Antioxidant and Anti-Collagenase Activity of *Solanum betaceum* Cav. Fruit Ethanolic Extract

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Abstract

Background: The oxidative stress theory of aging has gained traction as a contributing factor to the aging process. Free radicals greatly contribute to skin damage and hasten ageing by interfering with defence and restorative systems. Natural compounds in plants that have the capacity to scavenge free radicals and have antiaging capabilities. *Solanum betaceum* or tamarillo fruit has been known has many bioactive compounds such as anthocyanins, phenolics, carotenoids, and flavonoids compounds. *S. betaceum* also contains vitamins and nutrients that are vital for human health have strong antioxidant and antiaging properties. **Objective:** This research aimed to determine the antioxidant and antiaging activities of *S. betaceum* fruit extract (SBFE). **Methods:** The extraction of *S. betaceum* fruit extract using 70% ethanol and maceration method. *S. betaceum* antioxidant activities are conducted by measuring 2,2-diphenyl 1-pichylhydazyl (DPPH) scavenging activity while antiaging activity was investigated by inhibitory activity of collagenase enzyme. **Results:** SBFE showed the highest percentage in DPPH scavenging activity was 80.70%, while the Median Inhibitory Concentration (IC_{50}) value was 101.13 µg/mL. The highest collagenase inhibitory activity of SBFE was 43.91% with IC_{50} value was 50.64 µg/mL. **Conclusion:** In summary, *Solanum betaceum* fruit extract has potential as natural antioxidants and antiaging.

Keywords: Antioxidant, antiaging, DPPH, collagenase, *Solanum betaceum*