

FACULTY OF MEDICINE AND HEALTH SCIENCES

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**“FORMULATION OF ANTIOXIDANT EXFOLIATING GEL MASK FROM
TOMATO FRUIT EXTRACT (*Solanum lycopersicum* L.)”**

ABSTRACT

Background: Skin aging and exposure to free radicals can lead to various skin problems such as dullness, wrinkles, and loss of elasticity. Tomato (*Solanum lycopersicum* L.) contains bioactive compounds such as lycopene and flavonoids that function as natural antioxidants. These compounds have the potential to be used in cosmetic preparations, particularly exfoliating gel masks.

Objective: To determine the optimal formulation and the most effective concentration of tomato fruit extract in exfoliating gel mask preparations as an antioxidant, based on physical characteristics and user preference.

Methods: This study employed an experimental laboratory design, starting from the extraction of tomato fruit using the maceration method with 96% ethanol. Four formulations were developed (F1 without extract, F2–F4 with extract concentrations of 3%, 5%, and 7%), followed by antioxidant activity testing using the DPPH method, physical evaluation (pH, viscosity, adhesion, spreadability, homogeneity, and organoleptic tests), and a hedonic test.

Results: The tomato extract showed very strong antioxidant activity with an IC_{50} value of 22.42 $\mu\text{g/mL}$. All formulations met the physical stability and organoleptic parameters. Formula F4 (7% extract) obtained the highest average score in the hedonic test and demonstrated the best physical characteristics in terms of adhesion, spreadability, and viscosity.

Conclusion: The exfoliating gel mask formulation with 7% tomato fruit extract (F4) is the most optimal formulation, effective as an antioxidant, and most preferred by the panelists.

Keywords: *Solanum lycopersicum* L., Antioxidant, Gel Mask, Exfoliation.

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