

# CURRENT RESEARCH AND DEVELOPMENT IN BIOTECHNOLOGY ENGINEERING AT IIUM

VOLUME III

Editors:

Md. Zahangir Alam  
Ahmed Tariq Jameel  
Azura Amid



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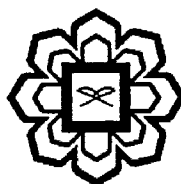
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**Department of Biotechnology Engineering  
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## CHAPTER 14

### INVESTIGATIONS ON SPIDER HOUSE FOR ANTI MICROBIAL ACTIVITY

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#### ABSTRACT

The purpose of this new investigation was to determine if spider webs exhibit antibacterial properties. In order to determine antibacterial properties, the spider webs were extracted with different solvents such as methanol, ethanol, acetone, and water in different conditions (extraction time, and concentration used for optimization). These extracts were screened for antibacterial activity using disc diffusion assay. Two bacteria were used in the antibacterial assay namely *Bacillus subtilis*, and *Escherichia coli*. The determination of spider webs exhibiting antibacterial properties was based, at least in this study, solely upon the definite appearance of an inhibition zone around the well of plates. In screening, acetone solvent was shown the best antibacterial activity compare to other solvents with 10 mm of diameter of inhibition zone for *Bacillus subtilis* and 9 mm of diameter of inhibition zone for *Escherichia coli*. In optimization, the maximum inhibition zone on the *Bacillus subtilis* was 15 mm at a time of 48 hours and concentration of 0.035 g/ml. Meanwhile, the maximum diameter of inhibition zone on the *Escherichia coli* was 12 mm at a time of 48 hours and concentration of 0.035 g/ml. Therefore, this study showed that spider webs could be potential source of new antibacterial agents.

**Keywords.** Antimicrobial, bacteria, microorganism, spider web.

#### INTRODUCTION

Microorganisms, such as bacteria are becoming resistant more quickly than new drugs that are being made available. Therefore, future research in antimicrobial therapy may focus on finding the new antimicrobials that can overcome this problem, or treat infections with alternative means. New research is targeting such product that can kill or inhibit the growth of drug resistant bacteria. The techniques to test the antimicrobial activity on spider house (web) are still not developing yet. However, recently the research on antimicrobial activity have been done on spider by tested the venom of spider which is