

## **Antibacterial activity of acacia spp. leaves extracts against *Xanthomonas oryzae* pv. *oryzae* and screening for active phytochemical contents**

### **ABSTRACT**

The in vitro study revealed the ethyl acetate and methanol leaf extracts from both Acacia species had shown inhibition against *Xanthomonas oryzae* pv. *oryzae* (Xoo). *Acacia auriculiformis* ethyl acetate (AAEA) and *A. mangium* methanol (AMMH) leaf extract at concentration 200 mg/mL showed the largest diameters of inhibition zone (DIZ) produced that were 33.33 and 25.78 mm compared to other concentrations used. Bacteriostatic study showed that the minimum concentration required by AAEA to inhibit Xoo was 3.13 mg/mL while 1.56 mg/mL was required by AMMH. Bactericidal activity showed that the minimum concentrations required to kill Xoo were 6.25 and 12.5 mg/mL, respectively for AAEA and AMMH. The minimum inhibitory concentration (MIC) index suggests that AAEA leaf extract possesses bactericidal effect while AMMH leaf extract possesses bacteriostatic effect on Xoo. Ultrastructural studies on the effect of AAEA and AMMH leaf extract on Xoo cells revealed that both Acacia leaf extracts altered the normal cell of Xoo by causing lysis, loss of rigidity, malformation, and death. The study on active chemical contents for both Acacia leaf extracts by GC-MS revealed the presence of mostly terpenes esters, alcohols and other volatile organic compounds.

**Keyword:** *Acacia auriculiformis*; *Acacia mangium*; Antibacterial; GC-MS; *Xanthomonas oryzae* pv. *Oryzae*