

SUMMARY

This research aims to explore the antioxidant potential of three traditional Indonesian medicinal plants: bay leaves, eucalyptus leaves, and guava leaves. These traditional medicinal plants contain bioactive compounds such as phenolics and flavonoids, which function as antioxidants. Previous studies have shown significant variations in bioactive content among different medicinal plants, but comparing these results is often difficult due to differences in methods and standards used. Therefore, this study employs two calibration standards for the analysis of phenolics and flavonoids, as well as two methods for measuring antioxidant activity to produce more accurate and comprehensive data.

The total phenolic content was analyzed using the spectrophotometric method with the Folin-Ciocalteu reagent and two calibration standards: gallic acid and catechin. The total flavonoid content was measured using the AlCl_3 reagent with quercetin and rutin as standards. Antioxidant activity was evaluated using the DPPH and H_2O_2 methods. Each plant extract was tested in duplicate to ensure the accuracy of the results. The measurement results are presented in units of mg gallic acid equivalents (GAE) and mg catechin equivalents (CE) for phenolics, as well as mg quercetin equivalents (QE) and mg rutin equivalents (RE) for flavonoids.

The results showed that bay leaf extract had the highest total phenolic content, followed by eucalyptus leaf and guava leaf extracts. The total phenolic content in bay leaves was 349.8 mg GAE/g extract and 359.92 mg CE/g extract. The antioxidant activity measured using the DPPH and H_2O_2 methods showed a positive correlation with phenolic and flavonoid content. The conversion of phenolic concentration from gallic acid to catechin, using the linear relationship from the calibration curve, ensures the accuracy of the measurement results. The conversion of flavonoid concentration from quercetin to rutin was obtained from the linear equation: $\text{rutin content} = 3.1686 \times (\text{quercetin content}) - 18.427$. This allows for broader comparison with other studies and ensures consistency between the rutin and quercetin methods, supporting the evaluation of the antioxidant potential of traditional medicinal plants

Key words: Antioxidant Potential, Calibration Standards, Flavonoid Content, Phenolic Content, Traditional Medicinal Plants,