ANTIBACTERIAL ACTIVITY OF *Acacia mangium* (Willd.) EXTRACT AGAINST *Xanthomonas oryzae* pv. *oryzae*

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ABSTRACT

Bacterial Blight Disease (BLB) caused by *Xanthomonas oryzae* pv. *oryzae* is one of the destructive bacteria on rice. The impact of bacterial infection is heavy economic loss to the planters. Recently, the application of synthetic chemical substance in order to suppressed the bacterial growth was reported to give negative impact on consumers. Therefore, in this study an alternative approach by using methanolic plant extracts of *Acacia mangium* which is its bark, leaf and flower were tested. The methanolic plant extract were obtained by using dried parts of the plants and extracted in trough a maceration method. The plant component were screened and the antibacteria activity were tested. The phytochemical screening tested indicated that each part of the plants containing alkaloids, phenol, saponin, flavonoids, terpenoids, tannins, quinoine, glycoside, steroids and proteins which have potential as an antifungal, antioxidants and as plant pests control. The antibacterial activity was tested by using the disc diffusion technique against the *Xanthomonas oryzae* pv. *oryzae* with the concentration of 0.1, 0.2, and 0.3 g/mL on each of the plant extracts. However, no inhibition zone was observed. It indicated that, there is no antibacterial activity against *Xanthomonas oryzae* pv. *Oryzae*. Therefore, it is recommended that to make further study about the potential of this plant against the bacteria.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Agricultural or crop planting are being practiced in Malaysia. Chamhuri *et al.*, (2014) reported that, rice is an important food crop among Malaysian when it had reached 3.7% of growth rate for last five years. Rice although not categorized as major crop, it has been the staple food among half of the human population in the world (Chamhuri *et al.*, 2014). This is because, rice is a good source of Vitamin B, minerals, proteins, amino acids and carbohydrates that is needed in daily consumption (Ventakesh *et al.*, 2011). As a results, there are many types of paddy that being planted continuously in Malaysia, and one of them is *Oryza sativa L.*

However, the bacterial infection known as Bacterial Leaf Blight (BLB) is the most dangerous rice disease (Guang *et al.*, 2008). The bacterium was first being found by a farmers in Kyushu Island in Japan between 1884 to 1885 (Tagami *et al.*, 1962). The disease of BLB were carried by a bacterium known as X*anthomonas oryzae (*Khan *et al.,* 2014). Recently,