

UNIVERSITI TEKNOLOGI MARA

**ANTIMICROBIAL AND ANTIOXIDANT ACTIVITY
OF VIRGIN COCONUT OIL**

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ABSTRACT

Antioxidant is a substance that can fight free radicals and also help in repairing the oxidative damage in biomolecules. Accumulation of free radicals and oxidative damage lead to oxidative stress state (OSS). A high level of OSS will lead to progression of chronic disease such as Parkinson's disease, diabetes and cardiovascular disease. The use of supplement contains only isolated compound may not give high benefit compared to natural diet that consist of balance nutrient. Antimicrobial agent is a substance that kills or slows the growth of microorganism. The emergence of microbial resistance possess a constant challenge to the used of antimicrobial agent. Some of the antimicrobial has side effect that cannot be tolerated by elderly and children. The antimicrobial and antioxidant activity of virgin coconut oil has been investigated by using microdilution method, total phenolic content, xanthine/xanthine oxidase scavenging system and DPPH assay. The result of testing of antimicrobial activity of VCO showed that Virgin coconut oil type B was effective compared to VCO type A. VCO B inhibits only *Microsporium canis* at concentration at 5 μ g/ μ l. Total phenolic content of VCO type A and VCO type B were 121.4 \pm 5.31 μ g/ 100gGAE and 99.5 \pm 11.53 μ g/ 100gGAE, respectively. The total phenolic content in VCO is considered minimal low as the TPC value which is more than 1000mg GAE/ 100g is considered high total phenolic compound. The antioxidant property of VCO type A and VCO type B verified by Xanthine / Xanthine Oxidase (XOD) Superoxide Scavenging System were 32.9 \pm 1.15% and 15.1 \pm 2.90%, respectively, which indicate both VCO's possessed low antioxidant activity. The antioxidant activity of VCO type A and VCO type B verified by DPPH assay were 15.9 \pm 2.9 and 10.0 \pm 1.0%, respectively. It can be concluded that VCO possesses low antimicrobial and antioxidant activities.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Antimicrobial agent is general term for drugs, chemicals, or other substances that either kill or slow the growth of microbes. The examples of antimicrobial agents are antibacterial drugs, antiviral agents, antifungal agents, and antiparasitic agents. Antimicrobial agents are classified based on the chemical structure and proposed mechanism of action. Successful antimicrobial therapy of an infection depends on the concentration of antibiotic at site of action. The concentration must be sufficient to inhibit the growth of microorganism. However, the concentration at the site of infection not only must inhibit the microorganism but also must remain below the level that is toxic to human cells. If the antimicrobial concentration exceeds that which can be achieved safely inside the body, the microorganism is considered resistant to that drug (Brunton *et al.*, 2006).

Infection is an invasion of the body by harmful organism such as bacteria, fungi, protozoa, rickettsiae, or virus. The infective agent may be transmitted by patient or carrier in air borne droplet expelled during coughing and sneezing or by