

TITLE: EVALUATION OF ANTIMICROBIAL AND ANTIBIOFILM ACTIVITIES OF ORGANICS EXTRACTS OF *Myroxylon peruiferum* L. f. AGAINST *Ralstonia solanacearum*

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ABSTRACT:

The bacterial wilt caused by *Ralstonia solanacearum* is a disease that generates great negative impacts in the world agriculture. This disease presents serious management difficulties due to its resistance from to the common forms of control. The aim of this work was investigate alternative substances for control of the biofilm and the growth of this pathogen from *Myroxylon peruiferum* L. f. The organic extracts of leaves were prepared using an increasing polarity series (cyclohexane, chloroform, Ethyl acetate and methanol) in Soxhlet. The solvents were removed by rotary evaporation and the dried extract was dissolved in 10% DMSO solution and evaluated for antibiofilm and antibacterial activities against *R. solanacearum* through the crystal violet method in microplate, considering as positive values higher than 50% of inhibition. The organic extracts were qualitatively assessed by thin layer chromatography for the presence of secondary metabolites using specific standards. The presence of saponins were also analyzed. Since biofilms are an important mechanism of resistance and permanence in a common environment for many microorganisms, including *R. solanacearum*, the *M. peruiferum* leaf extract was tested and analyzed by organic extraction for the identification of potential phytochemicals groups with antibiofilm and/or antimicrobial activities against CGH8 isolate strong biofilm former. The ethyl acetate extract showed a 53.5% of inhibition on bacterial growth; at this concentration the extract did not affect biofilm formation. Antibiofilm activity was observed in the cyclohexane extract, which inhibited biofilm formation on a concentration of 3mg/mL (54.1%), determining a minimum inhibitory concentration of 3mg/mL. However, a mechanism that does not involve bacterial killing, since there was a stimulation of cell growth (up to 115%). The phytochemical screening of these extracts indicated the presence of flavonoids in four extracts, coumarin and triterpenes were presents in cyclohexanic, ethyl acetate and chloroformic extracts. Saponins and tannins presented only in methanolic extract. The crude extract demonstrated an antibiofilm activity that can have an application in diverse assemblages affected by this phytopathogen. The results obtained in this work indicates potential future researches on the fractional and the identification of the active principle responsible for the antibiofilm activity in this extracts.

Keywords: Biofilm, Crystal violet, Organic extracts, Phytopathogens.

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