

Effect of Ampicillin and Tetracycline on *Xanthomonas* Spp. Isolated from Strawberry Plants with Angular Leaf Spot (ALS) Disease

K. M. Hapuarachchi* and A. P. Halmillawewa

University of Kelaniya, Dalugama, Sri Lanka

* kasuntha26mihiranga@gmail.com

Abstract

Fragaria ananassa (strawberry) is a perennial crop belonging to the family Rosaceae. Parallel to the increase in strawberry production, various strawberry diseases have also become common. One such is Angular Leaf Spot (ALS), which can lead to severe losses in yield. *Xanthomonas fragariae*, a Gram-negative rod, has been identified as the causative agent of this disease. Control of ALS is currently achieved commonly through preventive measures such as using disease-free stocks, but these may fail to counter an established pathogen. Therefore, it is important to explore other viable options such as the controlled use of antibiotics. In the current study, we have isolated the causative agent of ALS in strawberries and have evaluated the efficiency of two antibiotics for the potential control of the pathogen. The causative agent of ALS was isolated from diseased plant leaves that showed characteristic symptoms. Based on the colony morphologies on nutrient agar, two isolates, namely I_1 and I_2 were selected, and their Gram's reaction, motility, and selected biochemical characteristics were evaluated for the preliminary identification of the isolates as belonging to the genus *Xanthomonas*. The effect of two commonly available antibiotics; ampicillin, and tetracycline, were tested against the isolates using the agar well diffusion method and both antibiotics showed an inhibitory effect against both I_1 and I_2. Using the broth microdilution method, the Minimum Inhibitory Concentration (MIC) of ampicillin was determined as 250 µg mL⁻¹ and 200 µg mL⁻¹ for I_1 and I_2 respectively, while the MIC of tetracycline for I_1 and I_2 was 300 µg mL⁻¹, and 250 µg mL⁻¹ respectively. Although this study exhibited that antibiotics, ampicillin, and tetracycline can be effectively used against the bacterial pathogen, the practicality for large-scale use as well as the potential environmental and health implications should also be considered before their application.

Keywords: Angular leaf spot (ALS), Antibiotic, Strawberry plants, *Xanthomonas* spp.