



**EFFICACY EVALUATION ON ETHANOLIC EXTRACTION OF THE  
RHIZOME OF *Zingiber zerumbet* AS SURFACE DISINFECTANT**

By

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## **DECLARATION**

I hereby declare that this thesis is my original work and not been submitted previously or currently for any other degree at UiTM or any other institutions.

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(Aisyah Sakinah Binti Mubarak)

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## ABSTRACT

*Zingiber zerumbet* also known as “lempoyang” in Malaysia is one of the Zingiberaceae family, which is a widely cultivated plant throughout the tropics particularly in Southeast Asia for its medicinal properties and as a marketable spice. The main part of this plant that is commonly used as traditional medicine is its rhizome. The rhizome is used as a cure for inflammation, sore throat, diabetes, swelling, chest pain, bronchitis and many more. There are previous studies reported that *Zingiber zerumbet* rhizome extract also has an antimicrobial activity. Dettol is one of the brand commonly used in hospitals and household for disinfection and sanitation. However, the active ingredient in Dettol, chloroxylenol can cause skin irritant and may provoke allergic reactions in some individuals. Chloroxylenol also has the potential for causing lethal toxicity as it is noxious when swallowed and even when it is accidentally breathed in. It has become a necessary for the researchers to find for new types of highly effective and non-toxic antimicrobial agents from natural sources to be the alternative in disinfecting. Hence, this study was done to determine the antimicrobial activity of *Zingiber zerumbet* rhizome extract against microorganisms that are commonly found in hospital laboratory settings. The aim of this study also is to compare the effectiveness between the extraction of *Zingiber zerumbet* rhizome with Dettol in disinfecting. The *Zingiber zerumbet* rhizome was extracted with ethanol and then used in disinfecting the surfaces contaminated with the tested microorganisms. After certain contamination period, the surfaces was swabbed and cultured on MH agar to measure the colony count of the microorganisms. The same procedures were done with Dettol. The results obtained showed *Zingiber zerumbet* rhizome extract has antimicrobial activity against 5 out of 6 tested microorganisms which are *Pseudomonas aeruginosa*, *Enterobacter aerogenes*, *Acinetobacter baumannii*, *Salmonella typhi* and *Candida albicans* but with different effectiveness at different dilution. As for Dettol, it showed antimicrobial effect towards *Pseudomonas aeruginosa*, *Enterobacter aerogenes*, *Salmonella typhi* and *Candida albicans*. This finding showed that *Zingiber zerumbet* rhizome extract has antimicrobial activity against a number of microorganisms and had a potential to be used as alternative safer natural disinfectant.