

The effect of photodynamic therapy on wound healing in diabetes using Raman Spectroscopy in vivo

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Photodynamic therapy (PDT) is a modern and non-invasive form of therapy, used in many fields of medicine. PDT proven to be effective in wound healing, and researches tend to study the challenges of the wound healing process, for example diabetes. Raman spectroscopy is a noninvasive optical method that has promise for characterization of the physical properties of wounds and to accurately identify different phases of wound healing at different time-points.

The purpose of this work is to study the effect of photodynamic therapy on the wound healing process in diabetes using two different photosensitizers 5-aminolevulinic acid and methylene blue, and two laser doses $1\text{J}/\text{cm}^2$ and $4\text{J}/\text{cm}^2$ by Raman spectroscopy. Raman spectra were collected from full thickness dermal wounds in mice at 4 time-points (1, 3, 7, and 14 days) corresponding to different phases of wound healing.

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