



## Enzyme production by solid-state fermentation

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Solid-state fermentation (SSF) is a fermentation process which uses moist solid supports (mainly, agro-industrial residues) as substrate. This process has many advantages when compared with submerged fermentation (SmF) and is being successfully exploited for the production of enzymes and secondary metabolites. Its advantages include higher fermentation productivity, higher concentration of the products, less catabolic repression, low water and energy demanding, less effluent generation, and requirement of simple fermentation equipments [1].

This research group has been working in the production of fungi enzymes using SSF. Recently, we reported the production, isolation and purification of an ochratoxin A (OTA) hydrolytic enzyme [2]. This enzyme was produced by SSF on wheat germ and purified from the culture filtrate by acetone precipitation and anion exchange chromatography. The isolated enzyme is a metalloenzyme which can degrade OTA at pH 7.5 and 37 °C, allowing its detoxification. OTA is a mycotoxin produced by several fungi in some agricultural commodities being present in food and feed products. Presently, we are assessing the application of this enzyme on detoxification processes for some agricultural commodities.

[1] Holker U, Hofer M, Lenz J, "Biotechnological advantages of laboratory-scale solid-state fermentation with fungi", *Appl. Microbiol. Biotechnol.* (2004) **64** (2):175-186.

[2] Abrunhosa L, Venâncio A, "Isolation and purification of an enzyme hydrolyzing ochratoxin A from *Aspergillus niger*", *Biotechnol. Lett.* (2007) **29** (12):1909-1914.