UNIVERSITI TEKNOLOGI MARA

ANTIMICROBIAL ACTIVITY OF ROSELLE (*Hibiscus sabdariffa*) CALYX EXTRACT AGAINST PATHOGENIC BACTERIA

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DECLARATION BY STUDENT

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

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ABSTRACT

Hibiscus sabdariffa is a flowering plant species of Malvaceae family which known as Roselle. It is used traditionally for many purposes such as hot and cold beverage that consumed by African, India, Mexico, Brazil, China, Iran and Malaysia. The *H. sabdariffa* is reported traditionally used as antiseptic, aphrodisiac, astringent, cholagogue, demulcent, digestive, diuretic, emollient, purgative, refrigerant, sedative, stomachic and tonic. In many developing countries, the use of medical plants as traditional medicines is well known in rural areas. Therefore, a natural ingredient or plant which gives much less adverse effect is needed to replace the role of the commercial antibiotic in therapeutic antibiotic treatment. Hence, the aim of this study is to determine the potential of *H. sabdariffa* extract as natural antimicrobial agent against pathogenic bacteria as well as to detect its bioactive compounds. The *H. sabdariffa* powder was extracted with ethanol then performed antibacterial susceptibility testing (AST) against tested pathogenic bacteria using disc diffusion method. Then, Minimum Inhibitory Concentration (MIC) was done using broth microdilution method with microtiter plate. The preliminary phytochemical screening was done using different types of reagent for each bioactive compounds. The result for AST shows that the *Staphylococcus epidermidis* was most sensitive with the largest mean of inhibition zone (19.67 mm). It was followed by *Staphylococcus aureus* (15 mm), *Pseudomonas aeruginosa* (11 mm), and *Escherichia coli* (10.33 mm). All tested pathogenic bacteria had the same value of MIC, 7.82 mg/ml. the preliminary phytochemical screening revealed that *H. sabdariffa* contains alkaloids, glycosides, flavonoids and tannins. This finding showed that *H. sabdariffa* had antimicrobial activity against pathogenic bacteria and hold great promise as a natural product in antimicrobial agents.

Keywords: *Hibiscus sabdariffa*, Roselle, antibacterial activity, antibiotic