

Anti-Microbial Assay of Antibiotics Like Streptomycin, Penicillin, Kinetic-Reading Microplate System

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ABSTRACT

Recently, spectrophotometric instruments are utilized in many applications, particularly those that allow the use of microplates with kinetic reading, specifically equipped with software for reading and calculating results in a mechanized fashion. Endotoxin quantification assays.

Keywords: Anti microbials; Antibiotic.

INTRODUCTION

Apramycin is an aminoglycoside antibiotic processed by *Streptomyces tenebrius*. Akin to the other aminoglycoside antibiotics, it is a polar hydrophilic compound rather soluble in alcohol, insoluble in acetone and ether that is non-volatile and has no chromophore group in its structure.

The turbidimetric method is distinguished by a series of tubes containing different concentrations of antibiotics in a liquid culture medium inoculated with the test microorganism. Reading data obtained after incubation provides a curve exhibit the antibiotic concentration with turbidity. Currently, spectrophotometric instruments are utilized in many applications, particularly those that allow the use of microplates with kinetic reading, conventional equipped with software for reading and calculating consequences in an automated fashion. Endotoxin quantification assays. In a new approach, the turbidimetric assay for assessment of antibiotics can be accomplished by the use of microplates, which allows the test to be regulated in a single 96- well microplate, eliminating the need for various test tubes.

Although resistance is a real and increasing problem, the

antimicrobials remain one of the three most prescribed drugs. Currently, the global anti-infective market is estimated at US\$66.5 billion with antibacterial agents accounting for over 50% of sales. This significant cost has resulted in a massive use of generic drugs trying to convince unlimited access to cheap treatments, to the point that currently over half prescriptions involves at least one generic product. The microbiological assay for antibiotics dates back to the affirmation of the lysozyme activity in an agar diffusion assay by Fleming, shortly followed by the agar scattering assay for penicillin devised by Heatley. Ever since, the main uses of agar dispersing assay were determination of potency of growth-inhibiting (i.e., antibiotics) and growth-encouraging substances (i.e., amino acids) in blood, urine, and other body fluids and tissues, majorly for pharmacokinetic studies.

Ceftriaxone (CFTX) sodium is a third-generation, broad-spectrum cephalosporin that is unaffected to beta-lactamases. An alternative bioassay for the evaluation of the potency of this drug in pharmaceutical formulations has not been formerly reported. Thus, this paper reports the development and full validation of a 3 x 3 agar scattering bioassay using a cylinder-plate method to appraise CFTX sodium in pharmaceutical samples.

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