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FORMULATION AND PHYSICAL QUALITY TESTING OF PREPARATIONS LOTION LEMON JUICE (*Citrus limon* (L.)) AS AN ANTIOXIDANT

ABSTRACT

Background : Antioxidants are contained in various types of fruit and vegetables, including lemons (*Citrus limon* (L)) because it contains flavonoids and vitamin C. The antioxidants contained in lemons can be used as active substances in lotion preparations. The aim of this study was to evaluate the effect of lemon juice concentration on the physical quality and antioxidant activity of the preparation *lotion*.

Methods : Type of experimental research, using lemon juice which was formulated into an emulsion and made into a lotion preparation with a concentration series of 5, 10, 15%. Evaluation of physical characteristics includes organoleptic, emulsion type, pH, homogeneity, spreadability, adhesive power, viscosity and antioxidant activity test using the DPPH method. Data analysis using SPSS Version

Result : The results of the phytochemical screening of lemon juice were positive for containing flavonoids, tannins, terpenoids, alkaloids and phenols. The results of the organoleptic characteristics of the three formulas are white, have no distinctive aroma and are semi-solid. The homogeneity test results of the three formulas were homogeneous. Test results pH 6, spreadability (6.22 - 6.78 cm), emulsion type (O/W), viscosity (10,900 -12,480 cps), adhesion power (4.12 - 4.33 seconds). IC average value₅₀ *lotion* Formula I lemon juice obtained a value of 117.19 ppm (medium), formula II 97.84 ppm (strong), formula III 88.94 ppm (strong) and quercetin had an IC value₅₀ 6.72 ppm (very strong). Analyze data with *Mann-Whitney* $p < 0,027$.

Conclusion : The concentration of lemon juice affects the physical quality test of the preparation *lotion*. IC value₅₀ preparation *lotion* lemon juice (*Citrus limon* (L)) is influenced by the concentration of lemon juice. *Lotion* Lemon juice has an IC value₅₀ formula I 117, 19 ppm; formula 2 97,84 ppm dan formula 3 88,94 ppm.

Keywords : *Lotion*, physical quality, lemon, antioxidants

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FORMULASI DAN UJI MUTU FISIK SEDIAAN *LOTION* SARI LEMON (*Citrus limon (L.)*) SEBAGAI ANTIOKSIDAN

ABSTRAK

Latar Belakang : Antioksidan terkandung dalam berbagai jenis buah dan sayuran diantaranya lemon (*Citrus limon (L.)*) karena memiliki kandungan flavonoid dan vitamin C. Antioksidan yang terkandung dalam lemon dapat dimanfaatkan sebagai zat aktif dalam sediaan lotion. Tujuan penelitian ini untuk mengevaluasi pengaruh konsentrasi sari lemon terhadap mutu fisik dan aktivitas antioksidan sediaan *lotion*

Metode penelitian : Jenis penelitian eksperimental, menggunakan sari buah lemon yang diformulasikan menjadi emulsi dan dibuat sediaan lotion dengan seri konsentrasi 5, 10, 15%. Evaluasi karakteristik fisiknya meliputi organoleptis, tipe emulsi, pH, homogenitas, daya sebar, daya lekat, viskositas serta uji aktivitas antioksidan dengan metode DPPH. Analisis data menggunakan SPSS Versi 26

Hasil penelitian : Hasil skrining fitokimia sari buah lemon positif mengandung senyawa flavonoid, tanin, terpenoid, alkaloid dan fenol. Hasil karakteristik organoleptis dari ketiga formula berwarna putih, tidak beraroma khas dan berbentuk semipadat. Hasil uji homogenitas ketiga formula tersebut homogen. Hasil uji pH 6, daya sebar (6,22 - 6,78 cm), tipe emulsi (M/A), viskositas (10,900 - 12,480 cps), daya lekat (4,12 - 4,33 detik). Nilai rata-rata IC_{50} *lotion* sari lemon formula I diperoleh nilai 117,19 ppm (sedang), formula II 97,84 ppm (kuat), formula III 88,94 ppm (kuat) dan kuersetin memiliki nilai IC_{50} 6,72 ppm (sangat kuat).

Analisis data dengan *Mann-Whitney* $p < 0,027$.

Kesimpulan : Konsentrasi sari buah lemon mempengaruhi uji mutu fisik sediaan *lotion*. Nilai IC_{50} sediaan *lotion* sari buah lemon (*Citrus limon (L.)*) dipengaruhi oleh konsentrasi sari buah lemon. *Lotion* sari buah lemon memiliki nilai IC_{50} formula I 117,19 ppm; formula 2 97,84 ppm dan formula 3 88,94 ppm.

Kata Kunci : *Lotion*, mutu fisik, lemon, antioksidan