

Effect of carbon sources on bacterial production of metabolites against *Fusarium oxysporum* and *Colletotrichum gloeosporioides*.

ABSTRACT

This study was conducted to determine the effect of carbon sources on the production of bacteria metabolites against *Fusarium oxysporum* and *Colletotrichum gloeosporioides*. Antagonistic bacteria were identified by using Biolog® Identification System known as *Malikia spinosa* and *Stenotrophomonas maltophilia*, while the unidentified was named as UPMKB4. For optimizing antimicrobial substances, *M. spinosa*, UPMKB4 and *S. maltophilia* were cultured individually or combination in liquid media with addition of 2 g carbon sources derived from glucose, fructose and glycerol. Results revealed that different types of carbon source amended in liquid media determined the efficacy on the antimicrobial substances. Specific or special types of carbon sources are required to suppress different types of plant pathogenic pathogens effectively. Malformed, shrunken and vacuolar hyphae were observed on the treated plant pathogenic fungi in the presence of antimicrobial substances. In compatibility mixture of antimicrobial substances, combination *M. spinosa* + UPMKB4 proved to be the best treatment to inhibit the growth of *F. oxysporum* and *C. gloeosporioides* with suppression values of 11.00 mm and 12.67 mm, respectively, which were the maximum values recorded in this study. Some modification and improvement are required to find out the most suitable types and quantity of carbon sources in the basal liquid medium under appropriate conditions in order to produce more effective antimicrobial substances against *F. oxysporum* and *C. gloeosporioides*.

Keyword: Fructose; Glycerol; Compatibility mixture; *Malikia spinosa*; *Stenotrophomonas maltophilia*; *Fusarium oxysporum*; *Colletotrichum gloeosporioides*.