

**IDENTIFICATION OF BIOACTIVE COMPOUNDS,
ANTIOXIDANT and ANTIBACTERIAL ACTIVITIES OF
Caulerpa lentillifera EXTRACT FROM KUALA KEDAH**

NORSHAMIRA BINTI SUHAIMI

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Puan Sarina Binti Mohamad
Supervisor
B. Sc. (Hons.) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau
Perlis

En Muhammad Syukri Noor Azman
Project Coordinator
B. Sc. (Hons.) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau
Perlis

Puan Zalina Binti Zainal Abidin
Head of Programme
B. Sc. (Hons.) Applied Chemistry
Faculty of Applied Sciences
Universiti Teknologi MARA
02600 Arau
Perlis

Date: _____

ABSTRACT

IDENTIFICATION OF BIOACTIVE COMPOUNDS, ANTIOXIDANT AND ANTIBACTERIAL ACTIVITY OF *Caulerpa lentillifera* EXTRACT FROM KUALA KEDAH

In Malaysia, marine green algae distributed abundantly in the intertidal zone in tropical and subtropical regions. The study used green algae from family Caulerpa which is *C. lentillifera* from Kuala Kedah. Numerous beneficial biological benefits of marine natural compounds, such as antioxidants and antibacterials, have been demonstrated. Recent studies have revealed the biological potential of several of the bioactive components of *C. lentillifera*, including phenolic compounds, polysaccharides, and pigments, which may serve as a rich source of novel medications for the pharmaceutical sector. However, the potential for the green alga *C. lentillifera* from Kuala Kedah to be a source of bioactive compounds has not been sufficiently investigated. The study was carried out to assess the phytochemical composition present in the crude extract of *C. lentillifera* for the detection of antioxidants and antibacterial activities. In this study, it has been shown that *C. lentillifera* purchased from Kuala Kedah is a rich source of bioactive substances with potential nutritional value such as flavonoids, polyphenol, terpenoids, alkaloids, saponins, and tannins. The TPC of the extracts was determined according to the Folin-Ciocalteu method, yielding a result of 13.02 ± 0.00 $\mu\text{g GAE/mg}$ of ethanolic extract and 9.62 ± 0.01 $\mu\text{g GAE/mg}$ of chloroform extract. Antioxidant activity was determined using a 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay with different concentrations that ranged between 20 to 100 $\mu\text{g/mL}$, noted *C. lentillifera* as the highest in DPPH reduction (58.56%) at 100 $\mu\text{g/mL}$ concentration for ethanolic extract, with an IC_{50} of 3.22 $\mu\text{g/mL}$. The potential of *C. lentillifera*'s ethanolic extract as a natural antioxidant is demonstrated, in contrast to the extract of *C. lentillifera* in chloroform. When compared to ethanolic extracts, chloroform exhibits a stronger antibacterial action against *B. licheniformis* (15.33 ± 0.58 mm), followed by gram-negative bacteria, *E. coli* (14.00 ± 2.00 mm).

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