RESUMO SIMPLES - PROTOZOÁRIOS E AGENTES TRANSMITIDOS POR VETORES DE IMPORTÂNCIA EM SAÚDE

INTERACTION AND GROWTH OF TRYPANOSOMA RHIPICEPHALIS IN ARTHROPOD CELL LINES

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The genus Trypanosoma comprises eukaryotic parasites where hematophagous arthropods act as mechanical and biological vectors, and in this way, can potentially infect various hosts. Most remain in the wild in their natural cycle, not being pathogenic to their host. Large proportions develop in hematophagous arthropods, which can belong to various orders and families. They are also potential causes of infections in humans and other mammals. Little is known about the species Trypanosoma rhipicephalis, isolated directly from the hemolymph of the tick Rhipicephalus microplus in Seropedica, Rio de Janeiro. Therefore, the objective of this study is to verify the interaction of T. rhipicephalis in different tick and hemipteran cell lines quantitatively through flow cytometry and qualitatively through fluorescence microscopy, and to compare the growth curve in each cell line in axenic medium through counting

in a Neubauer chamber. The experiment will be conducted at the Laboratory for the Study of Parasite-Host Interaction (LEIPH) at the Federal Rural University of Rio de Janeiro (UFRRJ). The strains TIE/LULS54 sub (Triatoma infestans), TIE/LULS54 (Triatoma infestans), and RPE/UFRRJ (Rhodnius prolixus) will be used, maintained in 25 cm^2 cell culture flasks with Leibovitz's L15 medium at 28°C, with weekly medium changes and subculturing when the cells reach confluence and monolayer formation. To verify the influence of Trypanosoma sp. infection on the studied strains, fluorescence microscopy will be used, where each strain will be placed on coverslips inserted into wells of 24-well culture plates at a concentration of 2 x 10^5 cells/mL, 1 mL/well, with 6 replicates of each strain for each experimental assay. Three replicates of each strain will be kept negative, used as controls; the remaining strains will be infected with T. rhipicephalis labeled or not with a fluorophore, depending on the assay. For trypanosome labeling, they will first be cultured in complete cell-free L15B medium, and then counted in a Neubauer chamber to determine the concentration. In a laminar flow hood, 1 mL of the protozoan at a concentration of approximately 4 x 10^7 protozoa/mL will be transferred to a sterile 1.5 mL Eppendorf® tube for staining with PKH67 markers. After labeling, 10 µL of the protozoan suspension will be inoculated into three wells of each strain, each well made up to 300 µL of Leibovitz's L15B medium per well. After 6 hours of incubation at 30 °C, the cells will be taken for flow cytometry and fluorescence microscopy. In vertebrate host cells, experimental and clinical infections with a variety of protozoan parasites have been able to trigger the accumulation of lipid bodies and an intriguing interaction with the parasitophagous vacuole.

The interaction between vector and pathogen, especially when the vector is a tick, is still poorly understood. This study aims to identify potential vectors of Trypanosoma sp., contributing to the development of vaccines, reducing the use of animals in research, and obtaining substrates for diagnosis. Furthermore, it may help elucidate the interaction of poorly understood Trypanosoma species with different arthropod species.

Palavras-chave: in vitro culture; protozoan; vectors.