

FORMULASI SEDIAAN KRIM MINYAK TAMANU (*Calophyllum inophyllum*) DENGAN VARIASI KONSENTRASI ASTAXANTHIN SERTA UJI STABILITAS FISIK, AKTIVITAS ANTIOKSIDAN DAN PERLINDUNGAN UV

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INTISARI

Penelitian formulasi sediaan krim minyak tamanu dengan variasi konsentrasi astaxanthin serta uji stabilitas fisik, aktivitas antioksidan, dan perlindungan UV telah dilakukan. Penelitian ini bertujuan untuk membuat dan mengetahui karakteristik sediaan krim berbahan dasar minyak tamanu dan mempelajari pengaruh variasi penambahan senyawa astaxanthin terhadap kestabilan krim. Selain itu, penelitian ini bertujuan untuk mengetahui aktivitas antioksidan dan perlindungan UV formulasi krim berbahan dasar minyak tamanu dengan variasi konsentrasi bahan aktif astaxanthin.

Penelitian ini diawali dengan pengujian karakteristik terhadap minyak tamanu dan dilanjutkan dengan pembuatan sediaan krim minyak tamanu. Selanjutnya, dilakukan pembuatan sediaan krim dengan variasi konsentrasi astaxanthin. Tahap terakhir yaitu dilakukan uji karakteristik meliputi uji organoleptik, homogenitas, daya sebar, pemisahan fase, nilai pH, ukuran *droplet*, tipe emulsi, aktivitas antioksidan dan perlindungan UV dari nilai *Sun Protection Factor* (SPF).

Hasil penelitian menunjukkan bahwa produk sediaan krim minyak tamanu tanpa penambahan konsentrasi astaxanthin memiliki kestabilan fisik yang cukup baik. Penambahan variasi konsentrasi astaxanthin merubah organoleptik, menambah viskositas sediaan krim, menurunkan daya sebar, pH, dan ukuran *droplet* sediaan krim. Namun, penambahan astaxanthin tidak merubah homogenitas, tipe emulsi, dan pemisahan fase. Penambahan konsentrasi astaxanthin tertinggi pada formulasi penelitian menghasilkan sediaan krim yang memiliki aktivitas antioksidan dan perlindungan UV tertinggi berturut-turut yaitu 122,31 ppm dan nilai SPF 21,2.

Kata kunci: antioksidan, astaxanthin, krim, minyak tamanu, perlindungan UV

**FORMULATION OF TAMANU OIL (*Calophyllum inophyllum*) CREAM
WITH VARIATIONS OF ASTAXANTHIN CONCENTRATION AND
TESTS OF PHYSICAL STABILITY, ANTIOXIDANT ACTIVITY, AND
UV PROTECTION**

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ABSTRACT

Formulation of tamanu oil cream with varying concentrations of astaxanthin, along with tests of physical stability, antioxidant activity, and UV protection, has been carried out. This research aims to develop and characterize cream preparations based on tamanu oil and to study the effects of varying astaxanthin concentrations on cream stability. Furthermore, this research aims to evaluate the antioxidant activity and UV protection of tamanu oil-based cream formulations with different astaxanthin concentrations as the active ingredient.

This research began with testing the characteristics of tamanu oil and then was proceed for making tamanu oil cream preparation. Cream preparations were then made in addition of variations astaxanthin concentration. The last, the cream formulations were then evaluated through organoleptic tests, homogeneity, spreadability, phase separation, pH value, droplet size, emulsion type, antioxidant activity, and UV protection based on the Sun Protection Factor (SPF) value.

The research results showed that tamanu oil cream without the addition of astaxanthin exhibited good physical stability. The addition of varying astaxanthin concentrations modified the organoleptic properties, increased viscosity, and reduced the spreadability, pH, and droplet size of the cream formulation. However, the addition of astaxanthin had no effect on the homogeneity, emulsion type, or phase separation of the cream. The formulation with the highest concentration of astaxanthin demonstrated the greatest antioxidant activity and UV protection, with values of 122.31 ppm and SPF value of 21.2, respectively.

Keywords: antioxidant, astaxanthin, cream, tamanu oil, UV protection