ABSTRAK

PENGARUH KONSENTRASI EKSTRAK ROSELLA (*Hibiscus sabdariffa L.*) TERHADAP AKTIVITAS ANTIOKSIDAN DENGAN SPEKTROFOTOMETER UV-Vis

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Rosella (*Hibiscus sabdariffa* L.) merupakan tanaman kaya akan senyawa bioaktif seperti flavonoid, antosianin, tanin, dan senyawa fenolik yang berpotensi sebagai antioksidan alami. Penelitian bertujuan untuk mengetahui pengaruh variasi konsentrasi ekstrak rosella terhadap aktivitas antioksidan menggunakan metode DPPH yang diukur dengan spektrofotometer UV-Vis. Penelitian desain *quasi experimental* dengan variasi konsentrasi ekstrak rosella sebesar 50 ppm, 75 ppm, 100 ppm, 125 ppm, dan 150 ppm. Ekstraksi dilakukan metode maserasi dengan pelarut etanol 96%. Aktivitas antioksidan ditentukan nilai persen inhibisi dan IC_{50}. Data dianalisis menggunakan *uji Shapiro-Wilk, uji homogenitas Levene, uji One-Way ANOVA,* dan uji lanjut *Pos Hoc Tukey.* Hasil penelitian persentase inhibisi pada konsentrasi 50 ppm, 75 ppm, 100 ppm, 125 ppm, dan 150 ppm berturut-turut sebesar 51,75%; 68,87%; 84,62%; 75,59%; dan 88,01%. Nilai IC_{50} ekstrak rosella sebesar 26,19 ppm yang termasuk kategori antioksidan sangat aktif. Hasil uji *One-Way ANOVA* menunjukkan nilai signifikansi sebesar 0,013 ($p<0,05$), yang menandakan terdapat pengaruh signifikan konsentrasi ekstrak rosella terhadap aktivitas antioksidan. Uji lanjut *Pos Hoc Tukey* menunjukkan perbedaan signifikan antara konsentrasi 50 ppm dengan konsentrasi 100 ppm dan 150 ppm. Hasil menunjukkan peningkatan konsentrasi ekstrak rosella berpengaruh terhadap aktivitas antioksidan, dengan aktivitas tertinggi pada konsentrasi 150 ppm. Rosella berpotensi sebagai sumber antioksidan alami yang sangat aktif.

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Kata Kunci: Aktivitas antioksidan, DPPH, IC_{50}, Rosella (*Hibiscus sabdariffa* L.), spektrofotometer UV-Vis.

ABSTRACT

Effect of Roselle (*Hibiscus sabdariffa* L.) Extract Concentration on Antioxidant Activity Determined by UV-Vis Spectrophotometry

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Rosella (*Hibiscus sabdariffa* L.) is a plant rich in bioactive compounds, such as flavonoids, anthocyanins, tannins, and phenolic compounds, which have potential as natural antioxidants. This study aimed to determine the effect of varying concentrations of rosella extract on antioxidant activity using the DPPH method, as measured by a UV-Vis spectrophotometer. This study employed a quasi-experimental design with rosella extract concentrations of 50 ppm, 75 ppm, 100 ppm, 125 ppm, and 150 ppm. Extraction was carried out using the maceration method with 96% ethanol as the solvent. Antioxidant activity was determined based on the percentage of inhibition and IC_{50} values. The data were analyzed using the Shapiro-Wilk test, Levene's homogeneity test, One-Way ANOVA, and Tukey's post hoc test. The results showed that the percentage of inhibition at concentrations of 50 ppm, 75 ppm, 100 ppm, 125 ppm, and 150 ppm was 51.75%, 68.87%, 84.62%, 75.59%, and 88.01%, respectively. The IC_{50} value of the rosella extract was 26.19 ppm, which was classified as a very active antioxidant. The One-Way ANOVA test showed a significance value of 0.013 ($p<0.05$), indicating a significant effect of rosella extract concentration on antioxidant activity. Tukey's post hoc test showed a significant difference between the 50 ppm concentration and the 100 ppm and 150 ppm concentrations. The results indicated that increasing the concentration of rosella extract affected its antioxidant activity, with the highest activity observed at a concentration of 150 ppm. Rosella has potential as a highly active natural source of antioxidants.

Keywords: *antioxidant activity, DPPH, IC_{50}, roselle (Hibiscus sabdariffa L.), UV-Vis spectrophotometer.*

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