

**PHYTOCHEMICAL SCREENING ANALYSIS OF  
*Eleutherine bulbosa* EXTRACTS AND ITS POTENTIAL  
AS ANTIBACTERIAL AND ANTIOXIDANT ACTIVITY**

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This Final year project report entitle “**Phytochemical Screening Analysis of *Eleutherine bulbosa* Extracts and Its Potential as Antibacterial and Antioxidant Activity**” was submitted by Natasha Binti Jeffery, in partial fulfillment of the requirements for the Degree of Bachelor of Sciences (Hons.) Biology, in the Faculty of Applied Science and was approved by

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## ABSTRACT

### PHYTOCHEMICAL SCREENING ANALYSIS OF *Eleutherine bulbosa* EXTRACTS AND ITS POTENTIAL AS ANTIBACTERIAL AND ANTIOXIDANT ACTIVITY

*Eleutherine bulbosa* or bawang Dayak in Malay is a well-known member of the Iridaceae family with a wide range of therapeutic possibilities. The Dayak population has historically utilized the bawang dayak as a folk remedy to treat a variety of illnesses include diabetes, breast cancer, nasal congestion, and infertility issues. *E. bulbosa* is a revolutionary in both medicine and drug discovery and development due to its naturally occurring antioxidants and antibacterial constituents. However, there were limited studies on the bawang Dayak in Malaysia. Therefore, this study was conducted to identify the phytochemical constituents in *Eleutherine bulbosa* extract using preliminary phytochemical screening analysis, to investigate the antibacterial activity in *Eleutherine bulbosa* extracts using the disc diffusion method and to examine the antioxidant abilities in *Eleutherine bulbosa* extract using the DPPH radical scavenging assay performance. The dried bulbs of *Eleutherine bulbosa* was extracted using maceration extraction in 95% ethanol. The percentage yield obtained was 2.22%. Meanwhile, the phytochemical screening showed the presence of flavonoids, alkaloids, tannins, and saponins. For antioxidant activity, the *E. bulbosa* bulb extract inhibits scavenging activity from 30.08% to 48.32%, lower than standard reference, ascorbic acid which varying from 20.16% to 43.68%. Thus, it proved that *E. bulbosa* bulb extract has good antioxidant activity. Besides, the IC<sub>50</sub> value for *E. bulbosa* extract lower than ascorbic acid which was 5.536 mg/ml and 6.523 mg/ml, respectively. As for antibacterial study, the present study showed that the *E. bulbosa* bulb extract was active against the gram negative (*E. coli*) and resistance against gram positive (*B. licheniformis*). The inhibition zones of *E. bulbosa* extract against *E. coli* in three different concentrations (1.25%, 5%, 15%) were 9.7 mm, 12.7 mm, 17.0 mm, respectively, while there was no inhibition zone against *B. licheniformis*. This might be due to error when conducting the antibacterial study.

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