



اَللّٰهُمَّ صَلِّ وَسَلِّمْ عَلٰى اَسَاتِذِنَا
UNIVERSITI
TEKNOLOGI
MARA

**ANTIBACTERIAL ACTIVITY OF ETHYL ACETATE EXTRACT
FROM *Parkia Speciosa* PERICARP AGAINST SELECTED BACTERIA**

By

NORFARAH IZZATY BINTI RAZALY

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ABSTRACT

Parkia speciosa which is also known as petai is commonly found in tropical countries such as Thailand, Indonesia and Malaysia. This plant is usually eaten raw, as flavor to cuisine and pickled in salt. Besides, folks also believed that *Parkia speciosa* have the ability to treat kidney inflammation and toothache. Previous study has also proved that, *Parkia speciosa* have medicinal properties such as hypoglycemic agent, antitumor and antimutagenicity. Usually, only the green seed of *Parkia speciosa* are consumed while its pericarp is left as waste. Thus, in this study we focused on this discarded part of *Parkia speciosa*, its pericarp, to evaluate its potential to be utilized as an antimicrobial agent. The pericarp was extracted using ethyl acetate as solvent. The antibacterial activity of extract was determined by disk diffusion and broth dilution methods against four types of bacteria; *Staphylococcus aureus*, *Bacillus cereus*, *Escherichia coli* and *Salmonella typhimurium*. It was found that the *Parkia speciosa* pericarp extract exhibited good antibacterial activity toward *Staphylococcus aureus* and *Bacillus cereus* while *Escherichia coli* and *Salmonella typhimurium* were resistant toward the extract. The lowest concentration of extract that has effect on *Staphylococcus aureus* and *Bacillus cereus* were 7.813 mg/mL and 1.953 mg/mL. Thus, the extract may have the potential to be used as antimicrobial agent.

Keywords: *Parkia speciosa*, ethyl acetate extract, antimicrobial activity

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Recently, the main global concern has been on the arising antibiotic resistance. Resistance towards common antibiotics may be due to mutations and misuse of broad-spectrum antibiotic, inappropriate prescriptions and uncompleted dosage because of high cost to get the correct dose of antibiotic (Laxminarayan *et al.*, 2013). Thus, these factors resulted in antibiotic resistance even though back to 20th century, antibiotic was the most successful finding in medicinal history (Sen & Batra, 2012).

In 2005, Shah suggested that new compound which is not from existing classes of synthetic drug is one of the ways to solve the antibiotic resistance issue. Interestingly, plants have become a recent alternative to produce new and effective medicine and antibacterial agent to treat disease (WHO 2002). Moreover according to Sen and Batra (2012), there are many types of compound produced by the plants in order to protect themselves from pathogens. These compounds may inhibit bacteria via mechanisms different from existing antibiotics (Eloff, 1998). I. Ahmad and Beg (2001) also reported that plants were believed to be able to target sites different from those targeted by antibiotics. Therefore, there is possibility for plant derived compounds to combat antibiotic resistance. Therefore, active compound from plants, especially plants that are commonly used in traditional medicine, should be screened and its finding may lead to the discovery of new medicinal drugs from plant sources to reduce antibiotic resistance (Fabricant & Farnsworth, 2001).