



EVALUATION OF THE ANTI-INFLAMMATORY EFFECT OF TILAP SKIN (*Oreochromis niloticus*) IN EXPERIMENTAL BURN MODEL

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INTRODUCTION

The skin of *Oreochromis niloticus*, the Nile Tilapia, has shown healing action on injuries caused by burns in both rats and humans. However, its mechanism of action has not yet been fully elucidated. Therefore, this work aims to investigate the possible anti-inflammatory effect in the cicatricial process of Tilapia Skin in an experimental burn model.

MATERIAL AND METHODS

Adult female swiss mice were used (20-25g; n = 6-10) and the study was approved by CEUA/UFC (No. 7304051018), they were randomized in experimental groups Tilapia Skin lyophilized and irradiated at 25 kGy (Til), Physiological solution 0.9% (Negative Control - Sham) and Silver Sulfadiazine 1% (Positive Control - Sulfa); and submitted to the experimental burn protocol established by Lima-Junior et al. 2017 Rev Bras Burns. On the 3rd day of treatment, the animals were sacrificed by anesthetic overdose (xylazine and ketamine) and their collected wounds. The activity of the enzyme Myeloperoxidase (MPO) was measured by colorimetric method, and the proinflammatory cytokines IL-1 β , TNF- α and IL-8 and the anti-inflammatory cytokine IL-10 were measured by ELISA assay. Statistical differences were determined by ANOVA/Tukey, in which values of p<0.05 were considered significant.

RESULTS

Tilapia skin was able to significantly reduce MPO activity (1557 ± 217.5 U/mg tissue) on the 3rd day compared to the Sham group (2839 ± 161.6) and Sulfa (2443 ± 293). Furthermore, animals treated with Til there was a significant decrease in the concentration (pg/mL) of proinflammatory cytokines (IL-1 β = 4439 ± 444.7 ; TNF- α = 165.4 ± 22.52 ; IL-8= $8,233 \pm 1,121$), when compared with experimental Sham group (IL-1 β = 6619 ± 750.6 ; TNF- α = 268.9 ± 24.08 ; IL-8= $22,08 \pm 2,590$) and Sulfa (IL-1 β = 8359 ± 250.4 ; TNF- α = 431.7 ± 40.06 ; IL-8= $13,69 \pm 4,472$). The levels of the IL-10 (anti-inflammatory cytokine) increased in the Til group (135.4 ± 14.23) when compared to the Sham group (70.58 ± 5.691), but did not present difference when compared to the Sulfa group (155.6 ± 18.24).

CONCLUSIONS

We conclude that the Tilapia Skin reveals an important anti-inflammatory action, modulating the MPO activity, as well as attenuating the levels of IL-1 β , TNF- α , IL-8 and favoring the increase of IL-10 in animals submitted to the model of burn. This reinforces the need for further in-depth studies.

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