Currently, Leishmaniasis is prevalent in 98 countries in 5 continents. In these terms, Brazil receives great prominence, being that it is among the 6 countries representing 90% of cases of Visceral Leishmaniasis, and among the 12 countries that represent 70% of Cutaneous Leishmaniasis cases. Leishmaniasis diseases have in common the involvement of reactive oxygen species during macrophage infections by parasites, and during the development and progression of amastigotes forms inside of host cells. For this reason, some studies have been developed to better understand the involvement of reactive oxygen species in the mechanisms of infectious diseases. Here, we investigate the redox parameters in macrophages (RAW 264.7) that were submitted to infection with *Leishmania infantum*. We evaluated lipoperoxidation, protein carbonylation, and thiol content at 12, 24, and 48 hours after the infection with promastigotes forms. The activities of the antioxidant enzymes superoxide dismutase (SOD), and catalase (CAT) were also analyzed. We found that *Leishmania infantum* infection increased the level of CAT activity at 12, and 48 hours. SOD activity was decreased at 48 hours. An imbalance between SOD/CAT ratio was observed at 12, and 48 hours after infection. Furthermore, was observed an increase in protein carbonyl at 48 hours. Our results demonstrate that enzymatic antioxidant defenses of macrophage were regulated during Leishmania infection. Therefore, we speculate that alterations of enzymatic antioxidants defenses in macrophages could be a mechanism used by parasites to improve the ability to adhere to these cells. In addition, theses alterations can decrease the effects of microbicidal mechanism induced by macrophage, and consequently increase survive of parasites inside of host cells.

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