Tyrosinase Inhibitory Effect Studies on the Aerial Parts of Wiedemannia Multifida (L.) Bentham

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Abstract

Tyrosinase is a copper-containing enzyme which is mostly deployed in microorganism, plants, human, and animals. This enzyme is involved in melanin synthesis. The abnormal melanin accumulation causes hyperpigmentation in human skins and browning of foods. Tyrosinase inhibitors gained importance in medicine, cosmetic and food industries. Kojic acid, arbutin, hydroquinon known as a powerful tyrosinase inhibitory agent. Natural compounds with anti-pigmenting effect are preferred rather than synthetic substances such as kojic acid and hydroquinone, which can cause skin inflammations. The genus Wiedemannia (Lamiaceae) is represented by two species in Turkey. Methanol extract of Wiedemannia multifida has shown strong antioxidant and antibacterial activity. The tyrosinase inhibitory activities of the methanol, dichloromethane, ethyl acetate, butanol, and aqueous extracts of the W. multifida have been evaluated in this study. Modified Masuda’s colorimetric method was used to evaluate the mushroom tyrosinase inhibitory effect. Kojic acid was used as positive control. The value of %inhibition of the dichloromethane extract (39.47 ± 0.662, 47.36 ± 1.449) is higher than kojic acid (23.29 ± 0.113, 43.37 ± 0.080) against mushroom tyrosinase at 25 and 100 µg/mL concentration and ethyl acetate extract (26.31 ± 0.760) is higher than kojic acid (23.29 ± 0.113) against mushroom tyrosinase at 25 µg/mL concentration. W. multifida may be evaluated a natural alternative in the treatment of hyperpigmentation and cosmetic and food industry.