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TLC-BIOAUTOGRAPHIC METHOD FOR DETECTION OF α-AMYLASE INHIBITION IN MARINE ALGAE

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ABSTRACT

Bioautographic method using TLC plays an important role in search of plant bioactive compound. In this study, TLC-bioautographic method was conducted to investigate antidiabetic activity in marine algae. Marine algae are abundant and known to have bioactive compound with health benefit including as antioxidant and antidiabetic effects. The objective of this study was to investigate the activity of α-amylase inhibition and antioxidant in marine algae using TLC-bioautographic method. Marine algae samples were extracted in two different solvents, ethanol and ethyl acetate. After migration of the samples, the first plate was dipped in α-amylase solution and incubated. Then it was dipped in starch solution and incubated again. The reaction was visualized by washing the plate with Gram's iodine. Another developed plate was dipped in DPPH• solution. The ethyl acetate extracts of marine algae showed higher α-amylase inhibition and antioxidant activity. Sample 8 showed the highest inhibition with moderate antioxidant activity. Antioxidant activity may contribute to α-amylase inhibition activity. Comparison of results may show relationship but must be further investigated. Marine algae showed the potential candidate for management of type 2 diabetes.

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INTRODUCTION

1.1 Introduction

In the recent years, researchers have gained more interest on natural resources for the source of antioxidant in view of toxic and carcinogenic effect of synthetic antioxidants. Many phytochemicals from terrestrial and marine plants have been evaluated for the past two decades. Marine algae have gained many interests as many studies have proven to contain a bioactive compound of the phenolic compound with antioxidant. The phenolic-rich extract of marine algae also found to have anti-diabetic properties through the inhibition of α-amylase and α-glucosidase (Nwosu et al., 2011).

Marine algae can be classified according to its pigmentation; red (Rhodophyta), brown (Phaeophyta), and green (Chlorophyta). Previous studies have proven that algae rich in bioactive particularly due to antioxidant that have wide potential in the industry especially in food, pharmaceuticals and biomedical industry (S. H. Lee et al., 2010). Therefore, the number of studies on algae increases in the recent years due to this interest on the antioxidant compound.