

INVESTIGACIÓN - FARMACIA

PROTECTIVE EFFECTS OF PHOTOBIMODULATION AGAINST BOTHROPS ALTERNATUS VENOM TOXICITY IN C2C12 MYOBLASTS: DIFFERENTIAL RESPONSES TO JUVENILE VS ADULT VENOMS

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Snakes of the genus *Bothrops* hold significant medical and epidemiological relevance, as their envenomation induces severe local and systemic effects in victims. Additionally, variations in venom composition between juvenile and adult snakes may result in distinct clinical outcomes. Photobiomodulation (PBM) has been shown to be an effective adjuvant therapy to serum therapy to reduce the local effects induced by bothropic snake venom. This study evaluated the effect of PBM on C2C12 myoblast cells after exposition of *Bothrops alternatus* snake venom (BaV) in its juvenile (BaJV) and adult (BaAV) stages. C2C12 cells

received VBaJ or VBaA (50 µg/mL), or only culture medium (control), and were immediately treated with PBM. Treatment was performed using a low-level laser (660 nm wavelength, 4 J/cm², 100 mW, 0.33 W/cm², 40 seconds). Cell viability, and cell proliferation and differentiation were assessed 3 hours after venom exposure using MTT assays and flow cytometry. Results showed that both venoms caused a decrease in cell viability and cell differentiation. PBM treatment caused increases in cell differentiation and proliferation, but had no effect on cell viability. It can be concluded that, although both venoms (juvenile and adult) are capable of causing effects on C2C12 cells, there is a difference in the magnitude of some of these effects, and treatment with PBM proved to be beneficial in protecting C2C12 cells against the venoms of *B. alternatus* in its different stages of snake development.

Palavras-chave: photobiomodulation; inflammation; edema; hyperalgesia; brothsatrox.