were tested on *E. coli* and *B. licheniformis* using disc diffusion assay. Ampicillin and 5% DMSO were used as positive and negative control respectively. The disc diffusion assay Kirby-Bauer technique, which is regularly used to study microorganisms that proliferate quickly by utilising Mueller Hilton agar surface that is swabbed with a standard inoculum, was used to perform disc diffusion on the bacterial strains in order to assess the efficacy of the antibacterial compounds. The technique was employed to assess the antibacterial paper's efficacy since disc diffusion offers a number of advantages due to its low cost, adaptability, and ability to see development, the right inoculum, mixed cultures, and other irregularities. Ampicillin showed an inhibitory zone on *E. coli* and *B. licheniformis*, which had mean and SD values of 15.67 ± 2.08 and 5.67 ± 0.58 , respectively. As for orange, potato, and ginger peel extracts, there was no inhibition zone. Unfortunately, there were also no zone of inhibition of the antibacterial papers on both bacteria strains including ampicillin as positive control. All the results of each inhibition zone were measured statistically by using One-Way Anova. However, this study has examined several explanations of the causes of this event.

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