عنوان مقاله:

Anti-hyperpigmentation activity of gallic acid

محل انتشار:

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خلاصه مقاله:

Introduction: Introduction: Tyrosinase (TYR) is a copper-containing enzyme responsible for melanogenesis.Its inhibitors, including natural phenolic compounds, have become increasingly important because of theirpotential activity as hypopigmenting agents with fewer side effects. Gallic acid (GA), a natural phenolic acid,possesses diverse biological activities, including antibacterial, antioxidant, and anticancer. This study aimed tostudy the anti-hyperpigmentation activity of GA.Methods: Molecular docking was used to obtain the binding method of GA to the active site of the tyrosinase.The mechanism of melanogenesis inhibition was investigated by gene expression analysis of microphthalmiaassociatedtranscription factor (MITF), TYR, TYR-related protein-۱ (TRP-۱), and TRP-۲ in B۱۶F۱۰ melanomacells before and after GA treatment.Results: Based on the molecular docking study, GA shows an inhibitory effect against TYR (ΔG=-۱۳۳.۶KJ/mol). The interaction between GA and TYR is more hydrophobic. The treatment by GA significantlydownregulated MITF, TYR, TRP-۱, and TRP-۲ in B۱۶ cells.Conclusion: These data further look for insights into the molecular mechanisms of melanogenesis suppressionby GA and suggest that GA may be suitable as a potent melanogenesis inhibitor

کلمات کلیدی:

Gallic acid, Gene expression, Tyrosinase enzyme, Molecular docking