

Triacetylresveratrol Mediates Photoprotection via Attenuation of UVA-Induced Oxidative Stress

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Abstract:

Plants are abundant in bioactive compounds, and numerous plant secondary metabolites have been isolated and characterized for their therapeutic potential. These compounds frequently exhibit antioxidant and anti-aging properties, thus warranting comprehensive investigation. Triacetylresveratrol, a chemically modified derivative of resveratrol, has previously demonstrated inhibitory effects on melanogenesis and exhibits a significant capacity for scavenging free radicals within cellular membranes. This study aimed to assess the antioxidant capacity of triacetylresveratrol using a panel of antioxidative assays. Specifically, the antioxidant activity of triacetylresveratrol was evaluated through a free radical scavenging assay, its effect on cell viability was assessed using the MTT assay, cellular membrane damage was evaluated by the LDH assay, and lipid peroxidation was quantified using the thiobarbituric acid reactive substances (TBARS) assay. The results revealed that triacetylresveratrol possesses significant antioxidant and free radical scavenging properties, effectively attenuates UVA-induced cellular damage, and inhibits membrane lipid peroxidation. These findings suggest that triacetylresveratrol offers substantial photoprotection against UVA-mediated cellular injury.

Keywords:

Photoprotection, UVA-induced damage, Triacetylresveratrol, Lipid peroxidation.