Uji Aktivitas Antioksidan Metode 2,2'-Azinobis-3-Etilbenzotiazolin-6-Asam Sulfonat (ABTS) dan Aktivitas Anti-Tirosinase Ekstrak Etanol 70% Daun Belimbing Wuluh (Averrhoa bilimbi L.) = Antioxidant Activity Test 2,2'-Azinobis-3-Ethylbenzothiazoline-6-Sulfonic Acid (ABTS) Method and Anti-Tyrosinase of 70% Ethanol Extract of Wuluh Starfruit Leaves (Averrhoa bilimbi L.)

Tarissa Shalsabilla, author

Abstrak

Manusia memerlukan antioksidan untuk mencegah terjadinya stres oksidatif yang dapat menyebabkan gangguan fungsi kulit yaitu hiperpigmentasi kulit. Peristiwa tersebut berhubungan dengan aktivitas enzim tirosinase yang berkontribusi dalam pembentukan pigmen melanin kulit sehingga diperlukan penghambatan enzim tirosinase untuk menjaga kulit tetap cerah. Tanaman belimbing wuluh (Averrhoa bilimbi L.) yang berasal dari famili Oxalidaceae, merupakan salah satu tanaman yang digunakan sebagai obat tradisional. Daun belimbing wuluh terbukti sebagai sumber antioksidan dan anti-tirosinase alami. Penelitian ini bertujuan untuk mengidentifikasi fragmen pengenal dan jaringan khas dari simplisia, persentase rendemen, persentase kadar air, aktivitas antioksidan, dan aktivitas anti-tirosinase. Pengujian mikroskopik dilakukan menggunakan mikroskop cahaya. Daun belimbing wuluh diekstraksi secara maserasi dengan pelarut etanol 70%. Pengujian aktivitas antioksidan metode ABTS dengan standar asam askorbat dan penghambatan enzim tirosinase yang berasal dari jamur spesies Agaricus bisporus dengan standar asam kojat dan substrat L-DOPA yang dianalisa menggunakan microplate reader. Hasil pengamatan mikroskopik diperoleh rambut penutup, epidermis atas dengan dinding yang sedikit berkelok, epidermis bawah dengan dinding yang berkelok disertai stomata dan rambut penutup, stomata tipe parasitik, urat daun, dan pembuluh kayu dengan penebalan tangga. Rendemen hasil ekstraksi diperoleh dari metode maserasi sebesar 21,353% dengan kadar air 6,978%. Hasil nilai IC50 uji ABTS sebesar 22,052±0,157 Î¼g/mL tergolong antioksidan sangat kuat. Hasil uji anti-tirosinase menunjukkan aktivitas anti-tirosinase kuat dengan nilai IC50 sebesar 76,598±0,749¼g/mL. Dapat disimpulkan, ekstrak etanol 70% daun belimbing wuluh memiliki aktivitas antioksidan yang sangat kuat dan anti-tirosinase yang kuat.

.....Humans need antioxidants to prevent oxidative stress which can cause skin function disorders which is hyperpigmentation. This case is related to enzyme tyrosinase activity which contributes in the production of melanin pigment, so tyrosinase enzyme inhibition is needed to maintain skin brightness. Wuluh starfruit (Averrhoa bilimbi L.) which belongs to the Oxalidaceae family, is one of the plants used as traditional medicine. Wuluh starfruit leaves have been proven to be a source of antioxidants and anti-tyrosinase. This research aimed to determine the identification of fragments and specific tissues of simplicia, percentage yield, percentage water content, antioxidant activity, and anti-tyrosinase activity. Microscopic was carried out using a light microscope. Wuluh starfruit was extracted by maceration with 70% ethanol solvent. Antioxidant activity testing using ABTS method with ascorbic acid standard and inhibition of tyrosinase enzyme derived from fungus Agaricus bisporus species with kojic acid standard and L-DOPA substrate, were analyzed using a microplate reader. Microscopic observations showed the presence of cover hair, upper epidermis with slightly curved walls, lower epidermis with curved walls with stomata and cover hair,

parasitic type stomata, leaf veins, and ladder-like wood vessels. The yield obtained from the maceration extraction method was 21,353% with a water content 6,978%. The IC50 value of ABTS test was 22,052±0,157 Î¼g/mL, classified as a very strong antioxidant. The anti-tyrosinase test results showed strong anti-tyrosinase activity with an IC50 value of 76,598±0,749¼g/mL. It can be concluded that the 70% ethanol extract of wuluh starfruit leaves has very strong antioxidant and strong anti-tyrosinase.