

TƯỜNG ĐẠI HỌC BÁCH KHOA HÀ NỘI
VIỆN CÔNG NGHỆ SINH HỌC & CÔNG NGHỆ THỰC PHẨM

KHÁNG SINH FORTIMICIN

GVHD : TS. PHẠM TUẤN ANH
SVTH : LÊ THỊ HƯƠNG
TRƯỜNG THÀNH LUÂN

NỘI DUNG

TỔNG QUAN VỀ FORTIMICIN

LÊN MEN SINH TỔNG HỢP FORTIMICIN

TỔNG QUAN VỀ FORTIMICIN

- ▶ Lịch sử phát hiện?
- ▶ Tên gọi
 - ▶ Tên quốc tế
 - ▶ Tên thương mại
 - ▶ Tên phổ thông

PHÂN LOẠI

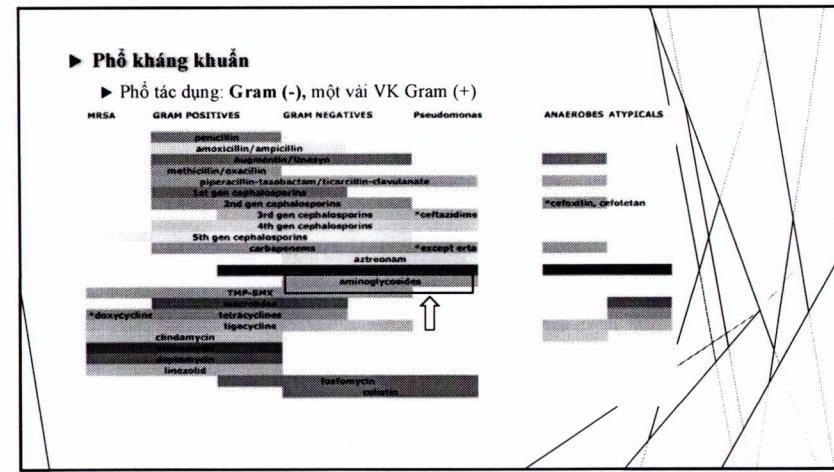
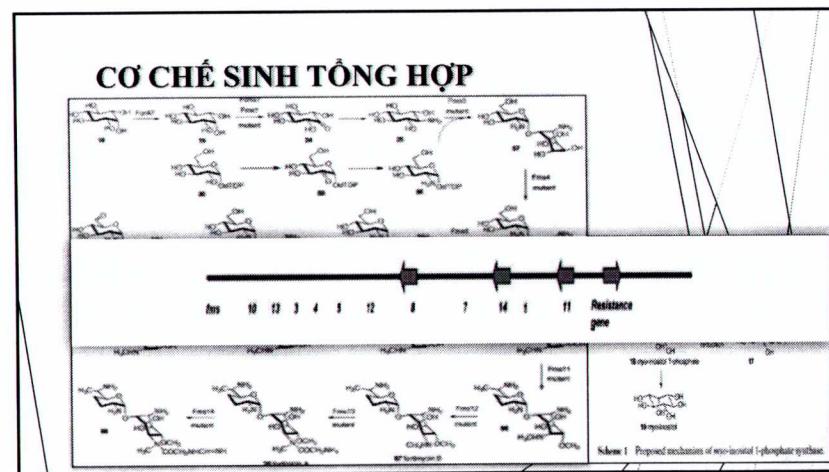
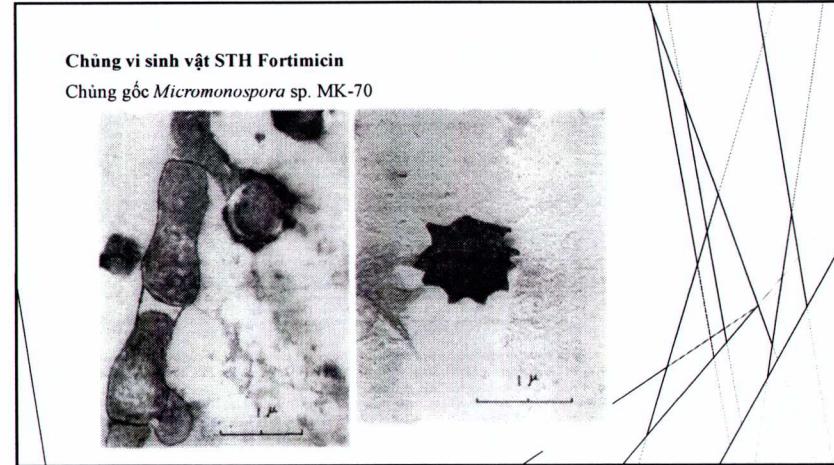
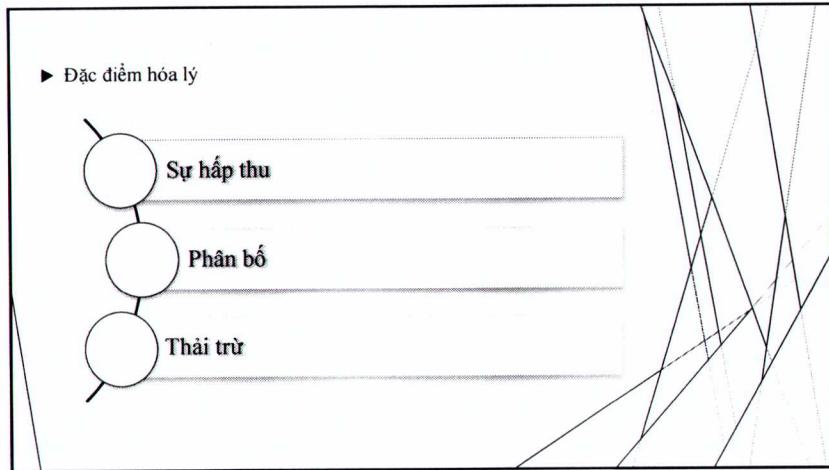
Fortimicin is represented by the formula

| | |
|--------------|--------------|
| Fortimicin A | Fortimicin D |
| | |

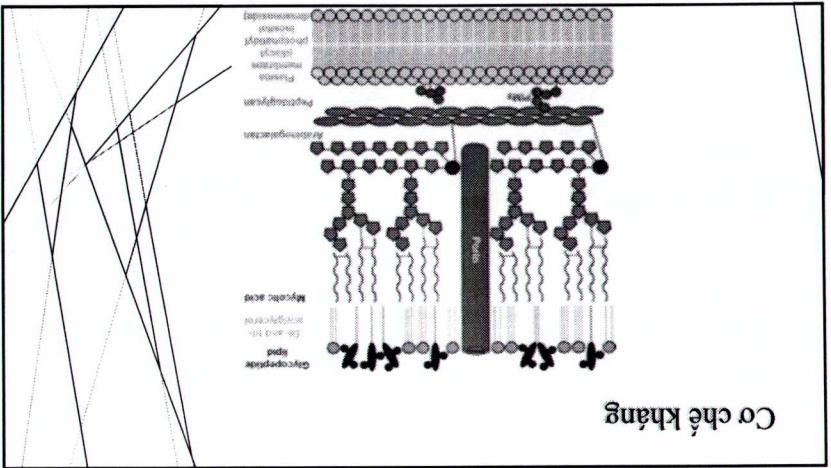
| | | |
|--------------|--------------|---------------|
| Fortimicin B | Fortimicin E | Fortimicin KF |
| | | |

| | |
|--------------|---------------|
| Fortimicin C | Fortimicin KG |
| | |

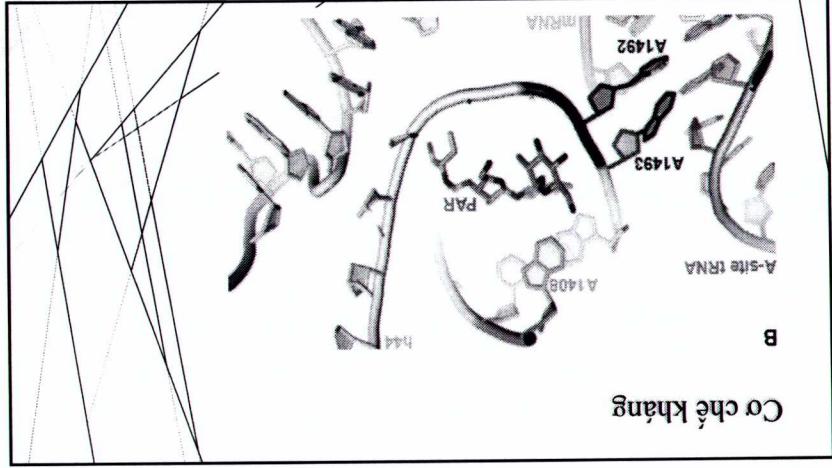
Dẫn xuất: fortamin



CO CƠ TẮC DÙNG

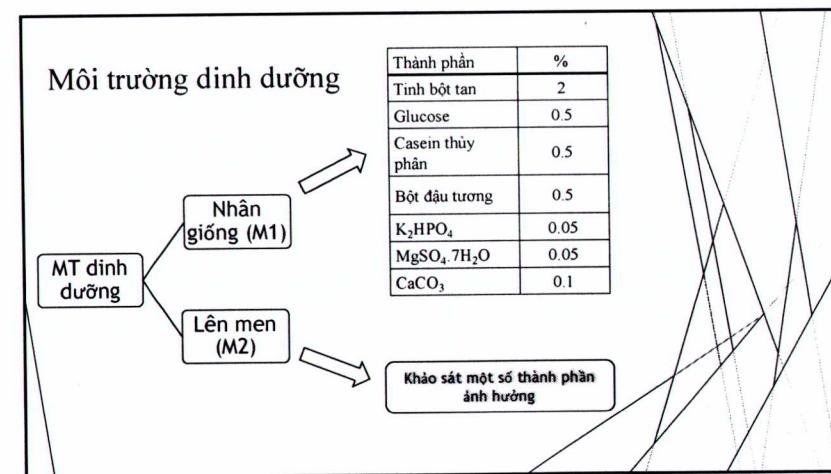


| Test organisms | MIC. (mcg/ml) | | | |
|--|---------------|-------|------|------|
| | FmA | KM | SGM | TBM |
| <i>Staphylococcus aureus</i> ATCC 6538P | 0.04 | — | — | — |
| <i>Escherichia coli</i> ATCC 25922 | 0.16 | 0.08 | 0.04 | 0.04 |
| <i>Klebsiella pneumoniae</i> ATCC 10031 | 0.08 | 0.04 | 0.02 | 0.02 |
| <i>Pseudomonas aeruginosa</i> ATCC 9866 | 0.16 | 0.32 | 0.08 | 0.08 |
| <i>Pseudomonas fluorescens</i> ATCC 9886 | 0.16 | 0.32 | 0.08 | 0.08 |
| <i>P. mirabilis</i> Finland 9 | 0.64 | 0.32 | 0.16 | 0.16 |
| <i>P. aeruginosa</i> Jönköping | 0.32 | 0.16 | — | — |
| <i>P. aeruginosa</i> Bovis | 0.32 | 0.16 | 0.08 | 0.08 |
| <i>Pseudomonas stutzeri</i> ATCC 25826 | 0.16 | 0.16 | — | — |
| <i>Salmonella typhimurium</i> ATCC 4766 | 10 | 0.32 | 1.3 | 0.32 |
| <i>Shigella sonnei</i> ATCC 9922 | 0.16 | 0.16 | 0.04 | 0.04 |
| <i>Shigella marmorek</i> ATCC 9290 | 0.08 | 0.08 | — | — |
| <i>Shigella sonnei</i> ATCC 9290 | 0.32 | 0.32 | 0.08 | 0.08 |
| <i>Stenotrophomonas maltophilia</i> ATCC 1775A | 0.16 | 0.16 | 0.04 | 0.04 |
| <i>Stenotrophomonas maltophilia</i> ATCC 1775A | 0.04 | 0.04 | — | — |
| <i>Acinetobacter baumannii</i> ATCC 9248 | 0.16 | 0.16 | 0.08 | 0.08 |
| <i>Acinetobacter baumannii</i> ATCC 9248 | 0.08 | 0.08 | — | — |
| <i>Acinetobacter baumannii</i> ATCC 9248 | 0.04 | 0.04 | — | — |
| <i>Acinetobacter baumannii</i> ATCC 9248 | 0.02 | 0.02 | — | — |
| <i>Acinetobacter baumannii</i> ATCC 9248 | 0.01 | 0.01 | — | — |
| <i>Acinetobacter baumannii</i> ATCC 9248 | 0.005 | 0.005 | — | — |



LÊN MEN SINH TỔNG HỢP FORTIMICIN

The diagram consists of several intersecting lines forming a complex geometric pattern. It includes a large triangle at the top left, a circle in the center, and various straight lines and dashed lines representing different variables or conditions.



► Chủng sử dụng cho lên men

Micromonospora olivoasterospora G518 – Biến chủng của *M. olivoasterospora* MK-70 được phân lập từ đất của thành phố Hiroshima, Nhật Bản (1977).

- G518 được tạo ra bằng cách gây đột biến MK-70 với tác nhân là tia UV.
- G518 có năng suất STH Fortimycin gấp gần 100 lần so với chủng gốc.

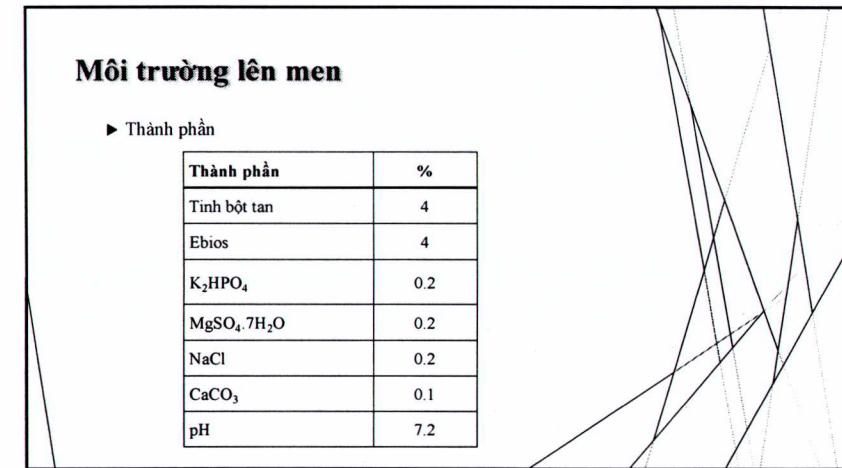
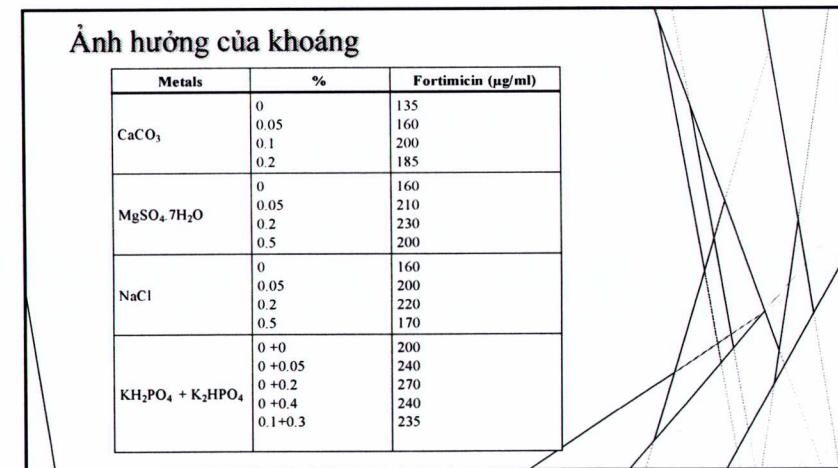
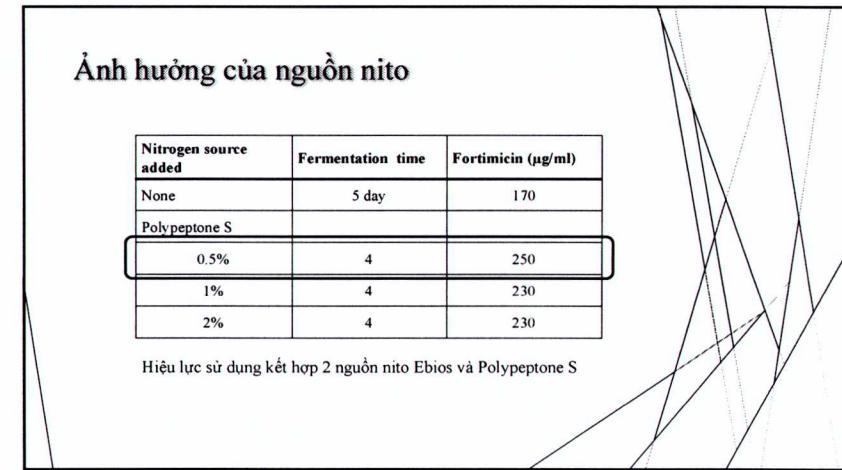
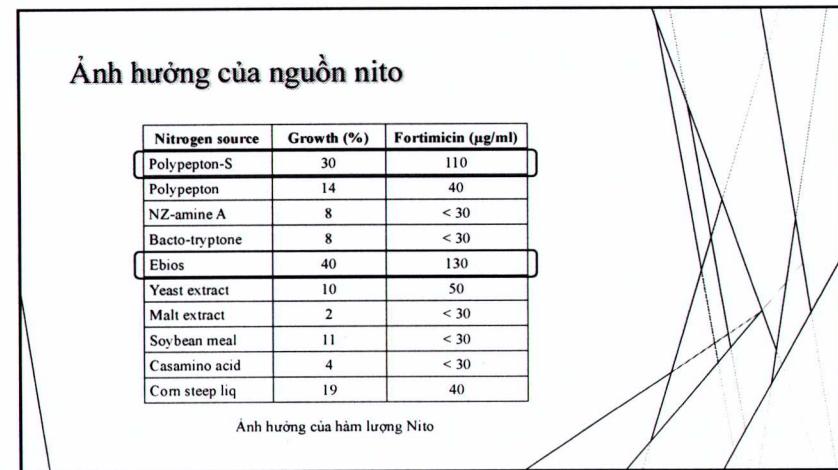
The diagram shows a large triangle with internal lines representing different carbon sources. Arrows point from the text boxes to specific points on the triangle, indicating the relationship between the carbon source and the growth percentage and fortimycin production.

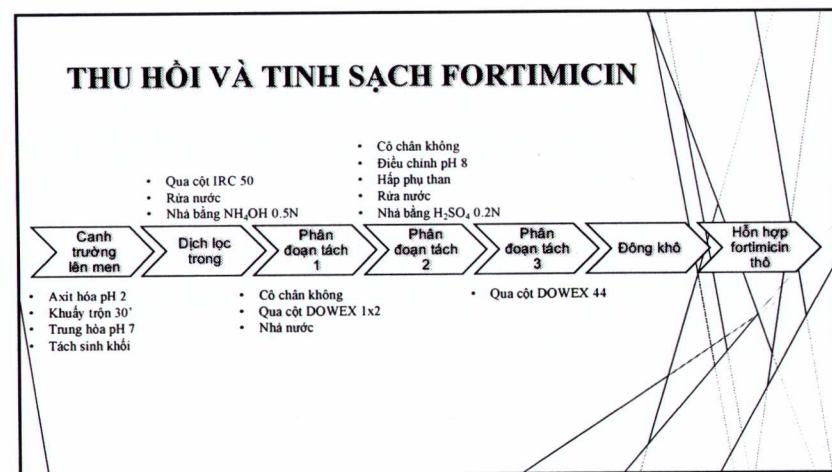
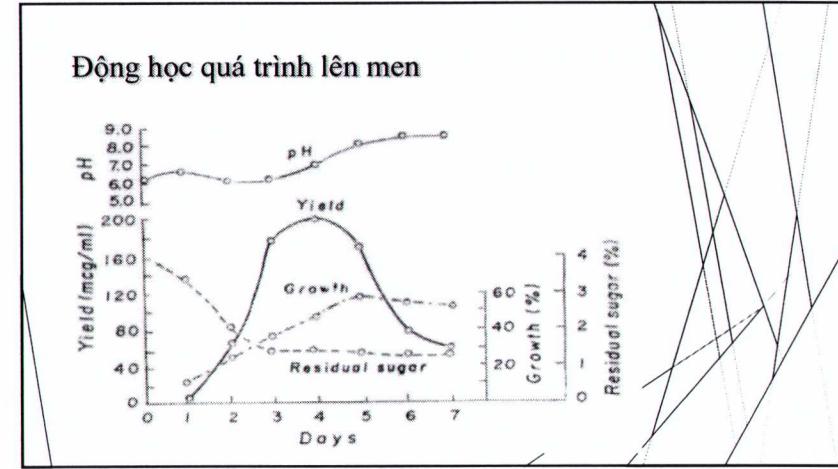
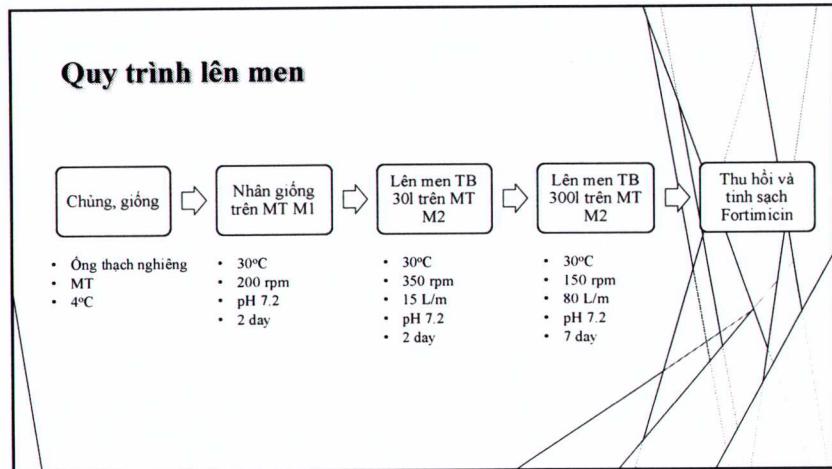
Ảnh hưởng của nguồn cacbon

| Carbon source | Growth (%) | Fortimicin ($\mu\text{g/ml}$) |
|---------------|------------|---------------------------------|
| Sol. starch | 32 | 150 |
| Dextrin | 30 | 90 |
| D-Raffinose | 8 | < 30 |
| Sucrose | 9 | < 30 |
| D-Maltose | 8 | < 30 |
| D-Galactose | 9 | < 30 |
| D-Glucose | 8 | < 30 |
| D-Mannose | 9 | < 30 |
| D-Arabinose | 9 | < 30 |
| Mannitol | 9 | < 30 |
| Lard oil | 18 | < 30 |
| Soybean oil | 10 | < 30 |

Ảnh hưởng của hàm lượng Carbon

The diagram shows a large triangle with internal lines representing different concentrations of carbon sources. Arrows point from the text boxes to specific points on the triangle, indicating the relationship between the carbon source concentration and the growth and fortimycin production.





Tài liệu tham khảo

1. Patricia M. Flatt and Taifo Mahmud. *Biosynthesis of aminocyclitol-aminoglycoside antibiotic and related compounds*, 2007, 24, 358–392.
2. FORTIMICIN Chemical Properties, Usage, Production. Chemicalbook.com.
3. T. Nara, M. Yamoto, K. Takayama, R. Okachi, S. Takasawa, T. Sato & S. Sato; *Fortimicin A and B, new aminoglycoside antibiotics. I. Producing organism, fermentation and biological properties of fortimicin*. J. Antibiotics 30: 533-540, 1977.
4. Okachi, R., S. Takasawa, T. Sato, S. Sato, M. Yamamoto, I. Kawamoto & T. Nara: *Fortimicins A and B, new aminoglycoside antibiotics. II. Isolation, physico-chemical and chromatographic properties*. J. Antibiotics 30: 541–551, 1977.
5. S. Garneau-Tsodikova and K. J. Labby, *Mechanisms of Resistance to Aminoglycoside Antibiotics: Overview and Perspectives*, Med. Chem. Commun., 2015, DOI: 10.1039/C5MD00344J.