



## Healing process in wounds of diabetic patients using ozonated coconut oil.

Lidiane C H C Saraiva<sup>1</sup>, D I Kozusny-Andreani<sup>2\*</sup>, A Frade-Barros<sup>1</sup>, A Baptista<sup>1</sup>, L Santos Feitosa<sup>3</sup>, L Kfoury-Siriani<sup>4</sup>, S C Nunez<sup>1</sup>, R Scarparo Navarro<sup>1\*</sup>

<sup>1</sup>Universidade Brasil, Bioengineering and Biomedical Engineering Post Graduation Program, São Paulo, Brasil

<sup>2</sup>Universidade Brasil, Environmental Sciences Post Graduation Program, Fernandópolis, Brasil

<sup>3</sup>Universidade Federal de São Paulo, Microbiological Department, Brasil

<sup>4</sup>Universidade de São Paulo, Biomedical Sciences Institute, Microbiological Department, Brasil

\*[doraines@terra.com.br](mailto:doraines@terra.com.br)

**Background, Motivation and Objective.** The *Mélitus Diabetes* is a chronic disease that promotes serious complications in the patients, part of them occurs in the lower limbs, how reduction of blood circulation, local supply of oxygen and nutrients, inflammatory process modulators, vessels fragility, neuropathies, reduced sensibility and pain. Highlighting in the lower limbs the increase of pressure lesions associated with reduced healing process of wounds. These complications can develop into as partial or total amputation of members. The objective of this study was to evaluate the wounds healing process in diabetic patients using ozonated coconut oil in the topical treatment.

**Methods.** The Research Ethical Committee approved the research. Participated 15 volunteers, following an inclusion criteria (compensated diabetics patients, with wounds in the lower limbs), both sexes, age 30 to 80 years. For ethical reasons the medical prescription of the topical medicines was not suspended. The volunteers were randomly divided into: A- treatment group (n=9): curative (collagenase) and ozonated coconut oil (Ozone Life model, 10 ppm, 10 h) and B- control group (n=6): curative daily for 30 days. The microbiological and healing process evaluation were performed at the 0, 7, 15 and 30 days. Standardized photographs of wounds were performed by digital camera. After the free software Image J<sup>®</sup> (USA) scanned the pictures to perform the wounds areas (mm<sup>2</sup>) and compared the healing rate (%) in different treatments and times.

**Results.** The data showed that there was a significance ( $p < 0.05$ ) reduction in the wounds areas and microbial species comparing treated and control groups, in the initial and 30 days.

**Discussion and Conclusions.** Preliminary results showed that the association of ozonated coconut oil contributes to the antimicrobial effect and the healing process of wounds in the lower limbs of diabetic patients bringing an improvement in the quality of life of these patients.

**Keywords:** pressure ulcers; coconut oil; ozone; healing; diabetic.