

PENGARUH KONSENTRASI EKSTRAK METANOL DAUN KELOR (*Moringa oleifera* L.) TERHADAP AKTIVITAS ANTIOKSIDAN DENGAN METODE DPPH DALAM SEDIAAN MASKER GEL *PEEL – OFF*

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INTISARI

Latar Belakang: Senyawa antioksidan dapat digunakan untuk memperlambat proses penuaan. Salah satu sumber antioksidan alami yang dapat digunakan sebagai bahan untuk memperlambat penuaan adalah daun kelor (*Moringa oleifera Lamk*) yang mengandung senyawa flavanoid. Agar upaya penghambatan penuaan semakin praktis dan efisien maka perlu dikemas dalam suatu bentuk sediaan, seperti sediaan masker gel *peel-off*.

Tujuan Penelitian: Mengetahui pengaruh variasi konsentrasi ekstrak daun kelor terhadap sifat fisik sediaan masker gel *peel-off* dan aktivitas penangkapan radikal bebas DPPH.

Metode Penelitian: Sampel daun kelor diekstraksi menggunakan metanol. Ekstrak diformulasikan menjadi masker gel *peel-off* dengan konsentrasi ekstrak daun kelor F1 0,25%, F2 0,5%, dan F3 1%. Masker gel *peel-off* dievaluasi sifat fisiknya dan diuji aktivitas antioksidannya menggunakan metode DPPH.

Hasil Penelitian: Hasil penelitian evaluasi sifat fisik pada uji organoleptis masker gel *peel-off* F1 berwarna coklat bening, F2 berwarna coklat bening tua, dan F3 berwarna coklat bening tua pekat, ketiga formula memiliki tekstur kental dan bau yang khas daun kelor. Hasil pH masker gel *peel-off* yaitu $7,3 \pm 0,2$, $7,1 \pm 0,20$, dan $6,8 \pm 0,1$. Hasil daya sebar masker gel *peel-off* yaitu $6,24 \pm 0,065$, $6,12 \pm 0,025$ dan $6,08 \pm 0,017$. Hasil daya lekat masker gel *peel-off* yaitu $4,23 \pm 0,12$, $4,48 \pm 0,34$, dan $5,30 \pm 0,13$. Hasil waktu mengering masker gel *peel-off* yaitu 25 ± 1 , $23 \pm 3,0$, dan $24 \pm 0,57$. Hasil nilai IC_{50} kuersetin yang dianalisis dengan metode DPPH sebesar $3,353 \text{ ppm} \pm 0,18$ tergolong sangat kuat. Hasil penelitian nilai IC_{50} ekstrak metanol daun kelor $80,709 \text{ ppm} \pm 2,48$ tergolong kuat. Hasil nilai IC_{50} sediaan masker gel *peel-off* dari konsentrasi 0,25%, 0,5%, dan 1% yaitu $167,269 \text{ ppm} \pm 3,84$, $162,057 \text{ ppm} \pm 1,28$ kategori lemah, dan $134,396 \text{ ppm} \pm 2,95$ kategori sedang.

Kesimpulan: Kenaikan konsentrasi ekstrak mempengaruhi sifat fisik sediaan masker gel *peel-off* yaitu menurunkan nilai pH namun tidak mempengaruhi daya sebar dan daya lekat dan kenaikan konsentrasi ekstrak menyebabkan semakin tinggi nilai aktivitas antioksidan maka nilai IC_{50} semakin rendah.

Kata Kunci: Antioksidan, Daun Kelor, Masker Gel *Peel-Off*

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EFFECT OF METANOL EXTRACT CONCENTRATION OF *Moringa oleifera* L. ON ANTIOXIDANT ACTIVITY DPPH METHOD IN *PEEL-OFF* GEL MASK PREPARATIONS

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ABSTRACT

Background: Antioxidant compounds can be used to slow down the aging process. One of the natural sources of antioxidants that can be used as an ingredient to slow down aging is moringa leaves (*Moringa oleifera* Lamk) which contain flavanoid compounds. In order for efforts to inhibit aging to be more practical and efficient, it needs to be packaged in a form of preparation, such as a peel-off gel mask that can be used on facial skin.

Research: To determine the effect of variations in moringa leaf extract concentration on the activity of free radical arrest of DPPH and the physical properties of *peel-off* gel mask preparations

Method: Moringa leaf samples were extracted using 90% methanol. The resulting extract is formulated into a *peel-off* gel mask with a concentration of moringa leaf extract F1 0,25%, F2 0,5%, and F3 1% ,furthermore, *peel-off* gel mask are evaluated for their physical properties and tested for antioxidant activity using the DPPH method

Results: The result of the evaluation of physical properties in the organoleptis test of *peel-off* gel mask in brown color at F1, clear brown color at F2, and dark brown, and F3 was dark brown, all three formulas had a thick texture and smell typical of moringa leaves. The pH result of *peel-off* gel masks were $7,3 \pm 0,2$, $7,1 \pm 0,20$, and $6,8 \pm 0,1$ respectively. The results of the dispersion of *peel-off* gel mask ware $6,24 \pm 0,065$, $6,12 \pm 0,025$, and $6,08 \pm 0,017$ respectively. The adhesion result of peel-off gel mask were $,23 \pm 0,12$, $4,48 \pm 0,34$, and $5,30 \pm 0,13$ respectively. The results of the drying time of *peel-off* gel mask were 25 ± 1 , $23 \pm 3,0$, and $24 \pm 0,57$ respectively. The results of the IC₅₀ value of quercetin analysed by the DPPH method of $3,353 \pm 0,18$ ppm are alassified as very strong. The results of the research showed that the IC₅₀ value of moringa leaf methanol extract was $80.709 \pm 2,48$ ppm and was relatively strong. The IC₅₀ value of *peel-off* gel mask preparations from concentrations of F1 0,25%, F2 0,5%, and F3 1% were $167,269 \pm 3,84$ ppm, $162,057 \pm 1,28$ classified as weak, and $134,396 \pm 2,95$ classified as medium .

Conclusion : The increase in extract concentration affects the physical properties of the peel-off gel mask preparation, namely lowering the pH value but does not affect the spreadability and adhesiveness and the increase in extract concentration causes the higher the antioxidant activity value, the lower the IC₅₀ value.

Keywords: Antioxidants, *Moringa Leaves*, *Peel-Off* Gel Mask

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