Morfofunctional Analysis of BME26 Embryo Tick Cell Line in Oxidative Condition

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Rhipicephalus microplus embryos cells (BME26) were isolated since 1981 and has been characterized by Esteves, *et.al.* 2008. BME26 has heterogeneous morphology, glycogen inclusions, numerous mitochondria and many cytoplasmic vesicles. Hydrogen peroxide (H_2O_2) is an unstable chemical described as a powerful oxidant. However, when occurs homeostatic imbalance between ROS production and cellular detoxification, can lead to cell death. Current work in our research group suggests that BME26 cells are resistant to H_2O_2 stress-induced, compared to other mammalian cell lines. This work aims evaluate the cell morphology in a very oxidative conditions after treatment with high concentrations of hydrogen peroxide It has already been evaluated the effect of H_2O_2 in BME26. Cells were incubated with different concentrations of H_2O_2 (2.2mM – 13.2mM) for 24 hours, to calculate LD_{50}, determinated by cell viability MTT assay. Cells were incubated with two concentrations of H_2O_2 (2.2mM and 4.4mM) during 2 and 24 hours for microscopic analysis. Observing morphology, treated BME26 cells were stained with Panotic, by brightfield microscopy, or with double labeling using Hoechst 33342 and TexasRed-X Phalloidin, by confocal (Zeiss LSM710) microscopy. Aiming to observe the ROS accumulation, BME26 cells were stained with DHE probe by confocal (Zeiss LSM710) microscopy. BME26 cells feature high resistance to H_2O_2 but theirs morphology demonstrate few alterations compared to the control by microscopic analysis. MTT viability assay in BME26 cells treated with H_2O_2 for 24 hours showed decrease in a dose dependent mode. LD_{50} was calculated at 5.4 - 6.6mM H_2O_2. Interestingly, mammalian cells were not resistant and died at the lower concentration for BME26 (approximately 2mM H_2O_2) after 24 hours. In DHE probe staining, BME26 cells showed ROS accumulation increase in the highest concentration used at 4,4mM H_2O_2. This study may contribute to elucidate how H_2O_2 resistance contributes for cell physiology and/or metabolism of BME26.

Key words: BME26 Embryo Tick Cell Line, H_2O_2 resistance and microscopy
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