

**DETECTION OF ANTIMICROBIAL COMPOUNDS
IN BROCCOLI STEM AFTER ELICITED BY
COPPER SULPHATE AND SILVER NITRATE**

ARRIANITA MUSIDI

**PERPUSTAKAAN
UNIVERSITI MALAYSIA SABAH**

**PLANT TECHNOLOGY PROGRAMME
SCHOOL OF SCIENCE AND TECHNOLOGY
UNIVERSITI MALAYSIA SABAH**

2008



UMS

ABSTRACT

Every abiotic elicitor has different strength in order to elicit antimicrobial compounds in plant tissues. Two abiotic elicitors such as copper sulphate (CuSO_4) and silver nitrate (AgNO_3) were used in this study to determine whether they were capable of inducing any potential of antimicrobial compounds in broccoli stem tissues. Three different weights of broccoli stems (20g, 50g and 80g of stem tissues) with three replicates for each weight were elicited by these two abiotic elicitors. Experiment divided into few steps that were the process of elicitation, incubation, extraction, evaporation, dilution, centrifugation and the final step *in vitro* bioassay. *In vitro* bioassay was organized to screen the potential antimicrobial compounds in elicited stem tissues. Through this experiment, methanol was known as an extraction agent used to extract compounds out from the elicited stem tissues. While ethanol used to dilute and uptake all the tissue extracts carrying unknown compounds which have been dried up in flasks. Paper discs made from filter paper were design as a medium for carrying elicited broccoli stem tissues. These tissue contained unidentified compounds which believed as antimicrobial compounds that inhibit the growth of *Aspergillus niger*. The mycelium of *A. niger* continually grow and colonized the whole plates when there were no growth inhibitor present in plate as observed in the control plate containing broccoli stem tissues which were elicited by water. Zones of inhibition were present in 80g tissues of CuSO_4 elicited broccoli stems and appeared in three different stem weights of AgNO_3 elicited broccoli stems. Thus showed broccoli elicited by CuSO_4 and AgNO_3 were successfully induced the antimicrobial compounds in broccoli stems after being challenged by these two abiotic elicitors. However broccoli elicited by CuSO_4 only able to produce enough antimicrobial compounds with strong inhibition zones in 80g stems tissues. In this case, the higher the broccoli stem weights were used in this experiment, the higher the accumulation of potential antimicrobial compounds produced in stem tissues elicited by CuSO_4 . Both elicitors were capable to elicit potential antimicrobial compounds from broccoli and AgNO_3 was a good inducer of antimicrobial compounds.

