

双语版

中国科学院教材建设专家委员会规划教材

全国高等医学院校规划教材

(供基础、临床、预防、口腔、护理专业用)

ENGLISH-CHINESE TEXTBOOK
OF MEDICAL MICROBIOLOGY
AND PARASITOLOGY

病原生物学纲要

Chief Editor • Liu Jingxing (刘晶星)

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ENGLISH-CHINESE TEXTBOOK OF
MEDICAL MICROBIOLOGY AND
PARASITOLOGY

病原生物学纲要
(双语版)

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内 容 简 介

本书是根据教育部指示的精神,为配合国内高等医学院校双语教学的需要而编写的。全书以英文为主体,语言规范、流畅。对英语专业单词或短语和语言比较复杂、专业内容生疏的长句、段落,进行了中文翻译,形成了形式比较特别的英汉双语教材。编写中参考了全国规划教材和执业医师资格考试大纲,内容包含了医学微生物学和医学寄生虫学的基本理论和主要知识。主要供高等医学院校基础、临床、预防、口腔、护理等专业5年制本科及7年制、8年制学生病原生物学的教学之用,也可作为专业教师的参考用书。

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前 言

为配合双语教学,我室教师以极大的热情编写了这本《病原生物学纲要(双语版)》。期望本教材在双语教学中将有助于学生学习和老师教课。

本教材以英文为主体,语言全部来自原版书籍,对英语专业单词或短语以及语言比较复杂、专业内容深奥的长句、段落进行了中文翻译,形成了形式比较特别的英汉双语教材。中文加入的原则是:①如英文句法简单明确,仅有个别生词或短语,即将相应的中文直接插在其后。②对语言比较复杂、生词较多的长句、段落,则在其后全部予以翻译。为打印方便起见,均未使用括号。

本教材参照全国规划教材和医师资格考试大纲以及本校教学大纲中要求掌握和熟悉的内容编写,包含了医学微生物学和医学寄生虫学的基本理论和主要知识,适用于五年制本科及七年制学生病原生物学的教学。

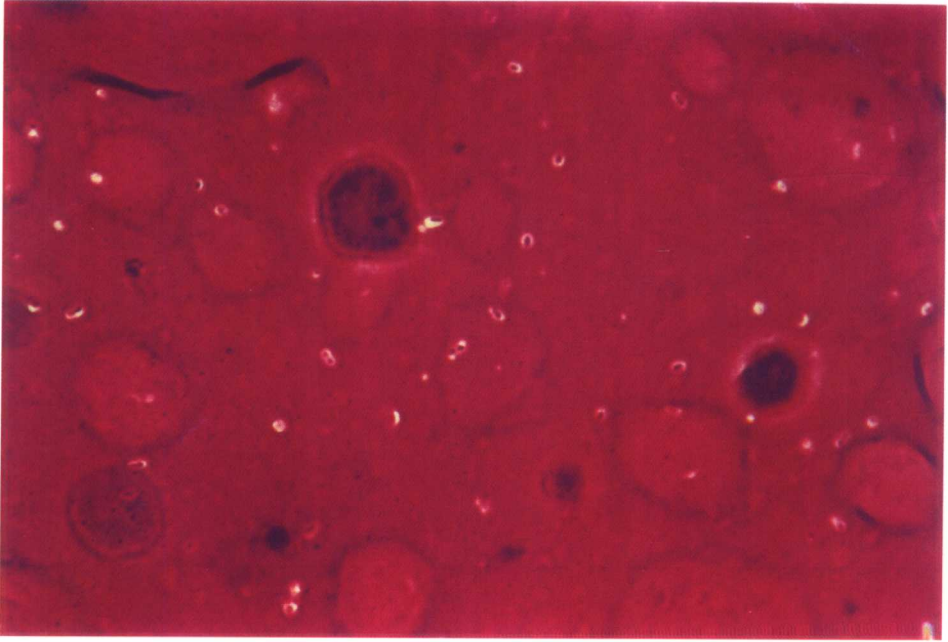
本教材寄生虫学图谱来自《人体寄生虫学》(第六版);微生物学彩图来自《医学微生物学与寄生虫学》;在本教材的编写过程中,寄生虫学老师在相关编写内容选择上给予了极大支持;两位学术秘书的积极配合及插图的制备、扫描,为本书的增色和完成起了很大作用,在此一并感谢!

由于我们的学术水平、英语水平、翻译水平和编写能力有限,错误、遗漏等不当之处敬请批评指正。

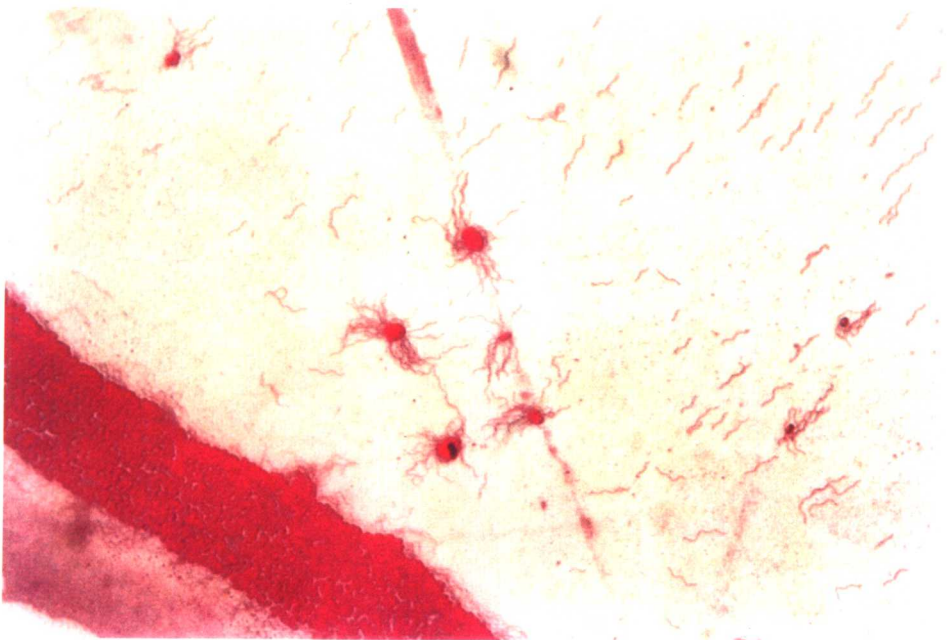
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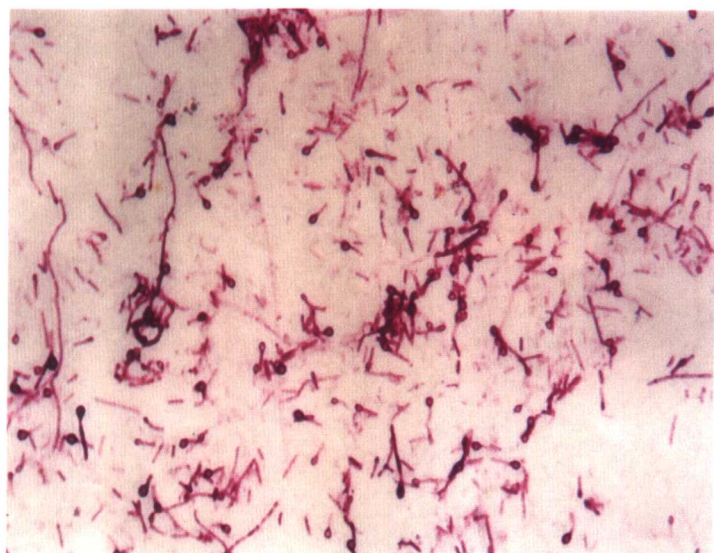
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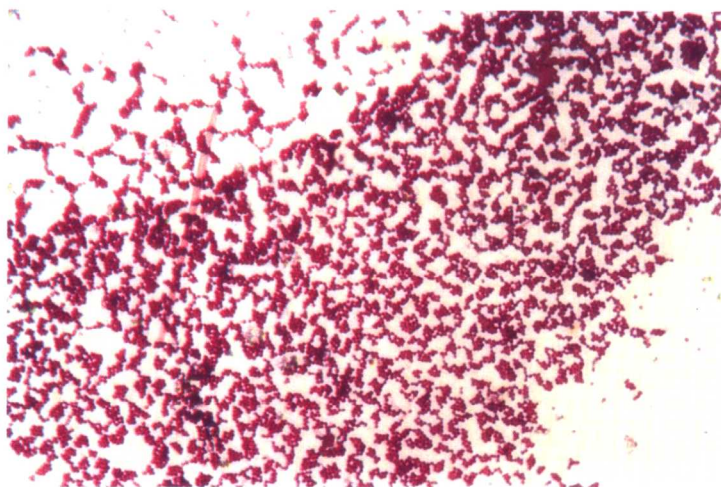
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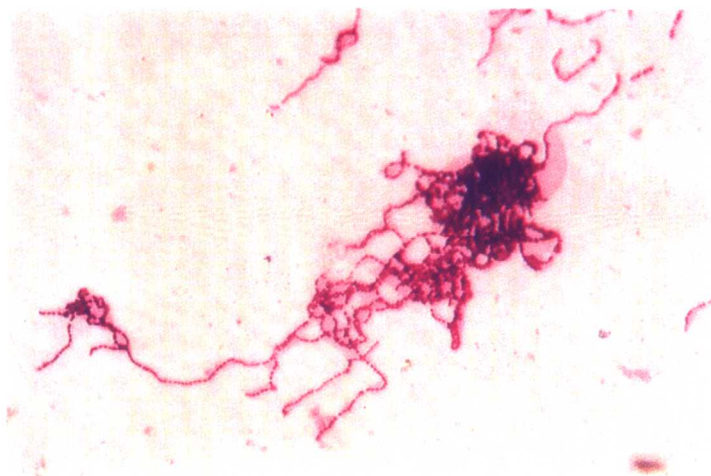
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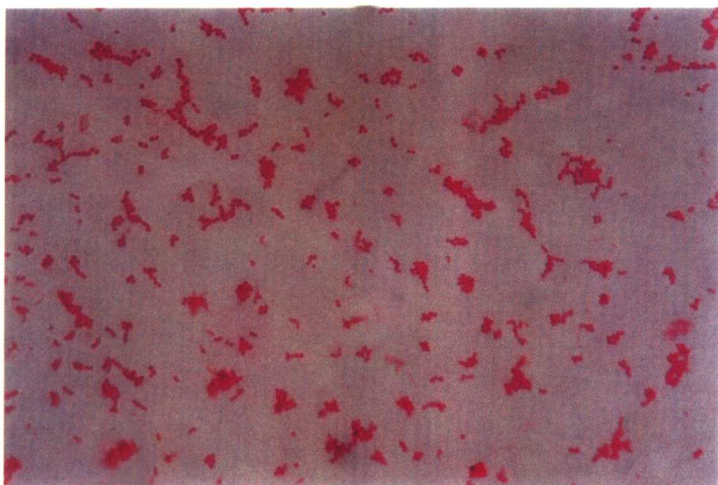
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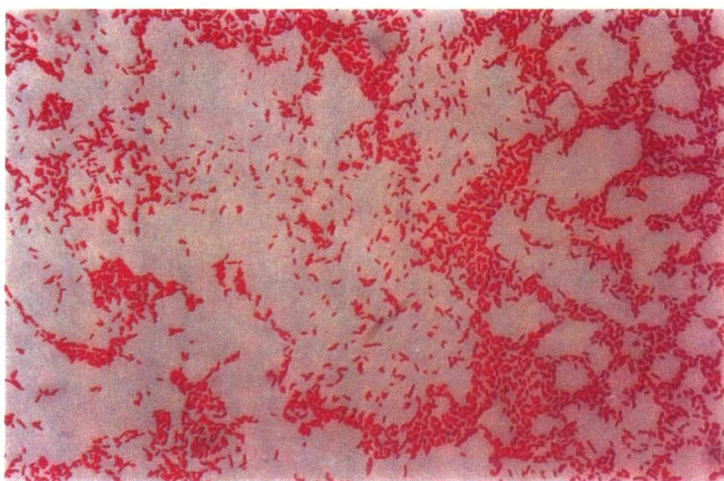
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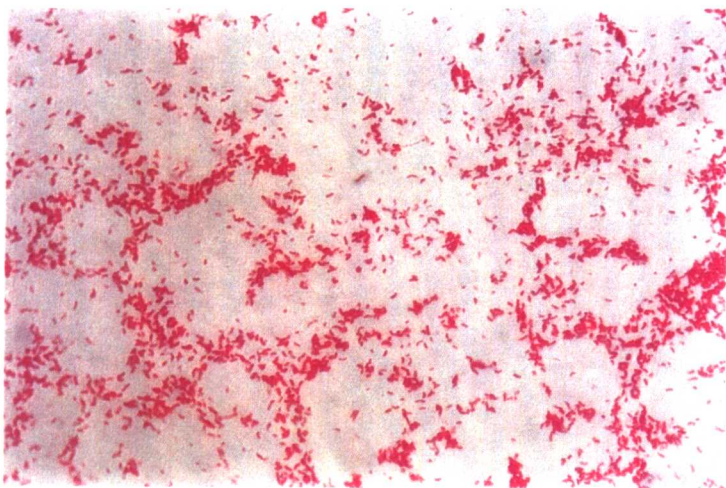
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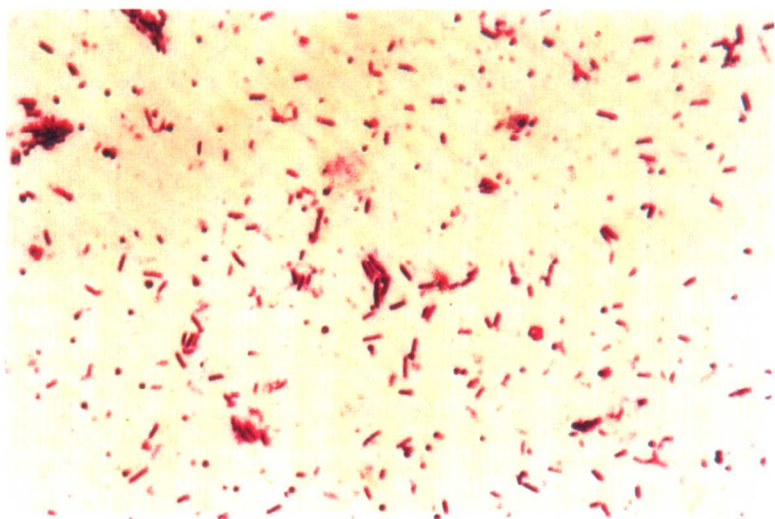
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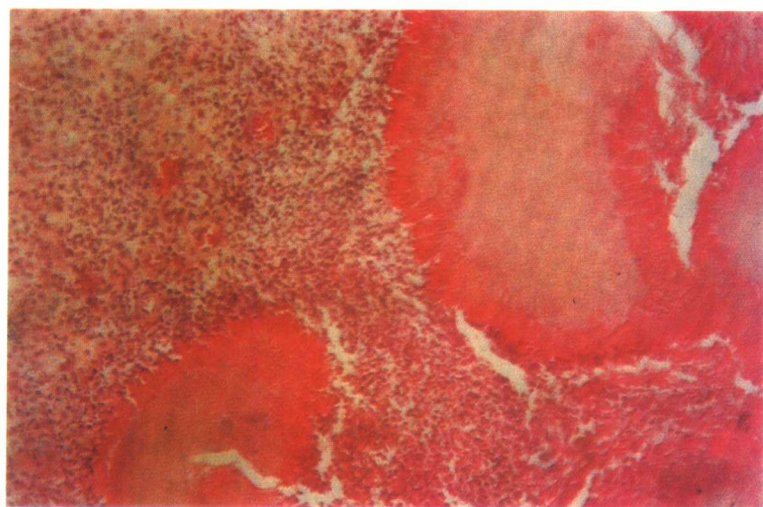
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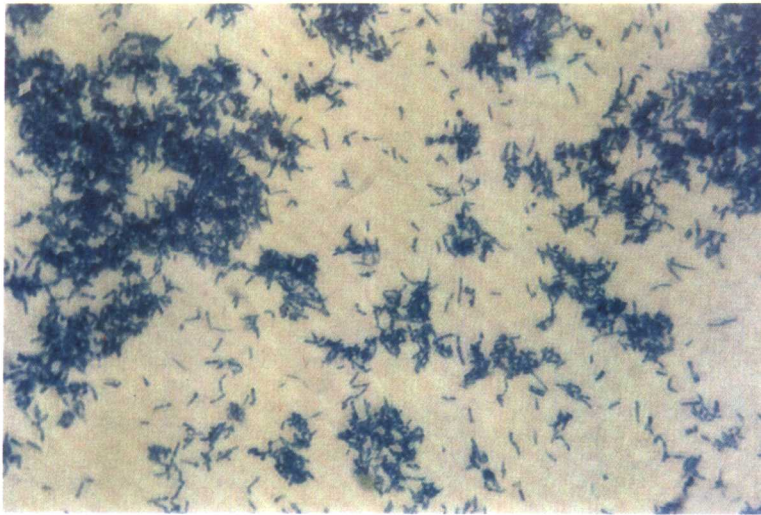
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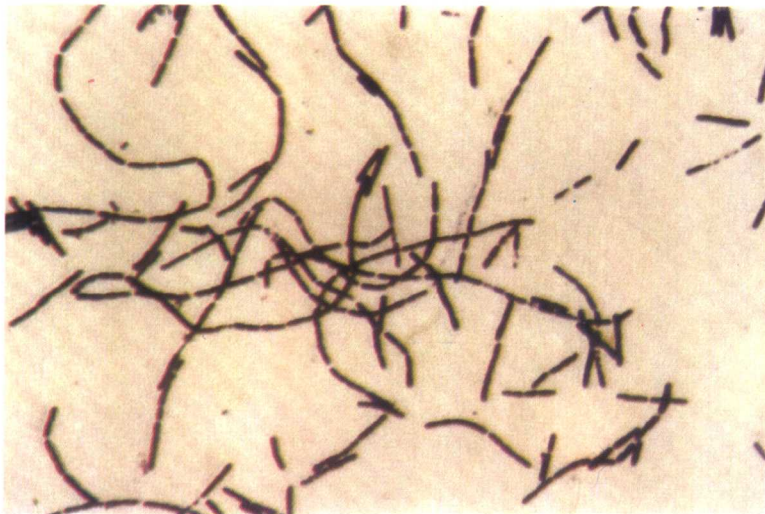
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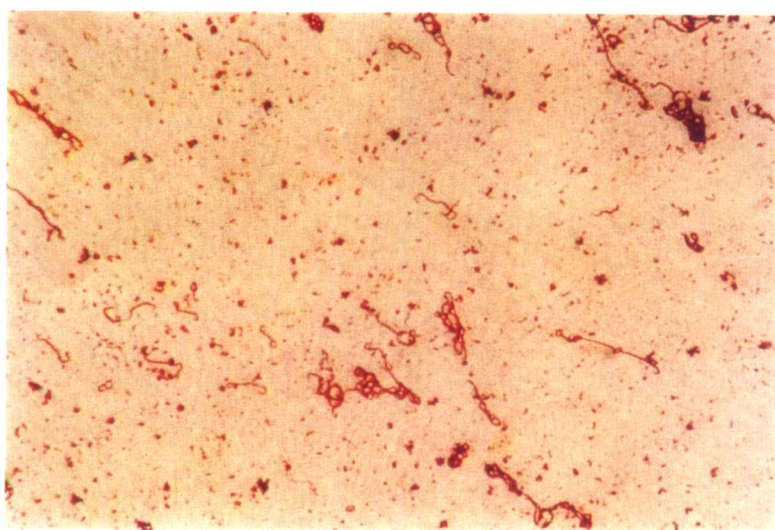
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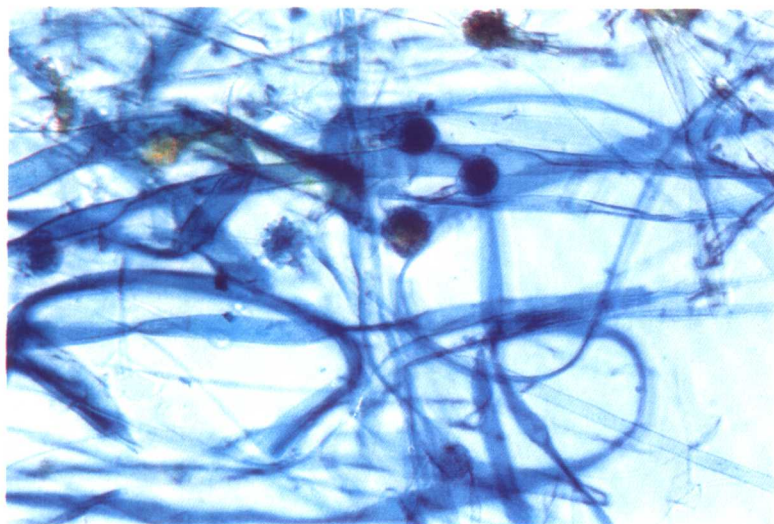
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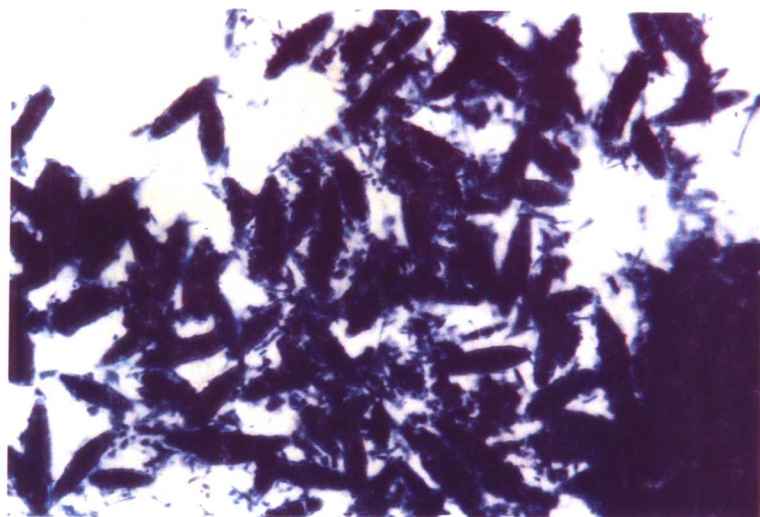
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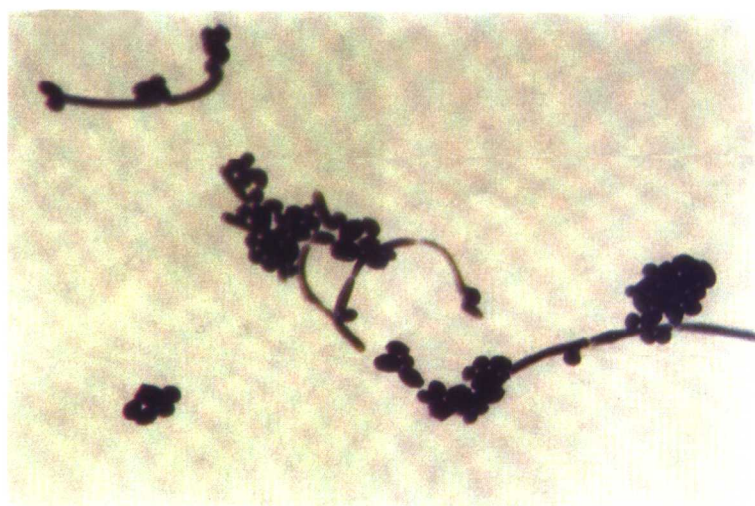
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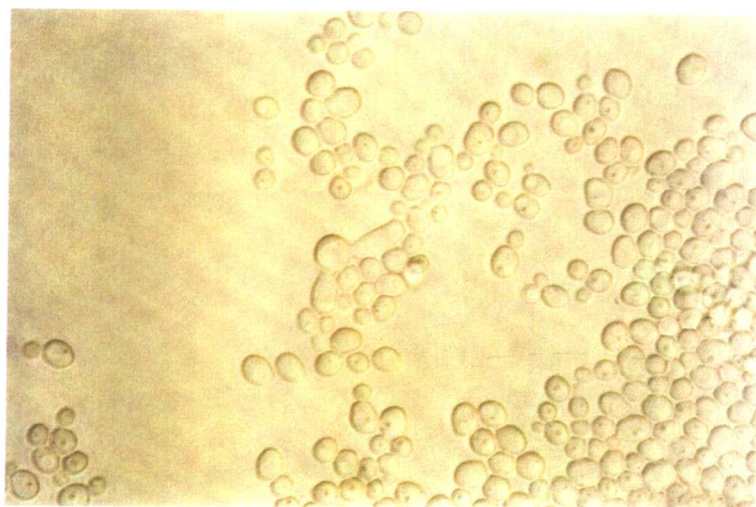
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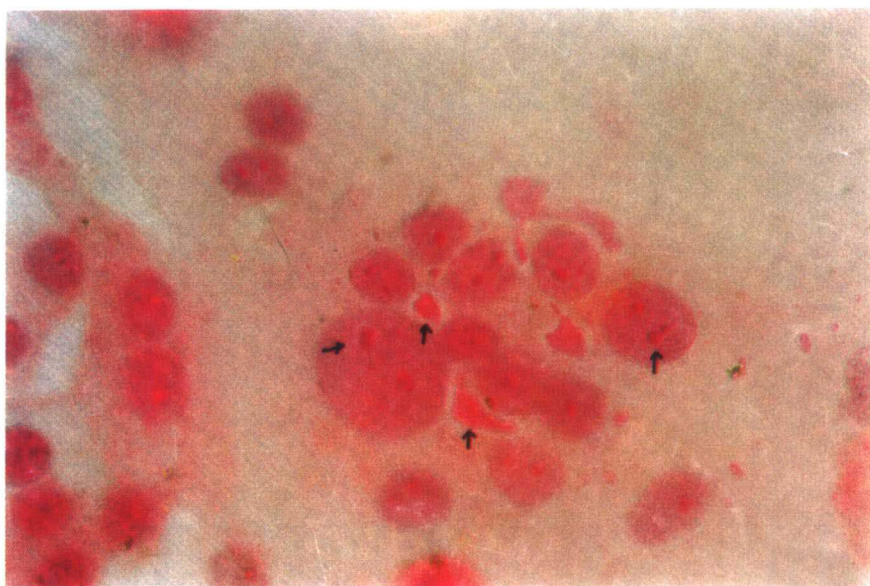
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Introduction to Medical Microbiology

绪论

Microbiology is the study of living organisms that are so small as to be visible only through microscopes. Some of these microorganisms require yet greater magnification in order to be seen 为了看到某些微生物,还需更大的放大倍率, which can be obtained only by using a powerful instrument called the electron microscope. Microorganisms comprise fungi 真菌, bacteria, and viruses.

A. Major groups of microorganisms 微生物的主要种类

1. Prokaryotes 原核细胞型微生物

They are the cells of lower (primitive) life forms 低等(原始)生命形态. The nuclear material (DNA) not enclosed within a membrane, but rather is distributed in masses throughout the cytoplasm 核质无膜包裹,而是以集聚状态分布在细胞质中; this primitive type of nucleus is called a prokaryote 原核, and the cell are said to be prokaryotic 原核细胞. In addition to nuclear membrane, these simple unicellular organisms also have not mitochondria 线粒体, Golgi bodies, and endoplasmic reticulum 内质网. They produce by asexual division 无性分裂. This group of microorganisms contains bacteria, actinomycetes 放线菌, mycoplasmas 支原体, rickettsiae 立克次体, chlamydiae 衣原体, and spirochetes 螺旋体.

2. Eukaryotes 真核细胞型微生物

In this type of cells the nucleus is well defined, being enclosed within a nuclear membrane 在这类细胞,核界限分明,被包裹在核膜内. It is called a true nucleus, or eukaryon 真核 and the cell is said to be eukaryotic 真核细胞. All higher form of life, including ourselves, consists of eukaryotic cells. Fungi are eukaryotic organisms that contain a well-defined nucleus, mitochondria, Golgi bodies, and endoplasmic reticulum.

3. Neither eukaryotic nor prokaryotic 非细胞型微生物

Viruses are the smallest infectious particles. They are not cells in the accepted sense and rely

on the biochemical processes of the host cell for their replication and propagation 据已被接受的观点,病毒不是细胞,它们依靠宿主细胞的生化作用来进行复制与增殖. A viral particle consists of a nucleic acid molecule, either DNA or RNA, enclosed in a protein coat or capsid 衣壳. A number of transmissible plant diseases are caused by viroids 类病毒, small single-strand RNA molecules. They do not possess capsids. Prion 朊粒, a new transmissible agent causing a degenerative central nervous system disease of human and animal 一个引起人和动物中枢神经系统退化性疾病的传染因子, is an infectious protein without nucleic acid 无核酸的传染性蛋白.

Microorganisms are the oldest, the most numerous, and the most diversified form of life on earth. 微生物是地球上最古老,数量最大,种类最多的生命形式. They shape 影响 our environment, decompose dead animal and plant matter, and keep our soil fertile. Most microorganisms are useful to us and only a very few are true pathogens 真正的病原体 that we have to control.

B. Great discoveries in the microbiology

The Dutch biologist Anton van Leeuwenhoek 雷文虎克 was the first person to see, record, and describe in great detail microorganisms, which he observed with his primitive microscopes in 1674.

Two great early pioneers in microbiology were Pasteur 巴斯德 and Koch 郭霍.

The French chemist and microbiologist Louis Pasteur proved that fermentation and putrefaction were caused by living microorganisms and noted a similarity between these processes and infectious diseases 证明发酵和腐败是由活的微生物引起,并指出这一过程与传染病的相似性. At that time, it was still believed by many scientists that living forms could arise spontaneously from dead matter. 那时,有许多科学家仍然相信,活的生物可以从死的物质中自发产生. It was Pasteur who devised a simple experiment to show that bacteria come only from existing bacteria. Pasteur also developed the process of pasteurization and vaccination against anthrax 炭疽病 and hydrophobia (rabies) 恐水病(狂犬病).

In Germany, Koch developed the methods for isolating bacteria in pure culture 纯培养. Many of the methods used in modern microbiology laboratories were first developed in Koch's laboratory by his co-workers.

In 1876, Koch isolated in "pure culture" the bacterium causing anthrax and established a set of rules called "Koch's postulates" 郭霍法则 to determine the aetiology (cause) 病因 of an infectious disease. Essentially, they are as follows: the microbe must be found in the body in all cases of the disease 同一疾病的所有病例; it must be isolated from a case and grown in a series of pure culture in vitro; it reproduce the disease on the inoculation of a late pure culture into a susceptible animal 敏感动物; and the microbe must be isolated again into pure culture from such experimentally caused infection.

The era of chemotherapy began in 1910. The first antibacterial agent discovered is a compound effective against the spirochete that cause syphilis 梅毒. This was followed by the discovery