

FORMULASI KRIM ANTI-AGING BERBASIS MINYAK ZAITUN YANG DIPERKAYA DENGAN *Hermetia illucens* L. OIL (HIO) MENGGUNAKAN TRIETANOLAMIN (TEA) SEBAGAI EMULGATOR

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INTISARI

Penelitian formulasi krim anti-aging berbasis minyak zaitun yang diperkaya dengan *Hermetia illucens* L. oil (HIO) menggunakan trietanolamin (TEA) sebagai emulgator telah dilakukan. Penelitian ini bertujuan untuk memberikan alternatif formulasi krim wajah dengan bahan alami yang memiliki potensi anti-aging dan kaya antioksidan. Selain itu untuk menambah informasi ilmiah mengenai penggunaan minyak zaitun dan HIO dalam produk kosmetik serta efektivitas TEA dalam menjaga kestabilan emulsi.

Penelitian diawali dengan pengujian karakteristik minyak zaitun, yang dilanjutkan dengan formulasi sediaan krim berbasis minyak zaitun. Setelah itu, dilakukan pembuatan krim dengan variasi konsentrasi bahan aktif yaitu HIO. Sediaan yang dihasilkan diuji karakteristik fisiknya melalui uji organoleptik, homogenitas, daya sebar, pemisahan fase, nilai pH, tipe emulsi, evaluasi aktivitas antioksidan untuk membuktikan potensi anti-aging, dan pengujian nilai *Sun Protection Factor* (SPF).

Hasil penelitian menunjukkan bahwa krim wajah anti-aging berbahan dasar minyak zaitun dengan penambahan HIO memiliki kestabilan fisik yang cukup baik. Variasi konsentrasi HIO dan emulgator TEA stearat memengaruhi sifat organoleptik, daya sebar, viskositas, pemisahan fase, dan meningkatkan pH sediaan, namun tidak berpengaruh terhadap homogenitas dan tipe emulsi. Aktivitas antioksidan dan nilai SPF meningkat seiring bertambahnya konsentrasi HIO dengan hasil terbaik pada formula 4 yang memiliki nilai IC_{50} sebesar 32,25 ppm dan SPF 8,36. Aktivitas antioksidan yang sangat kuat menunjukkan bahwa HIO mampu menangkal berbagai radikal bebas penyebab penuaan dini pada kulit, sehingga efektif digunakan sebagai agen anti-aging dalam sediaan krim.

Kata kunci: anti-aging, HIO, krim wajah, minyak zaitun, trietanolamin

***FORMULATION OF OLIVE OIL-BASED ANTI-AGING CREAM
ENRICHED WITH *Hermetia illucens* L. OIL (HIO) USING
TRIETHANOLAMINE (TEA) AS AN EMULSIFIER***

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ABSTRACT

Formulation of olive oil-based anti-aging cream enriched with *Hermetia illucens* L. oil (HIO) using triethanolamine (TEA) as an emulsifier, has been carried out. This research aims to provide an alternative facial cream formulation using natural ingredients with potential anti-aging properties and rich antioxidant content. Furthermore, this research aims to contribute scientific information regarding the use of olive oil and HIO in cosmetic products, as well as the effectiveness of TEA in maintaining emulsion stability.

The research began with the characterization of olive oil, followed by the formulation of olive oil-based cream preparations. Subsequently, creams were prepared with varying concentrations of HIO as the active ingredient. The resulting creams were evaluated for their physical characteristics, including organoleptic test, homogeneity, spreadability, phase separation, pH value, emulsion type, antioxidant activity testing to demonstrate anti-aging potential, and Sun Protection Factor (SPF) evaluation.

The research results showed that the olive oil-based anti-aging facial cream with the addition of HIO exhibited fairly good physical stability. Variations in the concentrations of HIO and the emulsifier TEA stearate affected the organoleptic properties, spreadability, viscosity, phase separation, and increased the pH of the formulation, but did not influence its homogeneity or emulsion type. Antioxidant activity and SPF values increased with higher HIO concentrations, with the best results observed in formula 4, which had an IC_{50} value of 32.25 ppm and an SPF of 8.36. The very strong antioxidant activity indicates that HIO is capable of counteracting various free radicals that cause premature skin aging, making it effective as an anti-aging agent in cream formulations.

Keywords: anti-aging, face cream, HIO, olive oil, triethanolamine