FORMULASI DAN UJI AKTIVITAS ANTIOKSIDAN KRIM EKSTRAK ETANOL DAUN KERSEN (*Muntingia calabura* L.) MENGGUNAKAN METODE DPPH

Arizka Kusmaya Putri[1], Endah Kurniawati[2]

INTISARI

Latar Belakang: Antioksidan bertindak sebagai agen anti penuaan dengan mengikat radikal bebas untuk menstabilkan elektron yang tidak berpasangan. Antioksidan dapat berasal dari bahan alam yang mengandung flavonoid seperti daun kersen (*Muntingia calabura* L.). Dalam memanfaatkan daun kersen dibuatlah menjadi sediaan krim anti aging. Sediaan krim lebih disukai oleh masyarakat karena praktis, mudah menyerap, mudah dibilas, tidak lengket, dapat melembabkan kulit, dan dapat menyebar di permukaan kulit.
Tujuan Penelitian: Mengetahui pengaruh variasi konsentrasi ekstrak daun kersen dalam sediaan krim terhadap aktivitas penangkapan radikal bebas DPPH dan terhadap sifat fisik sediaan krim
Metode Penelitian: Sampel diekstraksi dengan metode maserasi dengan pelarut etanol 70%. Ekstrak kental tersebut kemudian diformulasi menjadi krim dengan F1 0,3%, F2 0,6%, dan F3 0,9%. Selanjutnya krim dievaluasi sifat fisiknya dan diuji aktivitas antioksidannya menggunakan metode DPPH.
Hasil Penelitian: Hasil penelitian evaluasi sifat fisik pada uji organoleptis krim memiliki warna kuning pada F1, warna agak kuning pada F2, dan warna kuning kecoklatan pada F3, dan ketiga formula memiliki tektur semi padat dan bau khas daun kersen. Hasil pH krim berturut-turut yaitu 6,3±0,07, 6,1±0,1, dan 5,7±0,15. Hasil daya sebar krim berturut-turut yaitu 6,37±0,03 cm, 6,35±0,02 cm, dan 6,32±0,01 cm. Hasil daya lekat krim berturut-turut yaitu 4,25±0,15 detik, 4,56±0,24 detik, dan 5,32±0,14 detik. Hasil viskositas krim berturut-turut yaitu 12266,33±105,83 cP, 12313,33±83,26 cP, dan 12260±80,82 cP. Hasil nilai IC_{50} kuersetin yang dianalisi dengan metode DPPH sebesar 1,78±0,01ppm tergolong sangat kuat. Hasil penelitian nilai IC_{50} ekstrak etanol daun kersen 3,74±0,03 ppm tergolong sangat kuat. Hasil nilai IC_{50} sediaan krim berturut-turut dari konsentrasi 0,3%, 0,6%, dan 0,9% yaitu 225,76±2,75 ppm, 168,34±0,87 ppm, dan 120,28±0,98 ppm, tergolong sangat rendah, rendah, dan sedang.
Kesimpulan: Variasi konsentrasi estrak etanol daun kersen dapat mempengaruhi hasil evaluasi fisik sediaan dengan menurunkan nilai pH dan menaikkan nilai daya lekat. Variasi konsentrasi ekstrak etanol daun kersen juga mempengaruhi aktivitas antioksidan dalam sediaan krim yaitu semakin tinggi konsentrasi ekstrak yang digunakan maka semakin tinggi aktivitas antioksidannya.
Kata Kunci: DPPH, Antioksidan, Daun Kersen, Krim.

[1] Mahasiswa Farmasi Universitas Jenderal Achmad Yani Yogyakarta
[2] Dosen Farmasi Universitas Jenderal Achmad Yani Yogyakarta

FORMULATION AND ANTIOXIDANT ACTIVITY ASSAY OF CREAM CONTAINING ETHANOL EXTRACT OF (*Muntingia calabura* L.) LEAVES USING DPPH METHOD

Arizka Kusmaya Putri[1], Endah kurniawati[2]

ABSTRACT

Background: Antioxidants act as anti-aging agents by binding to free radicals to stabilize unpaired electrons. Antioxidants can be derived from natural ingredients that contain flavonoids such as cherry leaves (*Muntingia calabura* L.). In utilizing cherry leaves, it is made into anti-aging cream preparations. Cream preparations are preferred by the public because they are practical, easy to absorb, easy to rinse, non-sticky, can moisturize the skin, and can be spread over the surface of the skin.
Objective: To determine the effect of variations in the concentration of cherry leaf extract in cream preparations on DPPH free radical scavenging activity and on the physical properties of cream preparations
Method: Samples were extracted by maceration method with 70% ethanol solvent. The thick extract was then formulated into a cream with 0.3% F1, 0.6% F2 and 0.9% F3. Furthermore, the cream was evaluated for its physical properties and tested for its antioxidant activity using the DPPH method.
Result: The results of the organoleptic test showed that the cream had a yellow color on F1, a slightly yellow color on F2, and a brownish yellow color on F3, and the three formulas had a semi-solid texture and a characteristic odor of cherry leaves. The results of the cream pH were 6,3 ± 0,07, 6,1 ± 0,1, and 5,7 ± 0,15 respectively. The results of the spreadability of the cream were 6,37 ± 0,03 cm, 6,35 ± 0,02 cm and 6,32 ± 0,01 cm respectively. The results of the adhesive power of the cream were 4,25 ± 0,15 seconds, 4,56 ± 0,24 seconds, and 5,32 ± 0,14 seconds respectively. The results of cream viscosity were 12266,33 ± 105,83 cP, 12313,33 ± 83,26 cP, and 12260 ± 80,82 cP respectively. The quercetin IC_{50} value analyzed using the DPPH method of 1,78 ± 0,01 ppm is classified as very strong. The results of the research showed that the IC_{50} value of cherry leaf ethanol extract was 3,74 ± 0,03 ppm, which was classified as very strong. The results of the IC_{50} value of cream preparations from concentrations of 0,3%, 0,6%, and 0,9% were 225,76 ± 2,75 ppm, 168,34 ± 0,87 ppm, and 120,28 ± 0,98 ppm, classified as very low, low, and medium.
Conclusion: Variation in the concentration of cherry leaf ethanol extract can affect the results of the physical evaluation of the preparation by lowering the pH value and increasing the adhesiveness value. Variations in the concentration of the ethanol extract of cherry leaves also affect the antioxidant activity in cream preparations, namely the higher the concentration of the extract used, the higher the antioxidant activity.
Keywords: DPPH, Antioxidants, Extract of *Muntingia calabura* L., Cream.

[1]Student of Pharmacy Universitas Jenderal Achmad Yani Yogyakarta
[2]Lecturer of Pharmacy Universitas Jenderal Achmad Yani Yogyakarta