

**COMPARISON OF ANTIMICROBIAL ACTIVITY OF  
CITRUS FRUIT IN MALAYSIA AGAINST GRAM-  
NEGATIVE BACTERIA**

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## ABSTRACT

### COMPARISON OF ANTIMICROBIAL ACTIVITY OF CITRUS FRUIT IN MALAYSIA AGAINST GRAM- NEGATIVE BACTERIA

The demand for bioactive component from natural resources has been increased worldwide for pharmaceutical purpose. The aim of this study is to evaluate the antimicrobial activity of *Citrus hystrix*, *Citrus microcarpa* and *Citrus aurantifolia* of juice and peel plant against gram-negative bacteria using disc diffusion method. Gram-negative bacteria such as *E.coli*, *Salmonella* spp and *Shigella* spp are common types of species that can cause foodborne illness. Overall *Salmonella* spp is very susceptible against all the *Citrus microcarpa*, *Citrus hystrix* and *Citrus aurantifolia* peel compared to *Shigella* spp and *E.coli* spp. The highest inhibition zone recorded among the *Citrus* peel was from *Citrus hystrix* with 18.67 mm against *Salmonella* spp while the lowest is from *Citrus microcarpa* with 9 mm against *Shigella* spp. Besides that, the result for *Citrus* juice shows that all *Citrus hystrix*, *Citrus microcarpa* and *Citrus aurantifolia* are very susceptible to *E.coli* compared to the *Salmonella* spp and *Shigella* spp. The highest inhibition zone recorded is from *Citrus hystrix* against *E.coli* with inhibition zone recorded are 16.67 mm while the lowest is comes from *C. aurantifolia* against *Salmonella* spp with 8.67 mm. Overall the ANOVA result for the *E.coli*, *Salmonella* spp and *Shigella* spp against *Citrus* peel of *Citrus hystrix*, *Citrus microcarpa* and positive control show there is significance difference. Next, *Salmonella* spp and *Shigella* spp against *Citrus* juice of *Citrus hystrix*, *Citrus microcarpa*, *Citrus aurantifolia* and positive control shown there is significance except for *E.coli* where there is no significance difference against all the *Citrus hystrix*, *Citrus microcarpa*, *Citrus aurantifolia* and positive control because the p values is higher than 0.05. As conclusion, *Citrus hystrix*, *Citrus microcarpa* and *Citrus aurantifolia* peel are very good against *Salmonella* spp while *Citrus hystrix*, *Citrus microcarpa* and *Citrus aurantifolia* juice is very good against *E.coli* spp.