

**UNIVERSITI TEKNOLOGI MARA**

**THE ANTIBACTERIAL ACTIVITIES OF ACETONE  
AND METHANOL EXTRACTS OF *HIBISCUS ROSA  
SINENSIS* LEAVES**

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## ABSTRACT

The aim of the study was to investigate the antibacterial activity of acetone and methanol extracts of *Hibiscus rosa sinensis* leaves. Crude extracts of the plant with acetone and methanol were screened for antibacterial activities against eight pathogenic bacteria which consisted of four Gram positive bacteria (*Staphylococcus aureus*, *Methicillin-resistant Staphylococcus aureus*, *Streptococcus agalactiae*, *Streptococcus pyogenes*) and four Gram negative bacteria (*Pseudomonas aeruginosa*, *Escherichia coli*, *Klebsiella pneumonia*, *Shigella spp.*). The *in vitro* antibacterial activity was performed by broth microdilution method. The result showed that acetone extract exhibited the highest antibacterial activity against *Staphylococcus aureus* with the lowest MIC value was found to be 6.25 mg/ml. However, methanol extract did not exhibit any antibacterial activity against all of the tested bacteria. The result obtained in the present study suggested that the acetone extract of *H. rosa sinensis* leaves exhibited better antibacterial activity as compared to the methanolic extract.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of study

The World Health Organisation (WHO) estimated that almost 4 billion people (80% of the World's population) use herbal medicines for some aspect of primary healthcare. [1] A number of important drugs obtained from plants including, digoxin from *Digitalis spp.*, vincristine and vinblastine from *Catharanthus roseus*, atropine from *Atropa belladonna* and morphine and codeine from *Papaver somniferum*. [2] The medicinal usefulness of plants has resulted in the development of numerous studies to focus on the unexplored potential of various parts of plants species in the world.

In recent years, infections have been on the rise. [3] This situation provided the impetus to the search for new antimicrobial substances from various sources like medicinal plants. [4] Since most people believed that certain plants had healing potential, plants are used continuously to treat common infectious diseases and some of these traditional medicines are still included as part of the habitual treatment of various maladies. [5] Moreover, bacterial infection and inflammation are among the ailments treated by traditional healers. [6] For example, the use of bearberry