TITLE: VIABILITY STUDY OF LYOPHILIZED *Escherichia coli* IN DIFFERENT CONSERVATION MEDIUMS STORED AT TEMPERATURE OF 25 ℃ AND FREEZING

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ABSTRACT:
The maintenance and preservation of microbial cultures is important because of the need to use the organism or specimen at any time, whether for experimental, didactic or industrial purposes. In order to garantee the viable state, without morphological, physiological or genetic changes, as well keep the stability of the microorganisms, lyohilization is considered one of the most efficient techniques. However, researches are still needed to elucidate cell viability problems during storage processes. *Escherichia coli* (*E. Coli*) is a Gram-negative bacillus that belongs to the *Enterobacteriaceae* family, with an ideal survival temperature of 37 ℃ and is consider ed a normal intestinal flora microorganism, but some strains may be pathogenic. This bacterium stands out in the national and international scene as a microorganism of importance in animal health, hygienic-sanitary and public health. The objective of this study was to evaluate the viability of *E. coli* in two different conservation mediums against the lyophilization method, stored at 25 ℃ and under freezing conditions. To this end, the hydrated *E. coli* ATCC 25922 strain was activated in 10 tubes with slant nutrient agar and incubated at 36 ℃ ± 1 ℃ for 24 h ± 1 h. After the incubation period the colonies of 5 tubes were resuspended in lyophilization medium containing 10% skim milk and 1% of monosodium glutamate (lyophilization medium I) while the colonies of the other 5 tubes were resuspended in the medium containing 1% of glutamate 2% of polyvinylpyrrolidone, 1% of glucose, 1% of tritose and 0.1% of agar (lyophilization medium II). The lyophilization medium were dispensed in vials in an amount of 1 mL. After freezing at -60 ℃ the mat erial was lyophilized for 18 h. The growth of *E. coli* in Petrifilm™ plate was counted for *E. coli* (EC) counting after dehydratation process and viability was studied over a period of 6 months, testing the conservation media monthly by counting the microorganism with growth of characteristic colonies. The lyophilized samples in lyophilization medium (I and II) stored at a temperature of 25 ℃ lost survival capacity in 3rd month of storage. The two culture medium studied were adequate ($p<0.05$) to maintain viability of *E. coli* during the 6 month storage period under freezing.

Keywords: lyophilization, preservation, microorganism