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Tyrosinase Inhibitor Activity of Ethanol Extract, Ethyl Acetate Fraction and n-Hexane Fraction of Jamaica Cherry Flower (*Muntingia calabura* L.) as A Skin-Brightening Agent

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ABSTRACT

Ultraviolet exposure can damage the skin. It causes various effects such as darker skin tone, erythema, sunburn, premature aging, and cancer. It also can trigger the tyrosinase enzyme to work actively in the formation of melanin, thus, the skin becomes dark. To overcome this, the skin needs brightening products to inhibit the activity of the tyrosinase enzyme. One of the plants that potentially have tyrosinase inhibitor activity is jamaica cherry (*Muntingia calabura* L.). Jamaica cherry flower contains chemical compounds and has very strong antioxidant activity and sunscreen activity with a high SPF value. The study aimed to determine the inhibitory activity of the tyrosinase enzyme from ethanol extract, ethyl acetate fraction, and n-hexane fraction of jamaica cherry flower in vitro using a microplate reader. The ethanol extract samples were obtained by maceration and fractionated using the liquid-liquid partition method to obtain ethyl acetate and n-hexane fractions. Furthermore, qualitative tests were carried out to identify the content of chemical compounds including phenolic, flavonoid, tannin, saponin, alkaloid, and terpenoid tests. Testing the inhibition of tyrosinase enzyme activity used kojic acid as a comparison and L-tyrosine as a substrate. The results showed that the ethanol extract, ethyl acetate fraction, and n-hexane fraction of jamaica cherry flower had tyrosinase enzyme inhibitor activity, with activity values belonging to the strong category, namely IC50 ethanol extract 3,673 µg/mL, IC50 ethyl acetate fraction 11,648 µg/mL, and IC50 n-hexane fraction 5,670 µg/mL with kojic acid as a comparison with an IC50 value of 2,425 µg/mL in the strong category. Ethanol extract provides the best activity and has the potential to be developed as a skin-brightening agent in cosmetic products.

Keywords: *Muntingia calabura* L., tyrosinase inhibitors, skin-brightening