

## Screening of some Ascomycetes and Basidiomycetes species for the production of 1-phenylethanol enantiomerically pure.

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Keywords: Bioreduction, Fungi, 1-phenylethanol.

The asymmetric reduction of prochiral ketones represents a pivotal transformation for the production of chiral alcohols. Several of them are considered as key starting materials in obtaining pharmaceuticals. Nowadays, bio-reductions are an important component of organic synthesis for the production of drugs. In this sense, microorganisms are considered an outstanding tool in the obtaining of these chiral building blocks. In our efforts to find efficient biocatalysts to produce enantiomerically pure 1-phenylethanols, a screening of fourteen fungi using acetophenone as substrate was carried out. Strains used were: *Aspergillus niger* (ICFC636/05), *Aspergillus sp.*(ICFC835/14), *Aspergillus sp.*(ICFC836/14), *Fusarium sp.*(ICFC324/00), *Trichoderma sp.*(ICFC53/99), *Cladosporium cladosporioides* (ICFC362/00), *Pleurotus ostreatus* (ICFC547/03), *Pleurotus pulmonarius* (ICFC530/03), *Gymnopilus pampeanus* (ICFC751/12; 748/12), *Agaricus bisporus* (ICFC745/11), *Rigidoporus latemarginatus* (ICFC443/01), *Lentinula edodes* (ICFC293/99), *Agrocybe aegerita* (ICFC299/00). Strains are conserved in ICFC (IIB-INTECH Collection of Fungal Cultures), Laboratory of Mycology and Mushroom Cultivation, Chascomús, Argentina (reference in the WDCM data base: 826). The mycelium was obtained after 4-30 days of growth at 28°C in GPY and it was separated from culture medium by filtration. Fresh mycelium ( $\approx 2$  g) was put in a 125 ml conical flask containing 80 ml of sterile 0.1M KH<sub>2</sub>PO<sub>4</sub>buffer (pH 7.0). Previously dissolved in 1 ml of dimethylsulfoxide, the substrate (50 mg) was added. The incubation was made on an orbital shaker at 100 rpm at 30 °C for 7 days. Samples were analyzed by chiral GC-FID and GC-MS. Some evaluated strains showed ability to reduce acetophenone to 1-phenylethanol with variable percentage of conversion and enantiomeric excess: *A.niger* (ICFC636/05) showed 30% of reduction and 100 e.e.%, *Aspergillus sp.* (ICFC836/14) showed 30% of reduction and 53 e.e.%. Both fungi exhibited preferences for the *R* enantiomer (*anti*-Prelog configuration). The excellent stereoselectivity achieved with *A.niger* (ICFC636/05) makes this microorganism a good candidate for conducting further studies in this process.