

Catalase gene expression in UVA exposed keratinocytes post treated with vegetal extracts and photobiomodulation

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Skin photoaging is induced by ultraviolet radiation that leads to the formation of reactive oxygen species (EROS). Vegetal extracts present high antioxidant capacity due to polyphenols content. They act reducing the concentration of the oxidizing species in the tissue, and reducing inflammation, among others. Photobiomodulation (PBM) is a technique known by inducing cellular activity, ATP levels, modulating inflammation, etc. The combination of the antioxidant capacity of vegetal extracts and PBM seems to be a promising combination in order to reduce the harmful effects of UVA radiation. The objective of this work was to evaluate the catalase gene expression in human keratinocytes exposed to UVA, after receiving vegetal extracts and PBM. For this, human keratinocytes (HaCaT) were seeded in 35mm well plates (150,000 cells/plate) and, after attachment were exposed to UVA (366 ± 10 nm, 2.5 mW / cm², 5400 sec). Then, treated with Chamomile (*Chamomilla recutita* Flower Extract) and and Fig (*Ficus carica* Fruit Extract) extract at 0.3% for 24 hours and, finally, PBM (640 ± 12 nm, 2.6 mW/cm², 420 sec). At the end of the treatments, cells were kept in the incubator for 24 hours. RNA was extracted and catalase gene expression was detected by quantitative PCR. In the dark, Chamomile increased catalase gene expression showing a photoprotective potential. UVA reduces the gene expression, while Chamomile use combined to PBM, showed an increased gene expression in relation to the UVA group. Fig extract does not alter the catalase gene expression in any treatment.

Biography:

Gabriela Benedito is PhD student in Biophotonics applied to Health Sciences – UNINOVE. Specialization in University education UNINOVE; Master's degree in Biophotonics applied to health sciences (UNINOVE 2017-2019); Bachelor's degree in Chemistry (UNINOVE 2014-2016). Volunteer professor in the PIBID Project (2016), Volunteer Professor in the Mafalda Pre-vestibular course in Organic Chemistry (2015). She has experience in the following topics: Photobiomodulation - Mechanisms and Applications, Interaction of reactive species with biological systems: skin cell culture. Cutaneous photoaging, use of natural assets for photoaging. Experience in the methods: Cell Culture, Genica expression, lipid peroxidation, cell viability, among others.