Cairo University
Faculty of Veterinary Medicine
Department of Microbiology

Factors Affecting Capability of Toxin Production of Lypholized *Clostridium tetani* (Harvard Strain)

A thesis presented by

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For the Master Degree in Veterinary Medical sciences, Microbiology

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بسم الله الرحمن الرحيم

"إِنَّمَا يَخْشَى اللَّهَ مِنْ عِبَادِهِ الْعُلَمَاءُ إِنَّ اللَّهَ عَزِيزٌ غَفُورٌ"

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Abstract

In order to preserve the characters of the highly toxigenic *C. tetani* (Harvard strain) as long as possible, a combined approach of pre-lyophilization treatment of microorganisms and subsequent storage was developed in order to improve cell survival and toxin production capability**.** Different stabilizers have been tried in combination with different storage temperatures. The study revealed that -20 c° is the best temperature for storing *C. tetani* (Harvard strain) and that stabilizer III (modified **Pivnick**) is the best stabilizer for lyophilization of *C. tetani* (Harvard strain)as it preserve the strain toxigenic capability till the 19^{th} month post lyophilization with minimum reduction in toxin titer. By PCR assay, the samples were found to be positive for *tet*X gene, thus confirming their potential to produce the tetanus toxin.

In conclusion: preserving *C. tetani* by lyophilization using stabilizer III (modified Pivnick) retain its toxigenic power than other stabilizers for longer periods. Also, the optimum temperature for storing lyophilized *C. tetani* (Harvard strain) is at -20 ^{o} c.

Key words: *C. tetani* - Harvard strain – Lyophilization – Stabilizer.

Dedicated to:

My father
my mother
my Husband
my doughter
and
my son

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