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Antioxidative effect of resveratrol-enriched grape peel extract on human keratinocytes

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Disease prevention emerges as a powerful approach towards a healthy society. Thus, food products that not only reduce hunger but promote overall health are continuously developed. Resveratrol is relatively abundant in grape peel and known to positively contribute to human health. To improve the bioavailability of resveratrol that occurs mainly in its glycosidic form, our group employed heat and enzyme treatment for grape peel. The extract contains greater amount of resveratrol, and thereby is expected to possess more potent bioactivity. We examined its DPPH and ABTS radical scavenging activity and its tendency to induce nuclear factor (erythroid-derived-2)-like 2 (Nrf2) activity, which increases expression of genes involved in antioxidant response such as heme oxygenase-1 (HO-1) and glutathione reductase (GR). We also evaluated its ability to reduce intracellular reactive oxygen species (ROS) in hydrogen peroxide-challenged human keratinocytes (HaCaT cells) and its effect on reduced glutathione level by 2',7'-dichlorofluorescein diacetate (H2DCFDA) assay and monochlorobimane assay, respectively. Moreover, we verified whether the reduction of intracellular ROS is stimulated by the action of Nrf2 and HO-1 by applying their respective inhibitors, brusatol and tin protoporphyrin-IX. In conclusion, resveratrol-enriched grape peel extract showed increased cytoprotective property and can potentially be useful in future anti-cancer or anti-aging related studies.

Biography

Janice Nullan Averilla has completed her BS Chemistry in the University of the Philippines Los Baños and moved to South Korea for her Master's and PhD degree in Food Biomaterials. Her recent projects involve the development of methodologies that focus on biotransformation of agricultural materials to produce bioavailable food products.

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