

R1 R2 R3 PG0 PG1 Estagiário Tecnólogo PIBIC

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Service (sector)

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Evaluation of amniotic membrane influence on the bacterial growth “in vitro”.

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Purpose: To evaluate the antibacterial properties of amniotic membrane (AM) and its influence on bacterial growth.

Methods: The growth of two different types of bacteria (ATCC*) were compared, in the presence of fragments of AM preserved in four distinct ways:

(* American Type Culture Collection)

Solutions containing 3 different concentrations of *Staphylococcus aureus* (ATCC 29213) were uniformly spread over 3 Petri dishes of Mueller-Hinton culture medium.

The same was performed using 3 different concentrations of *Pseudomonas aeruginosa* (ATCC 27853). Total of 6 dishes were obtained.

After bacterial seeding, 4 circular fragments of AM with 7 mm. each, preserved in different manners, were laid over each of the 6 dishes. The fragments were preserved as follows:

Fragment 1 was preserved with DMSO 12% solution.

Fragment 2 was preserved with 1:1 TC – 199-preservation medium and glycerol.

Fragment 3 was preserved with saline plus antibiotics.

Fragment 4 was preserved only with saline solution.

A control dish was set up to control a possible infection of the fragments.

Results: 48 hours after AM fragments were laid, the dishes were read and inhibition halos were measured:

Unfortunately, the 3 dishes containing the 3 *Staphylococcus aureus* solutions somehow didn't show bacterial growth, and the experiment had to be repeated. The 3 dishes containing the *Pseudomonas aeruginosa* solutions grew as expected and the inhibition halos around the AM fragments presented this way: In the 3 dishes containing *Pseudomonas* solutions, halos of 2 mm. were formed around the fragments preserved on TC-199 solution. There was no halo formation around the fragments preserved with DMSO, but the surface underneath remained clear. Both fragments preserved with saline and saline plus antibiotics didn't show any influence on *Pseudomonas* growth in the dishes. The control dish didn't show contamination.

Conclusions: AM, itself, did not show antibacterial properties regarding *Pseudomonas* growth in this study. However, when preserved in 1:1 TC-199 and glycerol, AM did show bacterial inhibition (gram-negative). The results with gram-positive bacteria will be further determined.