

FORMULATION AND TESTING OF THE ANTIOXIDANT ACTIVITY OF A FACE MIST FORMULATION COMBINING JICAMA ROOT EXTRACT AND CUCUMBER FRUIT EXTRACT USING THE DPPH METHOD

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ABSTRACT

Background: Free radicals caused by UV exposure can trigger oxidative stress, leading to various skin problems. Therefore, skincare products containing antioxidants in the form of the face mists are needed, as they are practical to use and easy to carry anywhere. Jicama and cucumber have potential as natural sources of antioxidants because they contain secondary metabolite. **Objective:** To determine the antioxidant activity and analyze the effect of extract variations on the antioxidant activity of the face mist formulation. **Research Methods:** Face mist formulations were prepared in 7 variations of extract concentration (F0 to F6). Subsequently, quality evaluation of the formulation was conducted, including organoleptic testing, homogeneity, pH, specific gravity, spreadability, and drying time. Antioxidant activity testing was performed using the DPPH method with a UV-Vis spectrophotometer at a wavelength of 515 nm. **Research Results:** All formulations met quality standards (organoleptic testing, homogeneity, pH, specific gravity, spreadability, and drying time), although the color of the formulations was not yet optimal, and the pH formulation without added extract did not meet the requirements (too acidic). In the antioxidant activity test, the average IC_{50} values for F0 through F6 were 211,29; 4,90; 3,88; 4,00; 3,86; 2,45; dan 1,67 $\mu\text{g/mL}$. Formulations F5 and F6 exhibited the highest antioxidant activity due to their low IC_{50} values. **Conclusion:** Variations in extract concentration within the formulations had a significant effect ($p < 0.05$) on antioxidant activity values, with formulations F5 and F6 being the preparations with the most optimal antioxidant activity.

Keywords: Antioxidant, Face Mist, DPPH, Jicama, Cucumber