A COMPARISON OF ANTIBACTERIAL ACTIVITIES OF WHITE AND BLACK GARLIC (*Allium sativum Linn)* AGAINST GRAM NEGATIVE BACTERIA

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Final Year Project Report Submitted in Partial Fulfillment of the Requirement for the Degree of Bachelor of Science (Hons.) Biology in the Faculty of Applied Science Universiti Teknologi MARA

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This Final Year Project Report entitled **"A Comparison of Antibacterial Activities of White and Black Garlic (*Allium sativum Linn*) Against Gram Negative Bacteria"** was submitted by Nurshafina binti Ismail, in partial fulfillment of the requirements for the Degree of Bachelor Science (Hons.) Biology, in the Faculty of Applied Sciences and was approved by

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TABLE OF CONTENTS

ABSTRACT

A COMPARISON OF ANTIBACTERIAL ACTIVITIES OF WHITE AND BLACK GARLIC (*Allium Sativum Linn)* AGAINST GRAM NEGATIVE BACTERIA

Throughout history, many different cultures have recognized the potential use of garlic for prevention and treatment of different diseases. Recent studies support the effects of garlic and its extracts in a wide range of applications. These studies compare antibacterial activity between white garlic and black garlic. . Black garlic (BG) is a type of fermented garlic used as food ingredient in Asian cuisine. Black Garlic produced from white garlic (WG) under controlled high temperature and humidity. Research has been conducted to determine the antibacterial properties of white and black garlic against gram negative bacteria by using disc diffusion method as well as to compare the effect of antibacterial properties of samples. The concentration of crude extract is 50 mg/ml, 100 mg/ml, 200 mg/ml, 400 mg/ml and 800 mg/ml while the positive control use is ciprofloxacin and the negative control is 95 % ethanol. The result show white garlic extract, the optimum concentration that can inhibit bacterial growth in 400 mg/ml which show highest reading of zone of inhibition towards *E.coli* bacteria which is 1.57±0.49 while black garlic shows the highest reading in zone of inhibition in 800 mg/ml against *Serratia* spp..This result will be very helpful as guidance for folks to choose the best type of garlic for effective antibacterial effects. In *E.coli*, there was no statistically difference in mean of zone of inhibition between white garlic and black garlic extracts due to p value ($p=0.732$) is more than 0.05. Thus, the null hypothesis is rejected. There is not enough evidence to claim that white garlic and black garlic extract have significance difference in antibacterial activities towards *E.coli*. In *Serratia* spp. there was statically difference in mean of zone of inhibition between white garlic and black garlic extract due to p value ($p= 0.00$) is less than 0.05 and also have statistically difference between concentration of extracts due to p value ($p =.0.00$) Thus, the null hypothesis is accepted. There is enough evidence to claim that white garlic and black garlic extract have significance difference in antibacterial activities toward *Serratia* spp..