



Ministry education and Science of Republic of Kazakhstan
Karaganda State University named after academician
Ye.A. Buketov

Biological and geographical faculty

Botany Department

Course – Botany
Specialty - 5B011300 – «Biology»

Lecture № 14

Class Basidiomycetes. Class Deuteromyces.

(1 hour)

Lecturer: candidate of biological science, associated
professor
Ishmuratova Margarita Yulaevna



Plan of lecture:

- 1 Division Zygomycetes.
- 2 Division Basidiomycetes.
- 3 Division Deutomycetes.

Main literatures:

- 1 Еленевский А.Г., Соловьев М.П., Тихомиров В.Н. Ботаника: систематика высших, или наземных, растений. 2 изд. - М.: Academia, 2001. - 429 с.
- 2 Нестерова С.Г. Лабораторный практикум по систематике растений. - Алматы: Қазақ ун-ті, 2011. - 220 с.
- 3 Родман А.С. Ботаника. – М.: Колос, 2001. - 328 с.

Additional literatures:

- 1 Абдрахманов О.А. Систематика низших растений. – Караганда: Изд-во КарГУ, 2009. - 188 с.
- 2 Билич Г.Л., Крыжановский В.А. Биология. Т. 2: Ботаника. - М.: Оникс 21 век, 2002. - 543 с.
- 3 Абдрахманов О.А. Практические работы по систематике низших растений. Ч. 2. Грибы и водоросли. – Караганда: Изд-во КарГУ, 2001. - 144 с.
- 4 Абдрахманов О.А. Лабораторный практикум по бактериям и водорослям. Учебное пособие. - Алматы: Казакадем образование, 2000. - 130 с.

Zygomycota (conjugation fungi: molds)

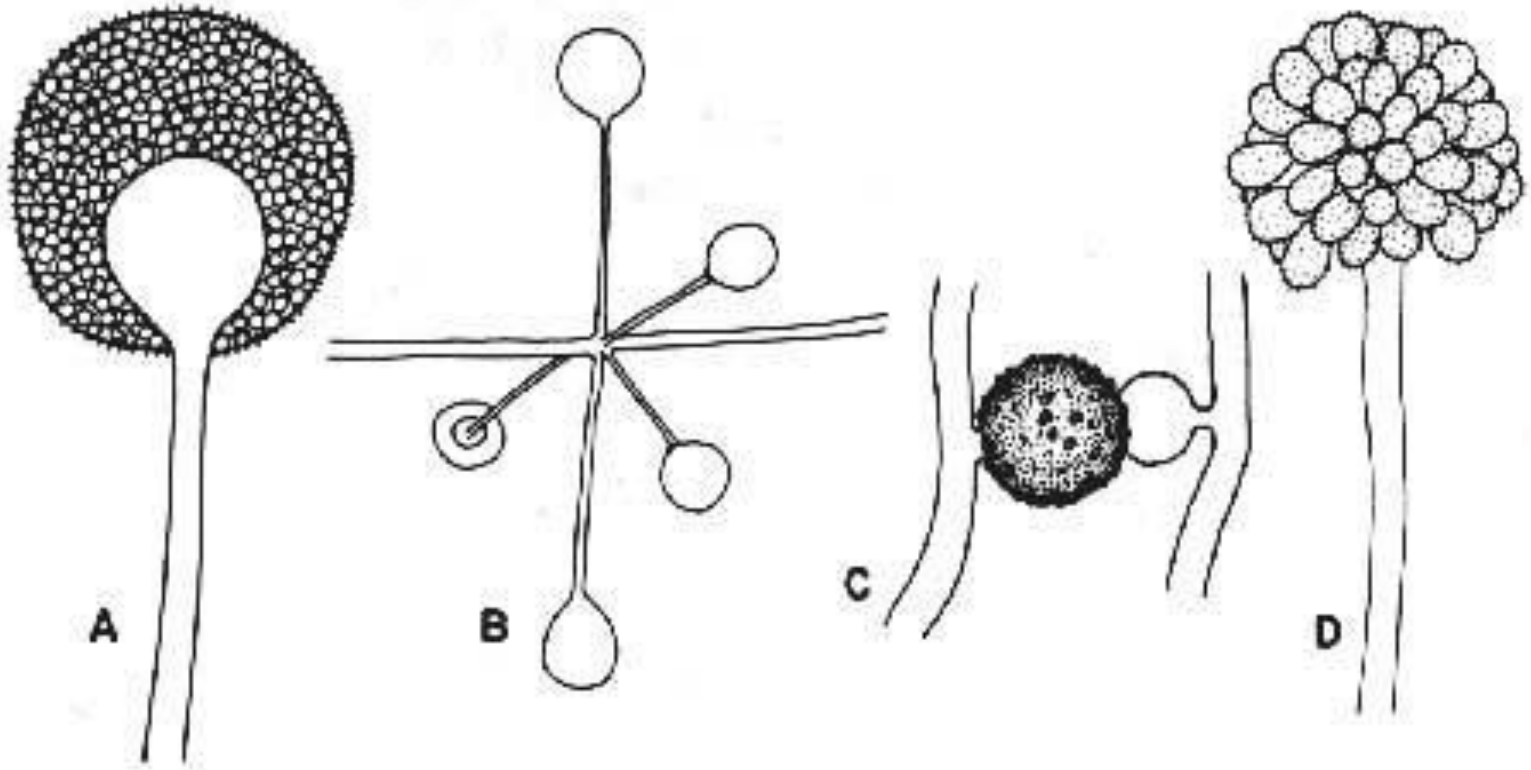
- coenocytic hyphae

- asexual spore = sporangiospores

- sexual spore = zygospores

e.g. *Rhizopus* (common bread mold)

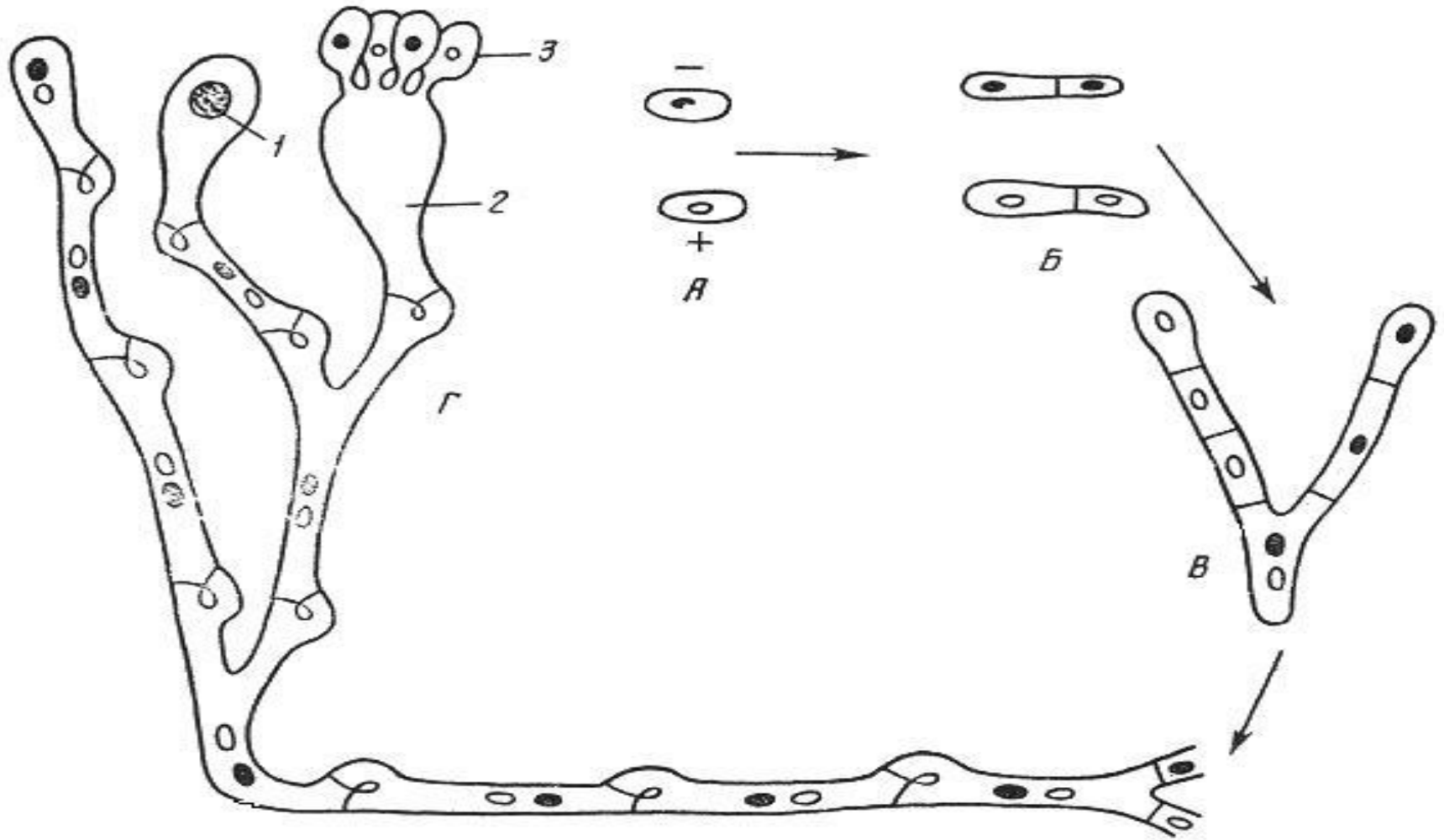
Reproduction of Mukor



A – micelium with sporangium; B – development of sporangium; C – growing of zygote; D – gametangiogamy

- . Basidiomycota (club fungi: mushrooms)
 - septate hyphae
 - asexual spores = conidiospores
 - sexual spores = basidiospores

Sexual process of Basidiomycetes



A – basidio spores; Б – haploid giphes; B – somatogamy; Γ – formation of basidia: 1 – zygote, 2 – basidia, 3 – basidio spore

Anamorphs - fungi that have lost ability to reproduce sexually; DNA sequence analysis used to assign phylum
e.g. *Penicillium* (green fruit mold)

Fungi differ from bacteria:

- grow in acidic environments (pH 5)
- resistant to osmotic pressure
- grow in low moisture
- require less nitrogen
- can metabolize complex carbohydrates

Fungal Disease

- few fungi are pathogens
- if pathogenic, tend to be opportunistic pathogens (only cause disease in immunocompromised host)

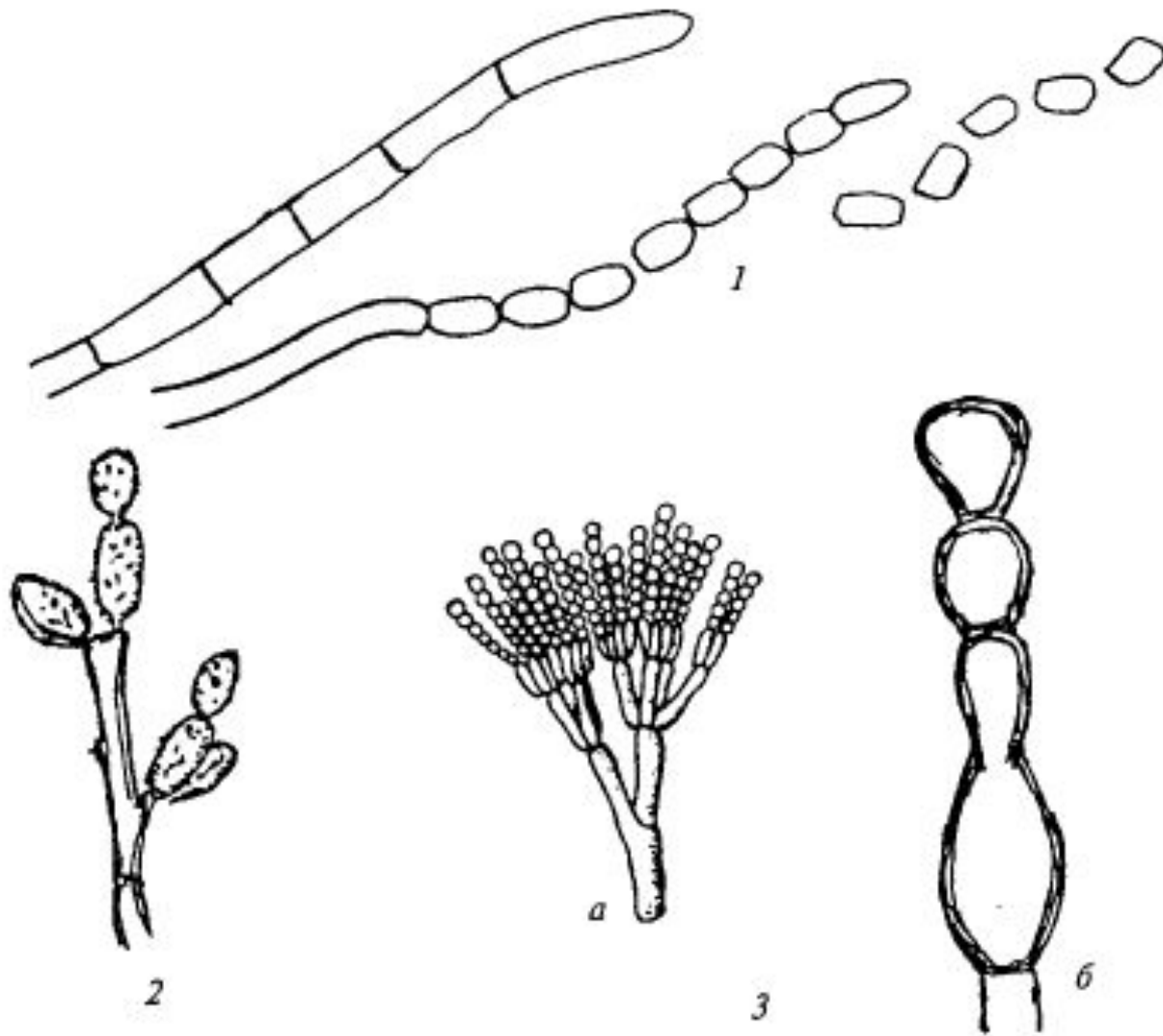
mycosis = fungal infection: can range superficial (skin) to systemic (blood,organs)
Most are chronic due to slow growth and difficulty in treating

Food mushrooms



Diseases of pathogenic fungi

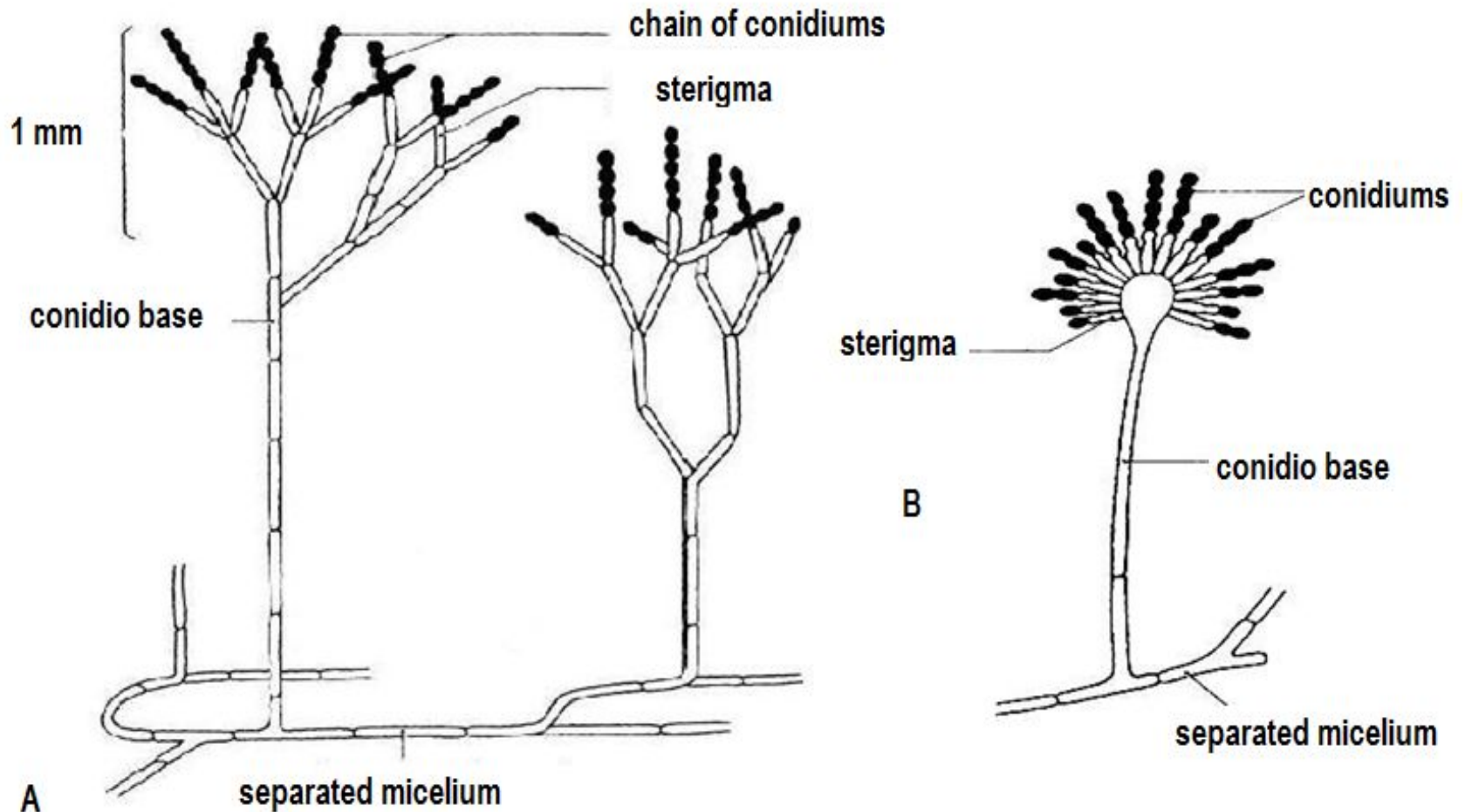




Types of conidiogenesis of Fungi

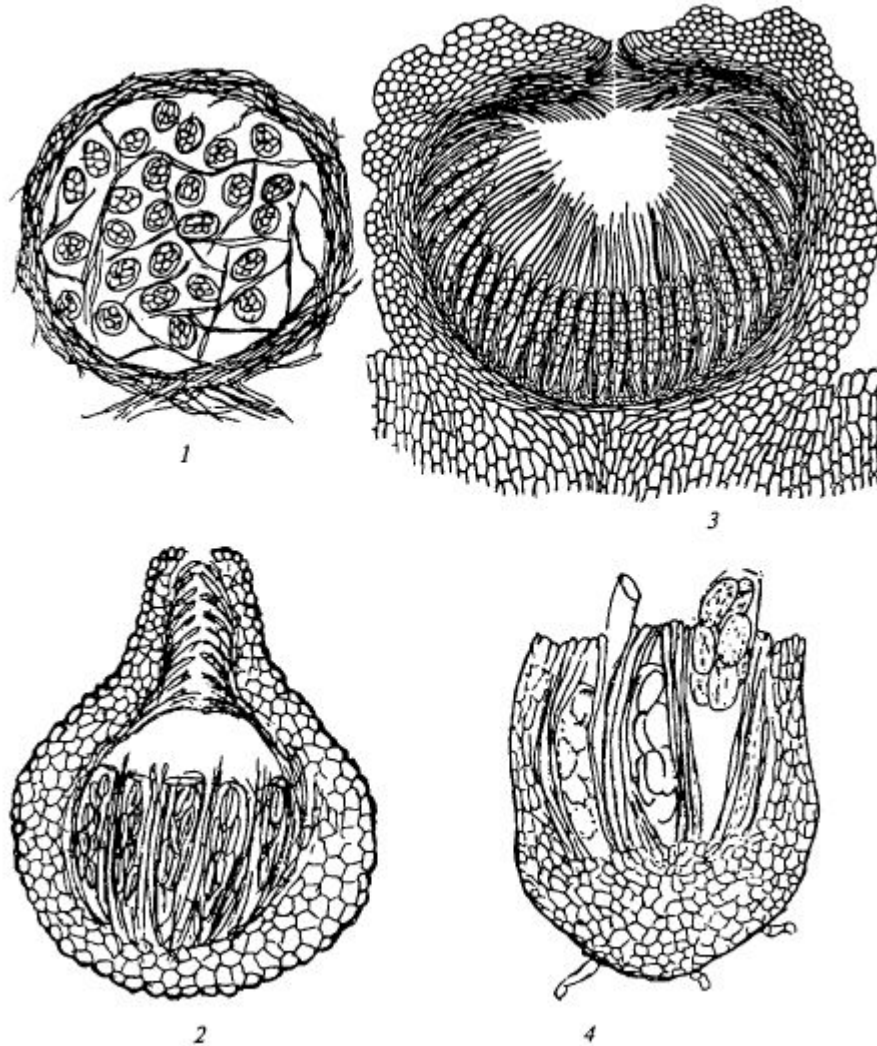
1 – tallic type, 2 – holoblastic type, 3 – enteroblastic type, 4 – details of formation of chains of conidia

Asexual reproduction of two typical species of *Deuteromycota*



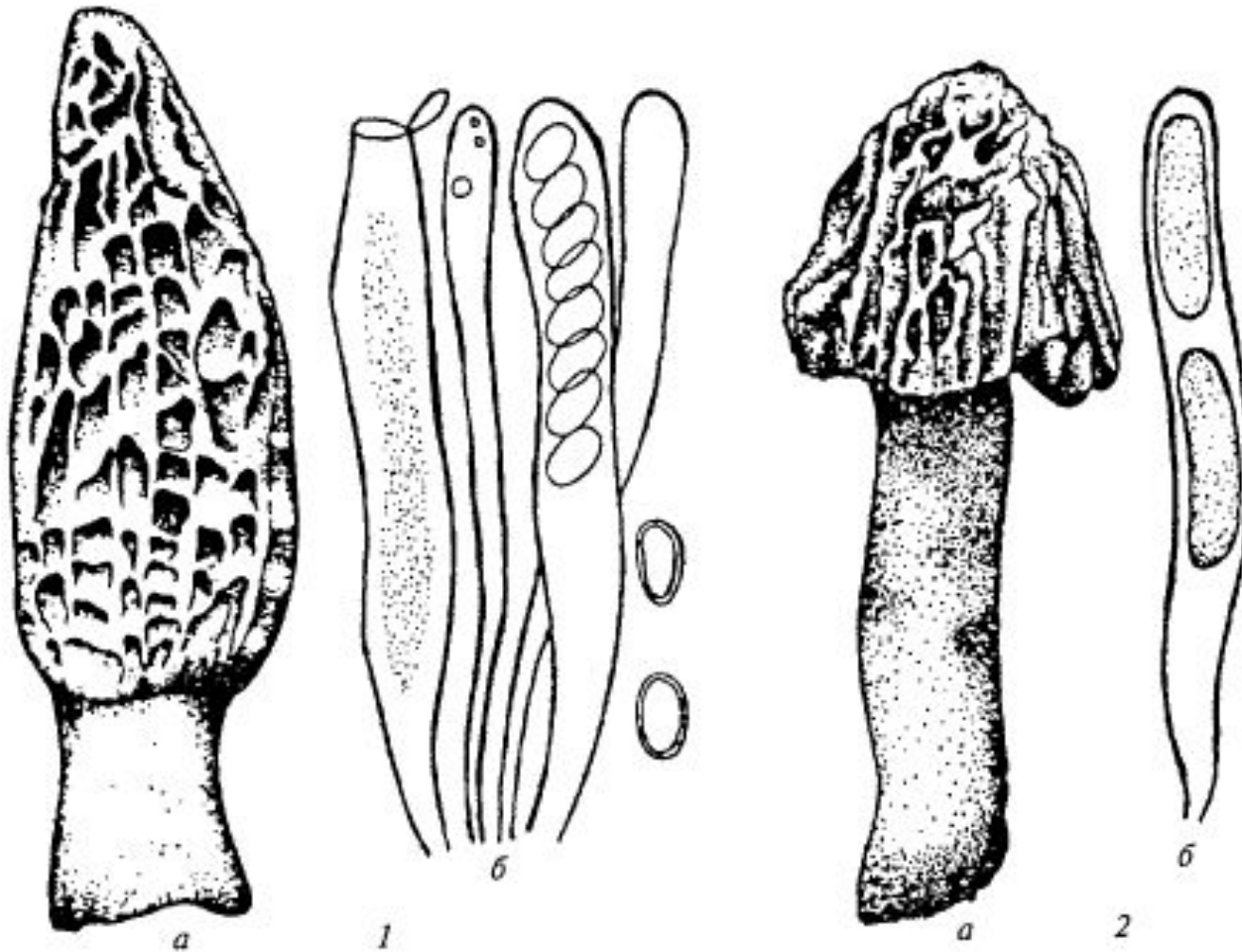
A – *Penicillium*, conidium; B – *Aspergillus*

Fruit bodies of some fungi



1 – cleistotecium, 2 – alone peritecium, 3 – peritecium in strom,
4 - apotecium

Some species of Zygomycetes



1 – *Morcella conica*, 2 – *Verpa bohemica*

Control questions:

- 1 What the differences between Basidiomycetes and Deutoromycetes?
- 2 Describe life circle of Basidiomycetes.
- 3 Which life forms do Deutoromycetes have?
- 4 Why Deutoromycetes have received such name?
- 5 What is the practical meaning of fungi in nature and human activity?

Test questions:

Micorhize of woody plants create in general:

- A) Zygomycetes.
- B) Ascomycetes.
- C) Hytriomycetes.
- D) Deutoromycetes.
- E) Oomycetes.
- F) Basidiomycetes.

Which group of fungi has life circle in haploid phase, without changing of nucleus phase, para sexual process:

- A) Zygomycetes.
- B) Deuteromycetes.
- C) Oomycetes.
- D) Basidiomycetes.
- E) Ascomycetes.
- F) Chytridiomycetes