

# **Photobiomodulation treatment modulates oxidative stress Formaldehyde- induced lung inflammation in rats**

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## **Abstract:**

Lung diseases constitute an important public health problem with high social and economic costs. Lung diseases are modulated by many factors including pollutants. Formaldehyde (FA) is ubiquitous pollutant that induces inflammations and oxidative stress in the respiratory tract. Treatments currently available are expensive and with side effects. We here investigated the role of Photobiomodulation (PBM) in the lung inflammation induced by FA exposure. Male Wistar rats were submitted to FA exposure (1% or vehicle) during 3 consecutive days and treated or not with PBM (laser, potency 30 mW, 660 nm wavelength, energy density of 12.86 J/cm<sup>2</sup>) 1 and 5 h after each FA exposure. The rats were irradiated by 3 points in the trachea and 3 points in each lung lobe in order to promote irradiation of all respiratory system. Twenty-four hours after the last FA exposure, we evaluated the generation of nitrites and hydrogen peroxide, as well as cyclooxygenases and nitric oxide enzymes. Our results showed decreased levels of oxidant enzymes and nitrites and hydrogen peroxide. Thus, PBM treatment modulates the oxidative stress in the lung tissue induced by FA.

## **Biography:**

Marlon da Palma Cruz joined the Nove de Julho University as an undergraduate student in the Biomedicine course in 2012, duly graduated in 2016, after his academic training he entered the field of research as a Master's student, in 2017, in the department of Biophotonics Applied to Health Sciences at Universidade Nove de Julho, presented works at international congresses (Nice/France) representing the department of Biophotonics, also won the third best work award at the IV International Forum on Lasertherapy - FIL 2018. And today it is like PhD student at the Department of Biophotonics Applied to Health Sciences at Universidade Nove de Julho. His main research interests are lung pathologies and air pollutants.