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Inhibition Of Dopachrome Synthesis By Mistletoe Extracts (*Cladocolea loniceroides*)

Frida Paredes Ruiz, María José Serrano Maldonado, Ivette González Palma, Jennifer López Sánchez, Edith Ponce Alquicira, Jorge Soriano Santos

Universidad Autónoma Metropolitana Unidad Iztapalapa, Biotecnology Department, Av. San Rafael Atlixco #186, D.F, Delegación Iztapalapa, C.P. 09340, MÉXICO.

Abstract: Mistletoe is a parasitic plant which grows attached to and within the branches of trees and shrubs. Mistletoe impact is rather negative causing great tree mortality. The Mexican mistletoe, *Cladocolea loniceroides* contains different polyphenols, which are an excellent natural antioxidants resource from this plant. Various tropical vegetables with high antioxidant concentrations have been known for their anti-tyrosinase activity which could be potentially prepared for skin-whitening preparations. The objective of this study was to assess tyrosinase inhibitory activity of mistletoe extracts through the quantification of dopachrome. The green and ripe fruits, leaf and stem were extracted with five solvents including hexane, chloroform, ethyl acetate, methanol, ethanol and water. The results showed that the water extract by ripe fruit, exerted a considerable level of *in vitro* mushroom tyrosinase inhibition (IC_{50}=1.1 mg/mL) compared to a positive control of hydroquinone (IC_{50}=0.048 mg/mL). After evaluating the antioxidant activity by DPPH and ABTS radicals scavenging activity, it was founded that the water extract by ripe fruit had the highest antioxidant activity in both methods (EC_{50}=1.36 mg/mL and 0.29 mg/mL, respectively), also showed non-competitive inhibition (K_i'=0.22 mg/mL). So, this extract has potential as skin-whitening agent, but further study is needed to identify the phytochemical compounds with anti-tyrosinase activity.

Keywords: Tyrosinase, inhibition, polyphenols, mistletoe.

Corresponding author: Frida Paredes Ruiz
* fridamoho@gmail.com