



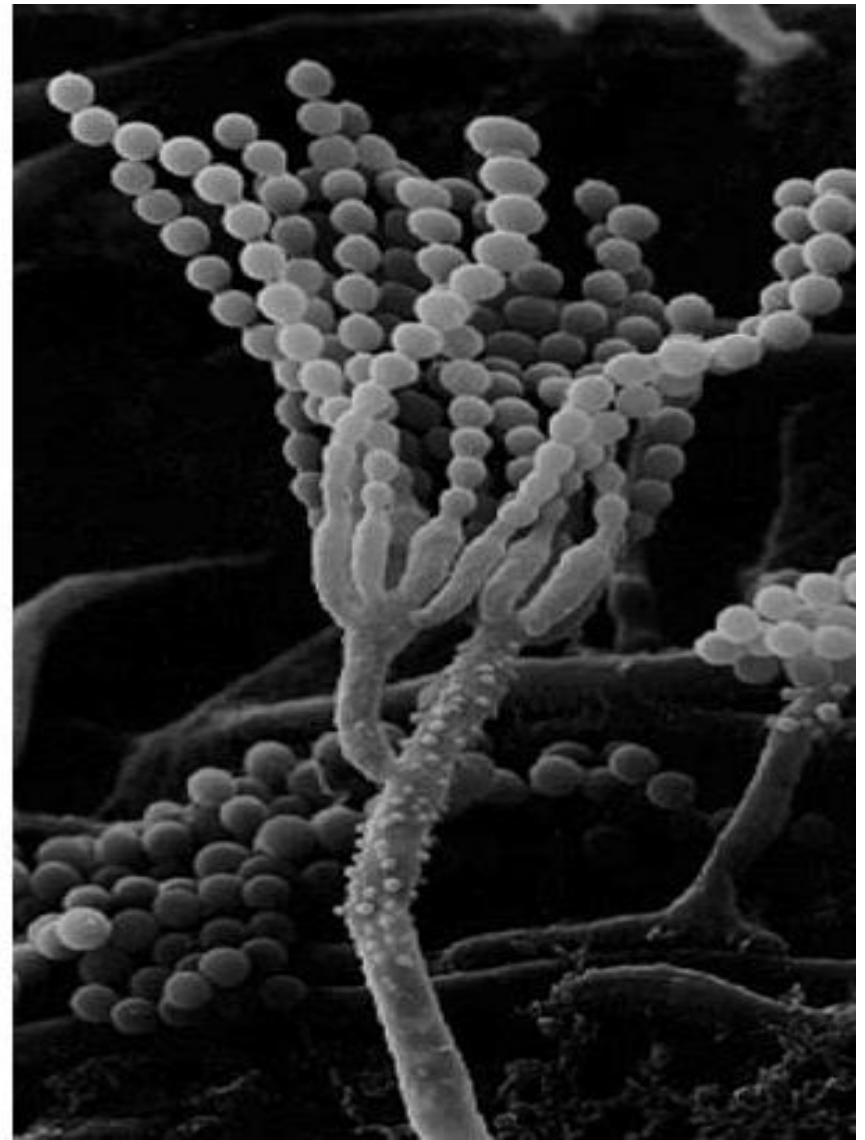
Lab : 10



**Identification of
*Penicillium***

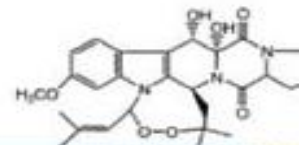
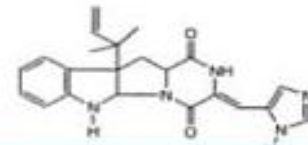
Penicillium

- A common genus with 364 accepted species
- Traditionally associated with 2 ascomycetous teleomorphs (*Talaromyces* and *Eupenicillium*)
- Has preference for moderate and colder climates



Importance of *Penicillium*

- Pre- & postharvest pathogen
- Mycotoxins
- Penicilliosis (*T. marneffeii*)
- Indoor irritants
- Pharmaceuticals
- Cheese industry
- Enzyme factories
- Ecological importance



Penicillium identification overview

- **Macro-morphology:**
 - Colony diameter
 - Colour of conidia, mycelia, soluble pigments, exudates, reverse colonies
 - Colony texture
 - Degree of growth, acid or possible base production on
 - CREA characters
- **Micro-morphology:**
 - Branching pattern
 - Shape phialide
 - Dimensions of all conidiophores parts

Colony diameters

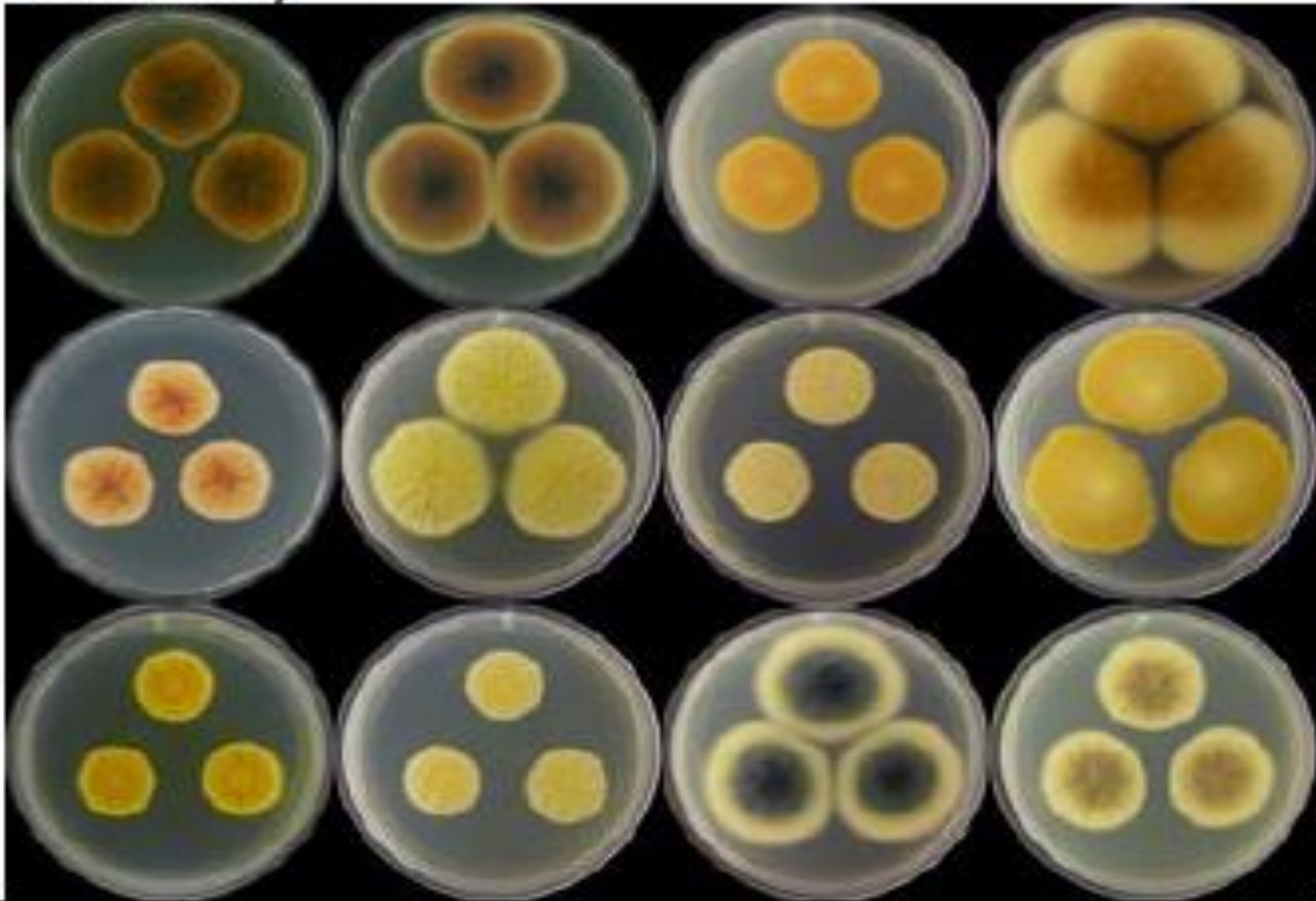
- *P. expansum*



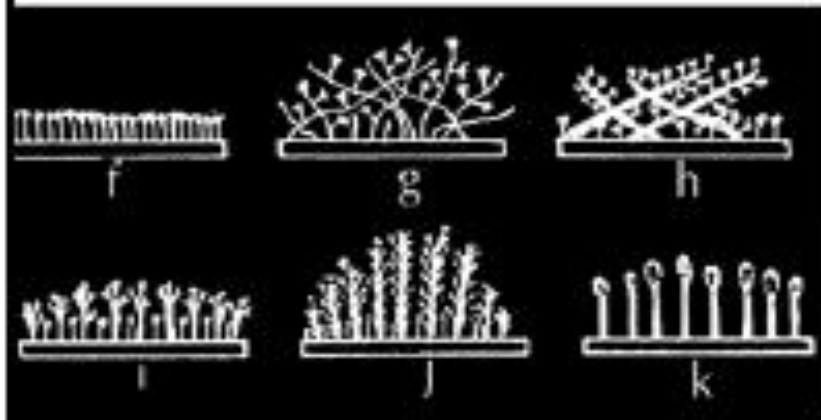
Colony colours and diameters (obverse)



Colony colours and diameters (reverse)



Textures

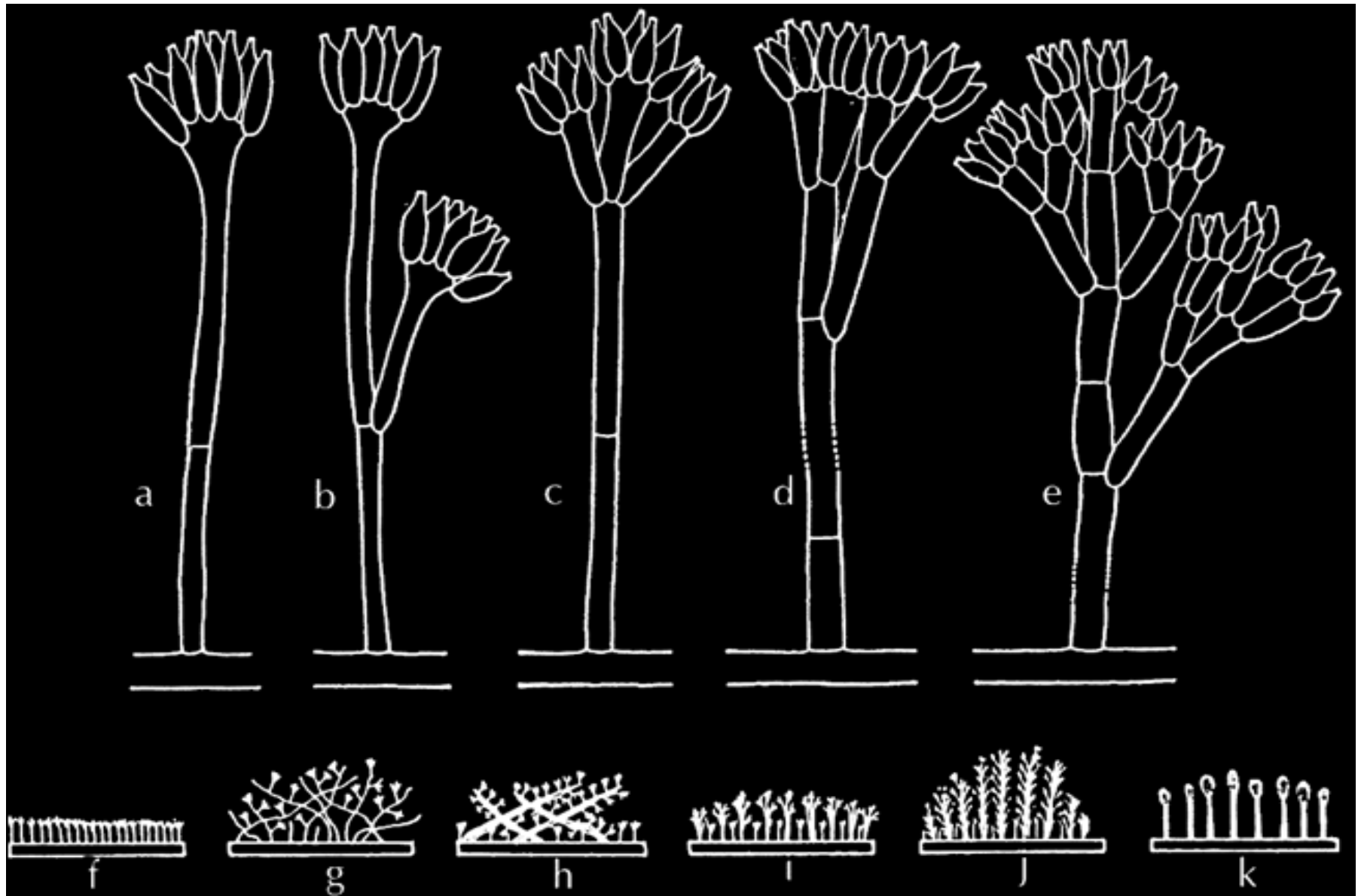


Exudates



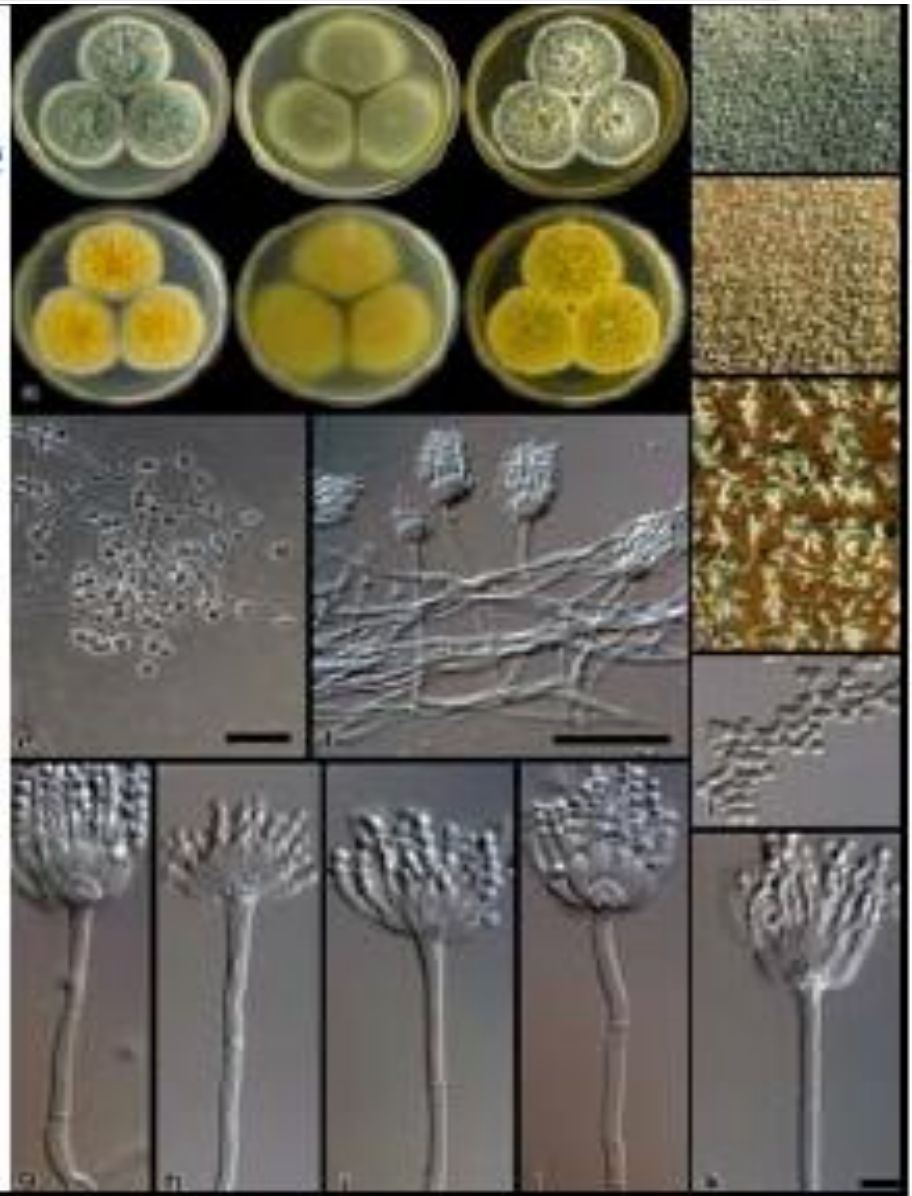
Soluble pigments





Monoverticillate

- *P. glabrum*

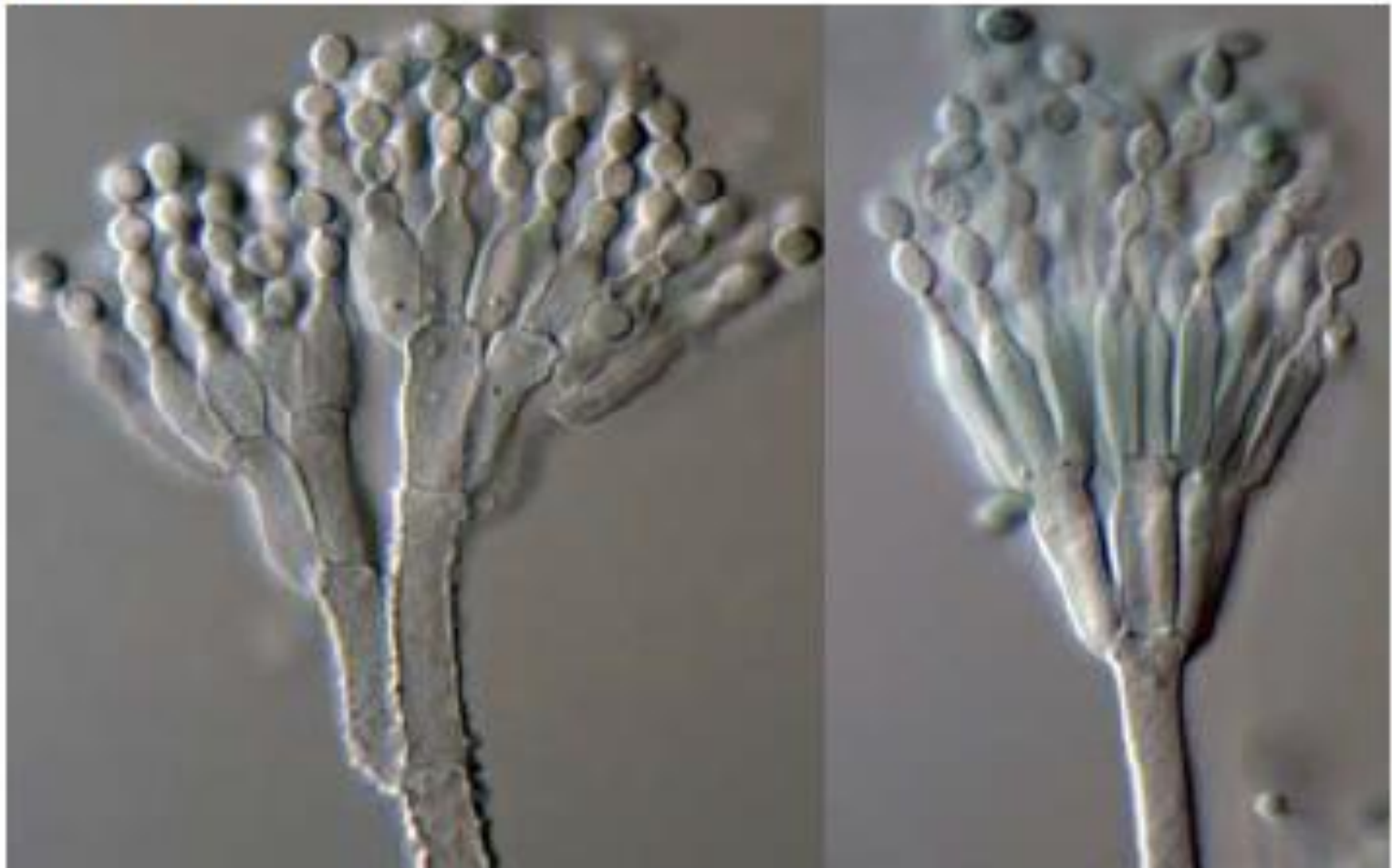


Biverticillate

- *T. atrovirens*



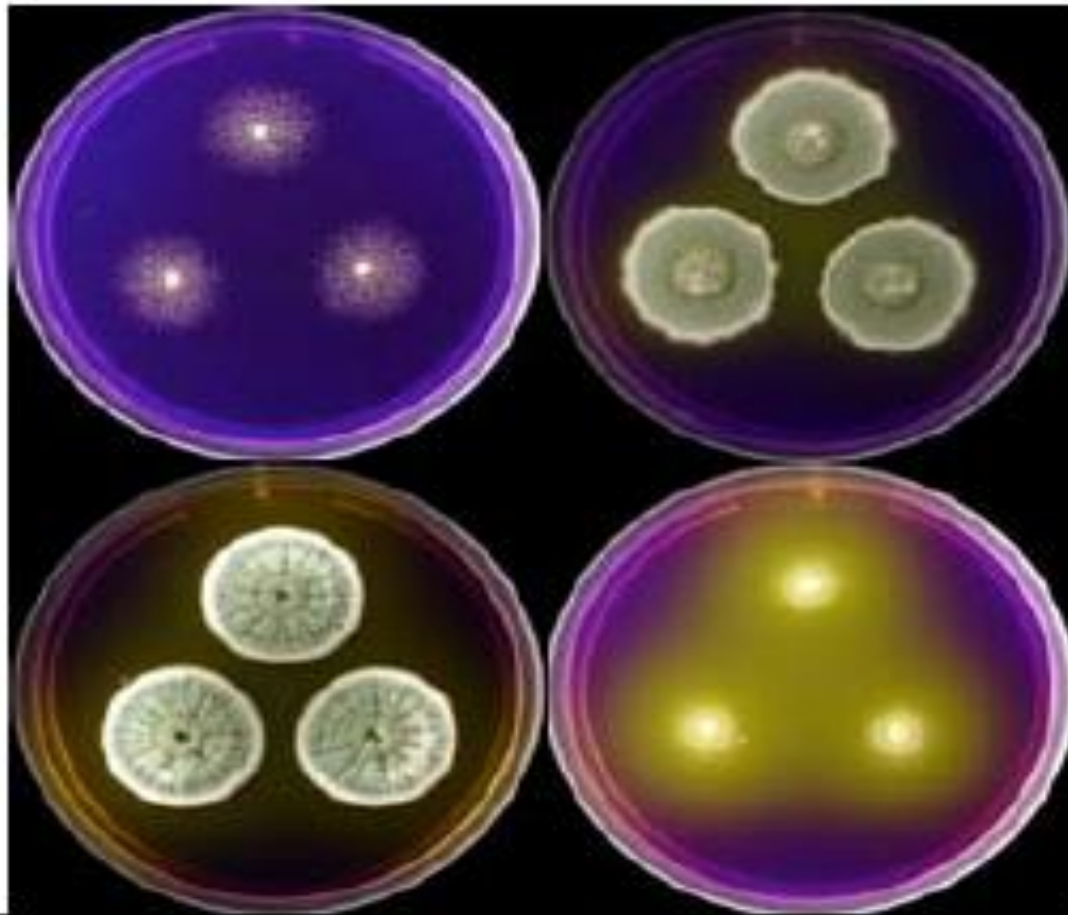
Phialides



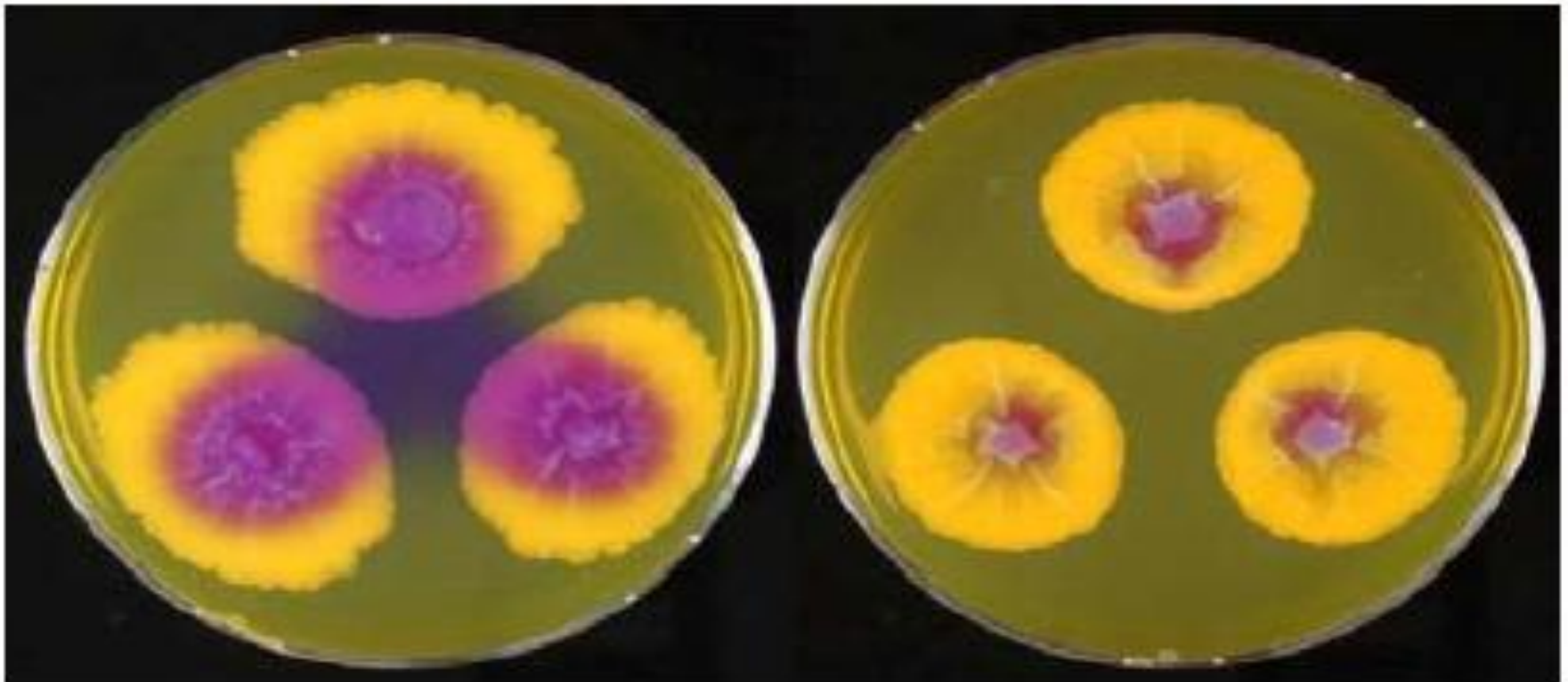
Cultivation for identification

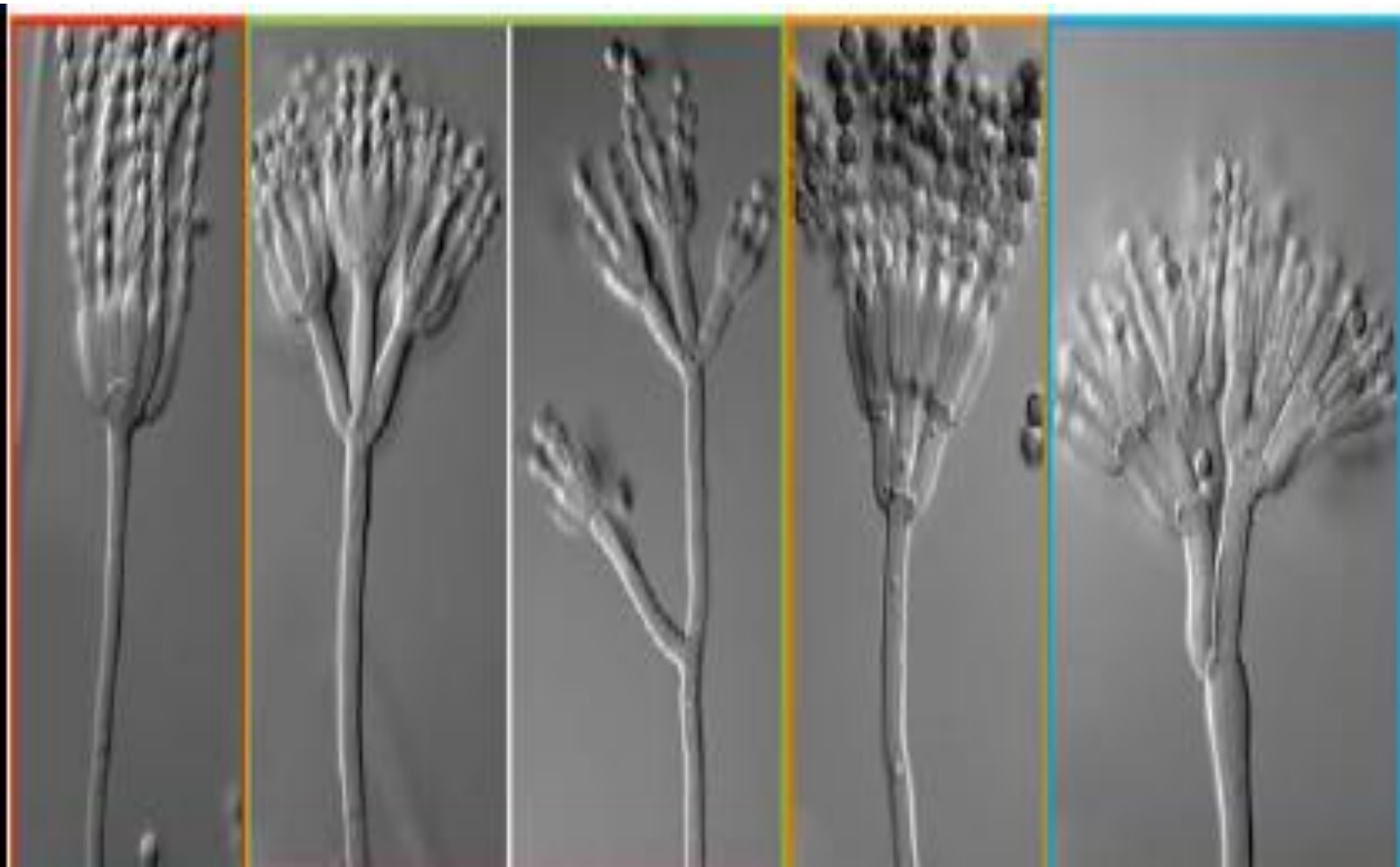
- Czapek Yeast agar (**CYA**):
 - Macro-morphology
- Czapek Yeast agar (**CYA**) incubated at 30°C
 - Colony diameter (and ratio with 25°C)
- Malt Extract Agar (**MEA**): macro- and micromorphology
- Yeast Extract Agar (**YES**), only macro-morphology
- Creatine agar (**CREA**), used for identification of terverticillate *Penicillia*
- Incubation 7 days at 25°C, well aerated

Examples of growth on CREA



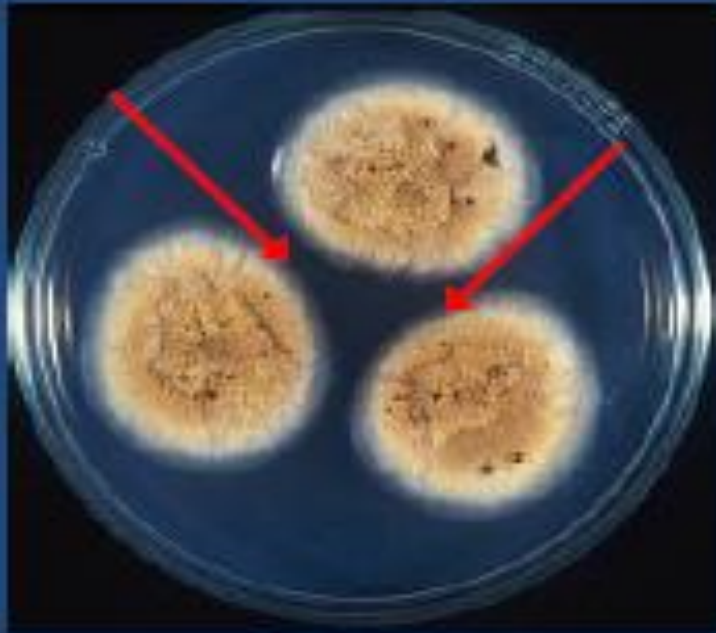
Acid / Base production on CREA







Microscopic preparation of *Aspergillus* and *Penicillium*



Lactic acid with analine blue
Drop of alcohol
Preparations from Malt Extract Agar