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Impact of Using Liquid Organic Cleaners as an Alternative of Phenol in Ziehl Neelsen Staining Method

اثر استخدام المنظفات العضوية السائلة عوضا عن الفينول فى صبغة زيل نلسون

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Dedication

To my father soul

who died 21 years ago

of heart arrest

in saudia Arabia.

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يعتبر السل من الامراض الخطيرة التى تصيب معظم اعضاء الجسم البشرى وفى العموم تصيب الرئتين و تسببها جرثومة مـ قاومة للاحماض و الكحول بعد صباغتها بالصبغة التـ قليدية. السل من الامراض التى يمكن معالجتها باخذ الادوية المضادة, كما يمكن الو قاية منه.

هذه الدراسة تركز على استخدام المنظفات العضوية السائلة عوضا عن الفينول المستخدم فى الصبغة التـ قليديـ ة الخاصـ ة بصـ بغ هذه الجرثومـ ة. تم اخذ عينات انسـ جة ارشـ يفية تـ م تشـ خيصـ ها علـ ى احتوئهـ ا علـ ى جرثومـ ة السل.

بهذه الطرق امكننا فحص جرثومة السل فى النسيج و عندـ مـ قارنـ ة هذه الطرق المستحدثة بـ الطرق التـ قليديـ ة وجـ دنا ان هذه الطارق الجديدة تصـ بغ الجرثومـ ة بنفس كفاة الصبغ التـ قليدية و فى فى نفس الو قت هذه المنظفات العضـ وية رخيصة السعر و غير سامة عكس الفينـ ول المسـ تخدم فـ ى الصـ بغ التـ قليديـ ة اذ انـ ه سام و اكثر تكلفة عند شراءه.

Abstract

Tuberculosis (TB) is a potentially fatal contagious disease that can affect almost any part of the body but is mainly an infection of the lungs. It is caused by a bacterial microorganism, the tubercle bacillus or Mycobacterium tuberculosis. TB can be treated, cured, and can be prevented if persons at risk take certain drugs.

This study concerned mainly in finding an alternative material to phenol used in traditional Ziehl Neelsen stain for staining acid fast bacilli and excluding it is highly toxicity from the staining solution hence developing safer staining method. Certain selective lipophilic agents, liquid organic detergents,clorax,fairy and alfa were used.

Archival Paraffin blocks that suggestive of TB Infection upon diagnosis were reviewed , sectioned and stained .

By these methods acid fast bacilli were detected and stained red in blue background. Result obtained compared very favourably with traditional Ziehl Neelsen stain. In addition Detergents are efficient lipophilic agents and safer to handle than phenol.

In brief, the methods described here stains acid fast bacilli as efficiently as traditional carbol fuchsin method. Liquid organic cleaners are considerably cheaper.

List of Abbreviations

Abbreviation	Definition
TB	Tuberculosis
WHO	World Health Orgnization
HIV	Human Immune Virus
AIDS	Acquired immuno Deficiency Syndrome
MTB	Mycobacterium Tuberculosis
CMI	Cell Mediated Immunity
AMI	Antibody Mediated Immunity
PMNs	Polymorphonucleocytes
INF	Interferon
TNF	Tumour Necrosis Factor
IL	Interleukin
ZN	Ziehl Neelsen
AFB	Acid Fast Bacilli
PCR	Polymerase Chain Reaction
LCR	Ligase Chain Reaction
DNA	Deoxynucleic Acid
RNA	Ribonucleic Acid
CDC	Centre for Disease Control and Prevention
NIAID	National Institute of Allergy and Infectious Disease
CWC	Cell wall Composition

MDR.TB	Multi Drug Resistance Tuberculosis
XDR.TB	Extensively Drug Resistance Tuberculosis