

The effect of low-level laser therapy on severe acute respiratory syndrome coronavirus-2 infected cells

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**Abstract**

SARS-CoV-2 is a threat to public health due to its ability to undergo crucial mutations, increasing its infectivity and decreasing the vaccine's effectiveness. There is a need to find and introduce alternative and effective methods of controlling SARS-CoV-2. LLLT treats diseases by exposing cells or tissues to low levels of red and near-infrared light. The study aims to investigate for the first time the impact of LLLT on SARS-CoV-2 infected HEK293/ACE2 cells and compare them to uninfected ones. Cells were irradiated at 640 nm, at different fluences. Subsequently, the effects of laser irradiation on the virus and cells were assessed using biological assays. Irradiated uninfected cells showed no changes in cell viability and cytotoxicity, while there were changes in irradiated infected cells. Furthermore, uninfected irradiated cells showed no luciferase activity while laser irradiation reduced luciferase activity in infected cells. Under SEM, there was a clear difference between the infected and uninfected cells.