

INTISARI

Lansium domesticum “Langsat” dari famili Meliaceae merupakan buah yang memiliki banyak manfaat salah satunya adalah dapat dikembangkan sebagai bahan aktif kosmetik. Penelitian ini bertujuan untuk menentukan bioaktivitas dari daging buah dan kulit buah *L. domesticum* sebagai bahan aktif kosmetik.

Proses penyiapan ekstrak dilakukan dengan metode maserasi dengan pelarut etanol 96% dan etil asetat yang selanjutnya ditentukan golongan senyawa dengan kromatografi lapis tipis dan analisis GC/MS serta penentuan kandungan fenolik dan flavonoid total dengan metode kolorimetri. Aktivitas antioksidan diukur menggunakan pengujian peredaman radikal *1,2-diphenyl-2-picrylhydrazyl* (DPPH), *β-carotene bleaching* (BCB) dan *Ferric reducing antioxidant power* (FRAP). Efek penghambatan enzim pendegradasi kulit (*antiaging*) dilakukan dengan pengujian elastase menggunakan *Human Neutrophil Elastase* dan kolagenase menggunakan *Matrix Metalloproteinases-1* (MMP-1). Efek penghambatan tyrosinase ditentukan berdasarkan pengujian menggunakan *mushroom tyrosinase* dan pengujian viabilitas sel menggunakan *Human Dermal Fibroblast adult* (HDFa) dengan metode MTT serta aktivitas anti jerawat menggunakan *S. epidermidis*.

Hasil penelitian menunjukkan bahwa daging buah dan kulit buah *L. domesticum* terdapat golongan senyawa fenolik, flavonoid, terpenoid dan steroid berdasarkan profil KLT. Kandungan flavonoid total terbesar terdapat pada KLE (4,76±0,26 %b/b EK) dan kandungan fenolik total terbesar terdapat pada BLEA (6,4±0,15 %b/b EAG). Hasil aktivitas antioksidan pada masing-masing ekstrak untuk DPPH: BLEA>KLE>BLE>KLEA; BCB: KLEA>BLEA>KLE>BLE; dan FRAP: BLEA>KLE>KLEA>BLE. KLE dan KLEA memberikan hasil yang poten dalam menurunkan aktivitas dari enzim elastase dan enzim kolagenase. Selain itu, pengujian anti tyrosinase menunjukkan bahwa BLE memiliki aktivitas anti-tyrosinase yang efektif dibanding lainnya. Pada pengujian viabilitas sel menunjukkan bahwa BLE dan BLEA memberikan efek proliferasi pada sel HDFa. Selain itu, sampel KLE memberikan aktivitas penghambatan *S.epidermidis* pada konsentrasi 1% yaitu sebesar 11,93±0,55 mm. Berdasarkan dari hasil tersebut dapat disimpulkan bahwa ekstrak buah dan kulit buah langsung dapat dikembangkan sebagai bahan aktif kosmetik untuk *antiaging*.

Kata Kunci: Ekstrak *L. domesticum*, *antiaging*, antityrosinase, anti jerawat, viabilitas sel.

Abstract

Lansium domesticum or “Langsat” is one of species from Meliaceae family, it is a fruit that has many benefits that can be developed as an active ingredient of cosmetics. This study aims to determine the bioactivity of the fruit flesh and fruit peel of *L. domesticum* as cosmetic active ingredient.

The extraction process was prepared by maceration with ethanol 96% and ethyl acetate then determined classes of compounds by thin layer chromatography (TLC) as well as GC/MS analysis and then analyzed of total phenolic and flavonoid content with colorimetric method. The antioxidant capacity were measured using three methods, i.e. radical scavenging assay of 1,2-diphenyl-2-picrylhydrazyl (DPPH), β -carotene bleaching assay (BCB) and ferric reducing antioxidant power assay (FRAP). The inhibitory effect of skin degradation enzymes (anti-aging) was carried out with elastase using Human Neutrophil Elastase (HNE) and collagenase assay using matrix metalloproteinases-1 (MMP-1). The tyrosinase inhibitory effect was determined based on mushroom tyrosinase assay and percent of cell viability using *Human Dermal Fibroblast adult* (HDFa) by MTT method as well as anti acne activity using *S.epidermidis*.

Based on TLC result and m/z prediction by GC/MS, it can be shown that fruit flesh and fruit peel of *L. domesticum* containing phenolic, flavonoids, terpenoids and steroids compounds. The largest of total flavonoid content was obtained in KLE ($4,76\pm 0,26$ %b/b EQ) and phenolic total content in BLEA ($6,4\pm 0,15$ %b/b EAG). Sequence of antioxidant activity measured using DPPH method was BLEA > KLE > BLE > KLEA; while using BCB method and FRAP method was respectively KLEA > BLEA > KLE > BLE; and BLEA > KLE > KLEA > BLE. KLE and KLEA extract showed the most potent to remaining activity of the enzyme elastase and collagenase. In addition, The tyrosinase inhibitory activities of *L. domesticum* extracts showed that BLE extract is most potent than others. Cell viability assay showed that BLE and BLEA had a proliferation effect on HDFa cells. In addition, KLE sample showed inhibition activity against *S.epidermidis* at concentration of 1% as big as $11,93\pm 0,55$ mm. Based on these results it can be concluded that the extract of the fruit flesh and fruit peel of *L. domesticum* had potential as a cosmetic active ingredient for anti-aging and anti-tyrosinase.

Keywords: *L. domesticum* extract, antiaging, antityrosinase, anti acne, cell viability.