

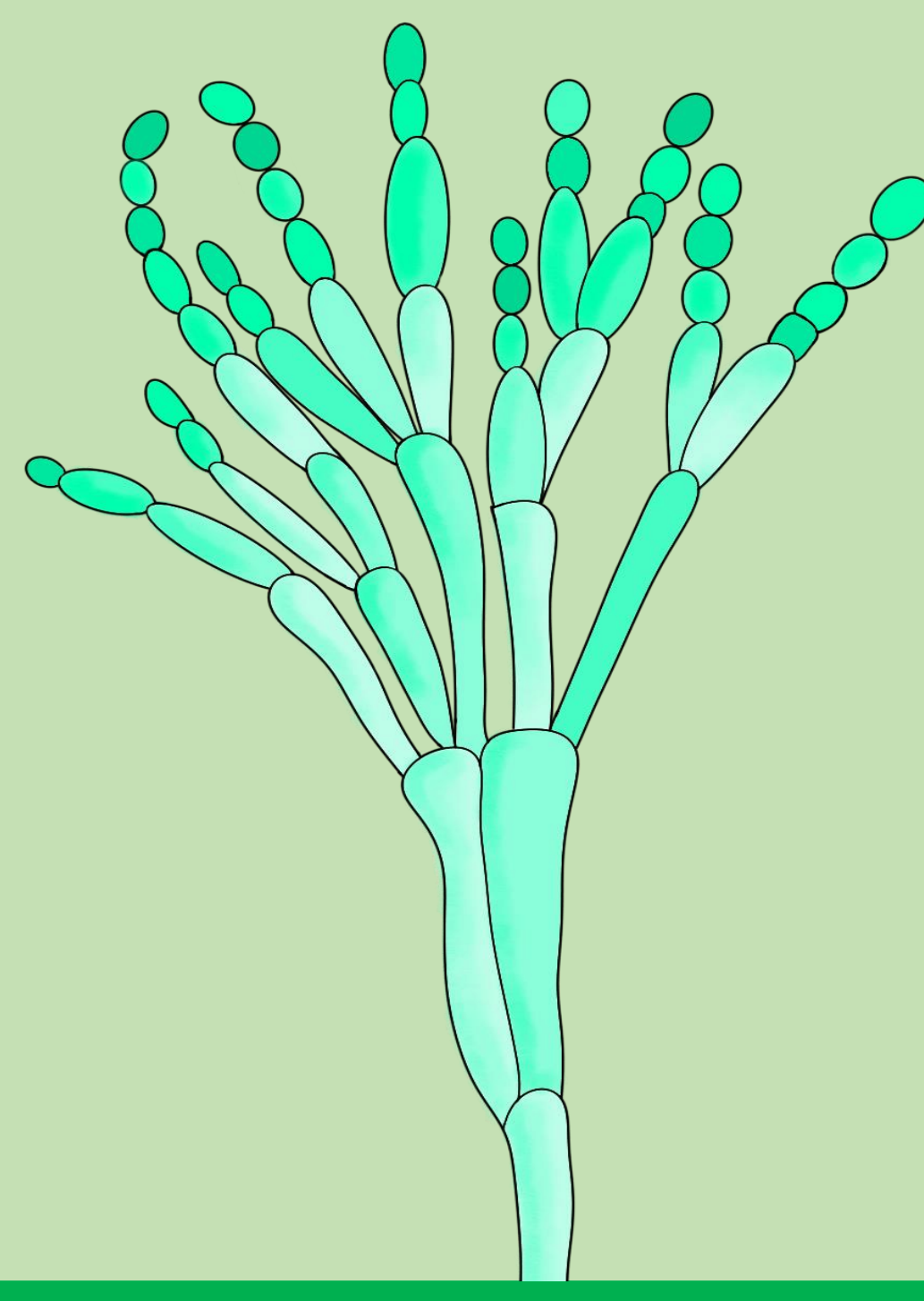
Study and evaluation of the antifungal resistances in commonly isolated environmental fungi

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Introduction & aims

Fungal infections and the appearance of resistances to antifungal drugs are current and important issues for agriculture, food safety and human and animal health.

As fungi are widely spread, the aim of this project is to assess if environmental fungi present resistances to antifungal drugs.

Results & discussion

From cultures, it is expected to find environmental fungi of the genera: *Acremonium*, *Alternaria*, *Aspergillus*, *Candida*, *Cladosporium*, *Penicillium*, *Rhizopus* and *Rhodotorula*.

Once the antifungigrams have been obtained, the results would be compared with the reference values established by institutions such as EUCAST.

There are no reference values (in millimeters of diameter) for every fungi and antifungal drug, so breakpoints should be elaborated.

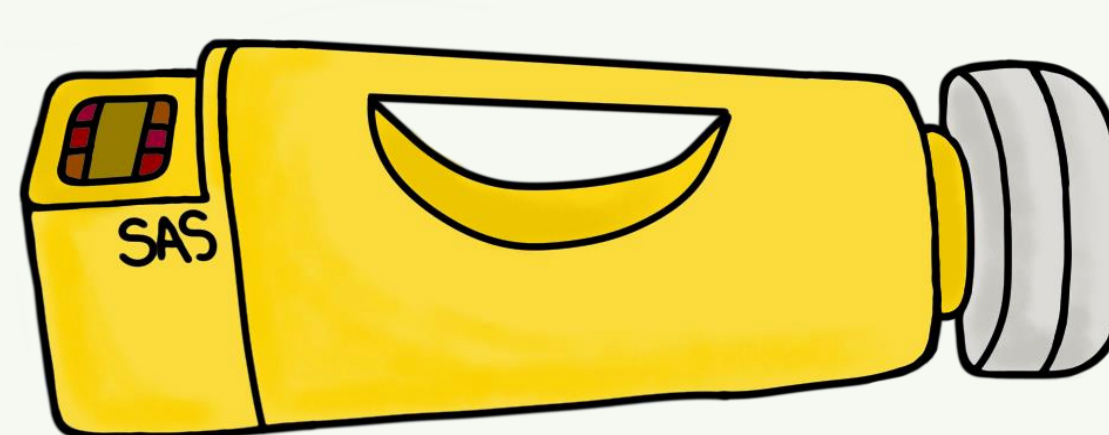
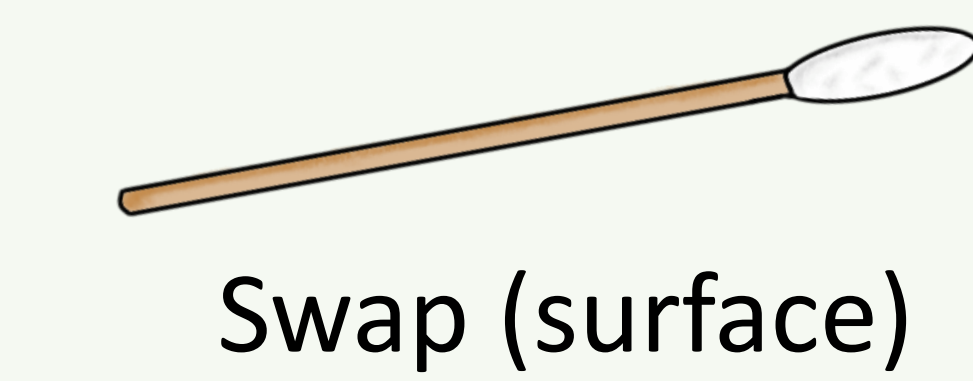
In the literature there are antifungal drug resistance tests on genera *Candida*, *Aspergillus* and *Fusarium* that demonstrate the existence of resistances.



Figure 1. Sabouraud agar plate with chloramphenicol from System SAS, where different fungi can be appreciated after being incubated.

Material & methods

Obtention of samples

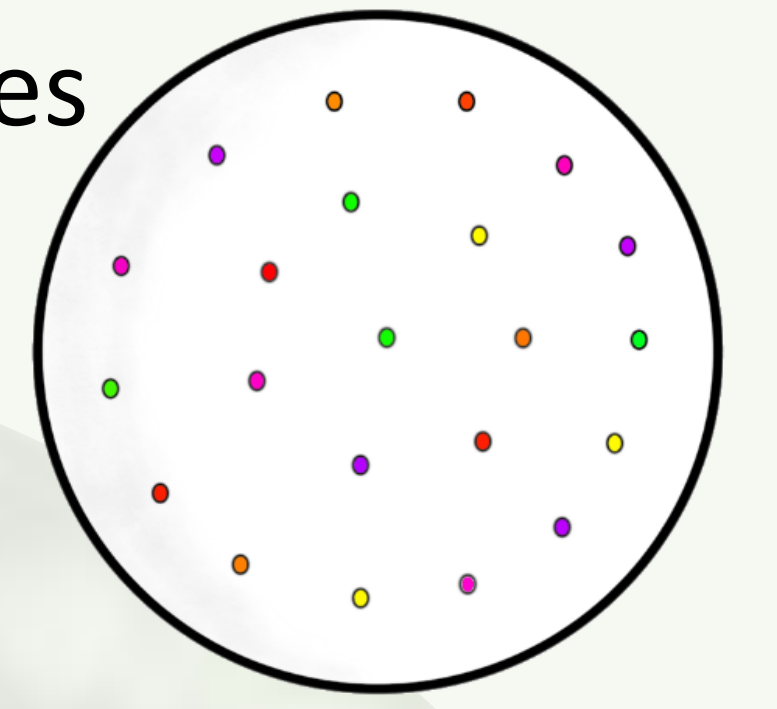


SAS system (environment)

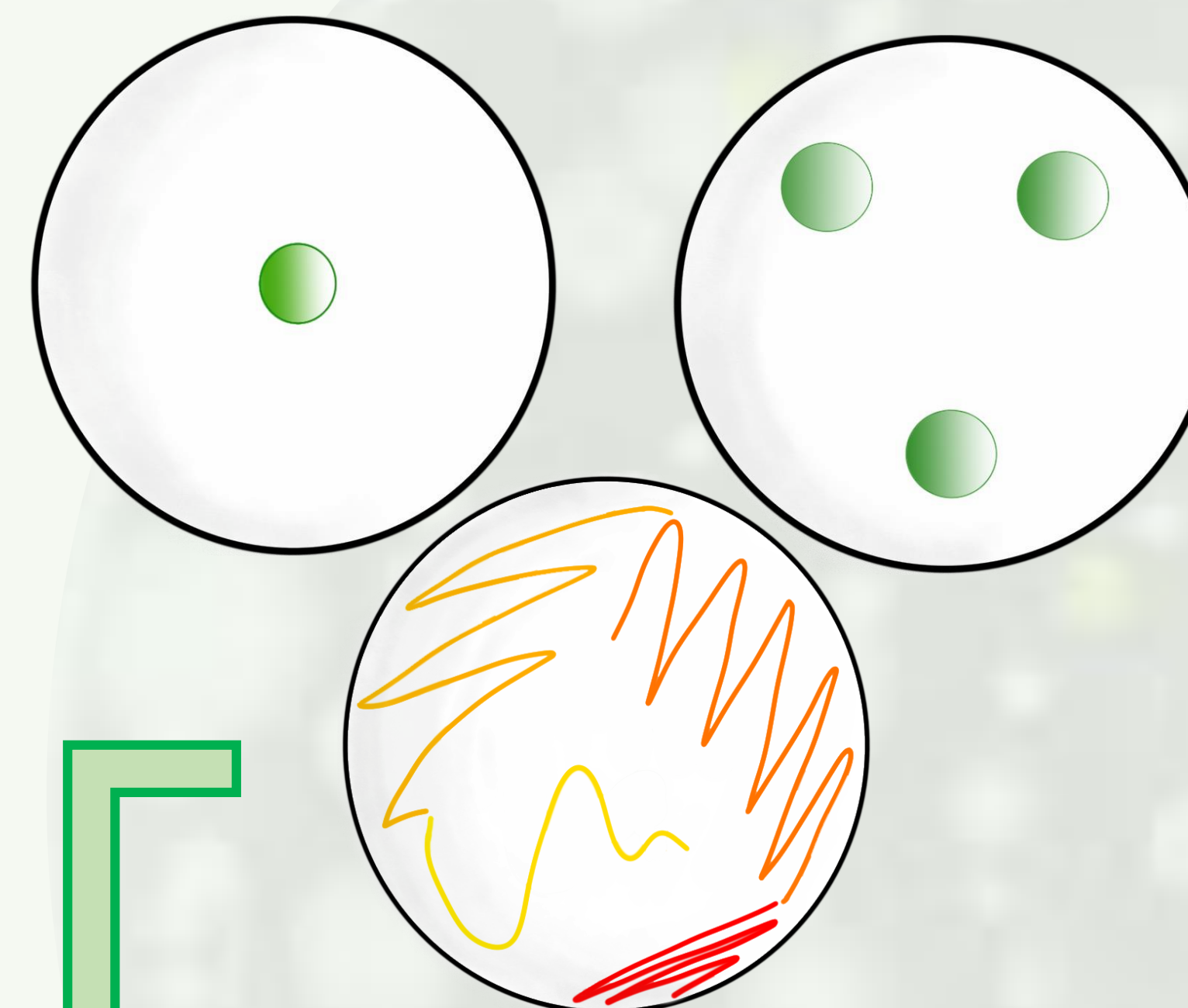
→ Inoculation →

Incubation ($28^{\circ} \pm 2^{\circ}\text{C}$, 5-7 days)

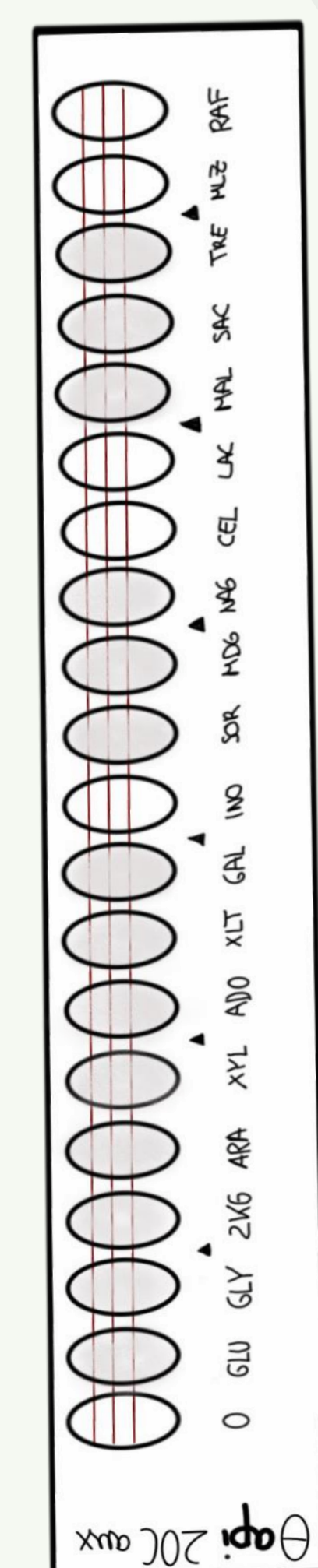
Mixed cultures



Obtention of pure cultures

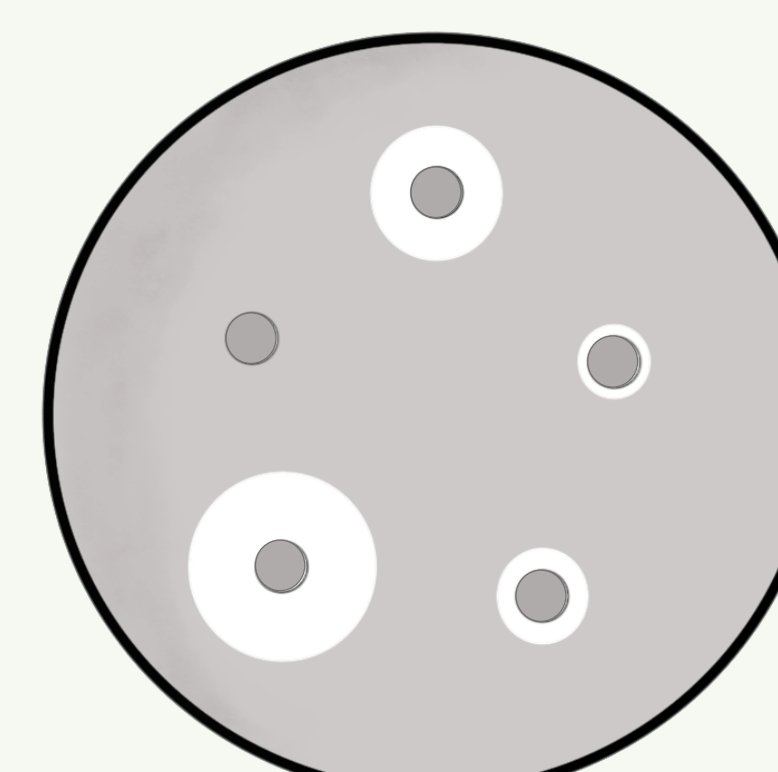


Yeast identification

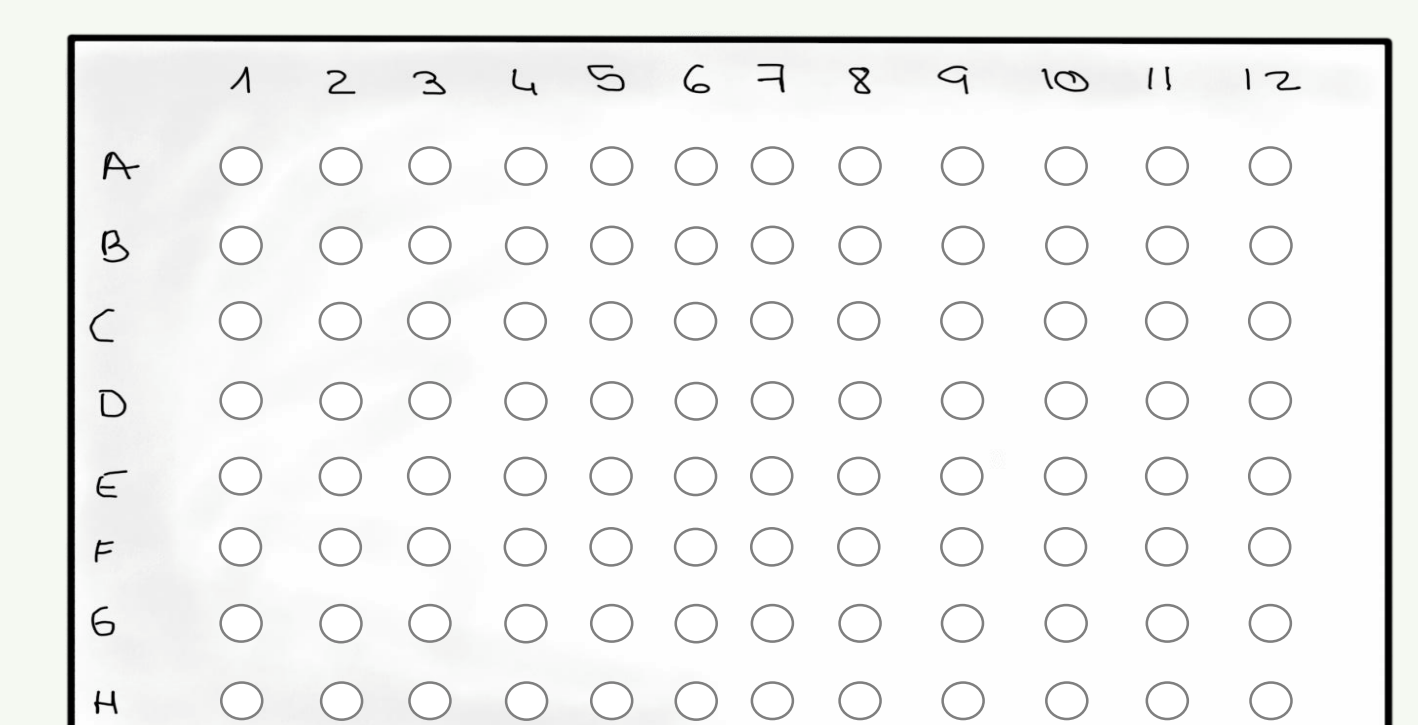


API 20 C
aux

0.5
McFarland



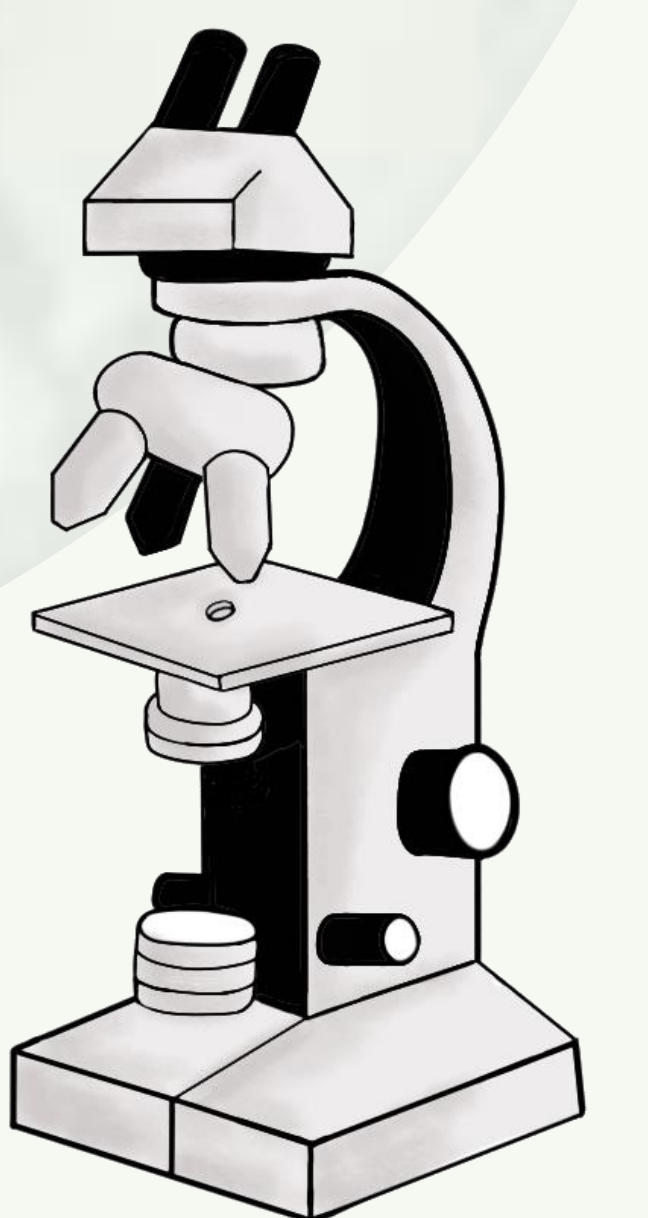
Disk diffusion
method



Microdilution
method

Lactophenol
cotton blue
(filamentous
fungi)

Methylene
blue
(yeasts)



Conclusions & future proposals

- From the bibliographic review we can say that:
 - Antifungal resistances exist in different species of environmental fungi
 - A good correlation exists between the results obtained by microdilution and disk diffusion method
- We propose to improve EUCAST's database, in order to be able to have reference values to classify the susceptibility of fungi to different antifungal drugs

