

FORMULASI DAN EVALUASI SEDIAAN LOTION DARI FERMENTASI KOMBUCHA SARI BUAH BELIMBING WULUH (*Averrhoa Bilimbi* L.) SEBAGAI ANTIOKSIDAN

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ABSTRAK

Radikal bebas dapat menyebabkan kerusakan sel dan mempercepat penuaan. Antioksidan alami, seperti yang terdapat dalam fermentasi teh kombucha dan sari buah belimbing wuluh (*Averrhoa bilimbi* L.), mampu menetralkan radikal bebas. Penelitian ini bertujuan untuk menilai potensi antioksidan dari fermentasi kombucha sari buah belimbing wuluh dan mengembangkan lotion yang mengandung bahan tersebut. Metode penelitian meliputi fermentasi kombucha dengan sari buah belimbing wuluh, pembuatan lotion, dan evaluasi aktivitas antioksidan. Hasil penelitian menunjukkan peningkatan aktivitas antioksidan dari sari buah belimbing wuluh melalui fermentasi kombucha. Nilai IC_{50} dari fermentasi kombucha sari buah belimbing wuluh menunjukkan hasil yang signifikan, dengan formula F memiliki nilai IC_{50} sebesar 98,56 $\mu\text{g/mL}$, menunjukkan kemampuan tinggi dalam menetralkan radikal bebas. Sediaan dengan variasi konsentrasi zat aktif 3%, 4 % dan 5 % dilakukan evaluasi sifat fisik, stabilitas fisik, dan kimia. Yang menunjukkan bahwa lotion memiliki sifat fisik yang baik seperti organoleptik, homogenitas, daya sebar, pH dan viskositas. Stabilitas kimia menunjukkan nilai pH dalam persyaratan pH kulit. Formula III menunjukkan aktifitas antioksidan paling baik dengan nilai IC_{50} 120,577 $\mu\text{g/mL}$

Kata kunci: Antioksidan, fermentasi kombucha sari buah belimbing wuluh, lotion, IC_{50} .

**FORMULATION AND EVALUATION OF LOTION FROM KOMBUCHA
FERMENTATION OF STARFRUIT (*Averrhoa Bilimbi* L.) AS AN
ANTIOXIDANT**

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ABSTRACT

Free radicals can cause cell damage and accelerate aging. Natural antioxidants, such as those found in kombucha tea fermentation and *Averrhoa bilimbi* L. (bilimbi fruit) extract, are able to neutralize free radicals. This study aims to assess the antioxidant potential of kombucha fermentation with bilimbi fruit extract and to develop a lotion containing these ingredients. The research methods include kombucha fermentation with bilimbi fruit extract, lotion preparation, and evaluation of antioxidant activity. The results show an increase in antioxidant activity of bilimbi fruit extract through kombucha fermentation. The IC_{50} value of kombucha fermentation with bilimbi fruit extract shows significant results, with formula F having an IC_{50} value of 98.56 $\mu\text{g/mL}$, indicating a high ability to neutralize free radicals. Preparations with variations in active ingredient concentrations of 3%, 4%, and 5% were evaluated for physical properties, physical and chemical stability. The results show that the lotion has good physical properties such as organoleptic, homogeneity, spreadability, pH, and viscosity. Chemical stability indicates the pH value meets skin pH requirements. Formula III shows the best antioxidant activity with an IC_{50} value of 120.577 $\mu\text{g/mL}$.

Keywords: Antioxidant, kombucha fermentation with bilimbi fruit extract, lotion, IC_{50} .