

# Study of the nutritional characteristics of previously analysed edible mushrooms as biofertilisers

## OBJECTIFS

From a collection of fungal strains isolated in Ghana and representing the genera *Lentinus*, *Pleurotus* and *Ganoderma*, the objectives of this study were the following:

- To highlight certain physiological properties likely to be involved in the biological mechanisms promoting plant growth
- To demonstrate under controlled conditions the effect of inoculation of the culture substrate by these strains on the growth of 2 plant species, tomato and durum wheat

## ACTIONS

The fungal strains (7) were maintained on a nutrient medium of the "L-Broth" type and were subcultured on selective media in order to demonstrate the enzymatic activities of the esterase, chitinase and phosphatase types as well as their capacity to produce siderophores.

In a second phase, these strains were multiplied on a vermiculite substrate moistened with a nutrient medium of the "L-Broth" type. When the substrate was completely colonised by the fungal isolates, the inoculum produced was mixed with a culture substrate (atapulgit) where young tomato or durum wheat seedlings were planted.

## RESULTATS

All strains tested have the ability to produce esterase enzymes, whereas only isolates from the genus *Lentinus* show chitinolytic activity. The production of siderophores was detected in strains belonging to the genera *Ganoderma* and *Lentinus* and in one strain of *Pleurotus* (strain PTR-K). The promoting effects of strain inoculation were also measured to varying degrees depending on the isolate in tomato after 6 weeks in the greenhouse.

Fungal inoculation stimulated the growth of young durum wheat seedlings after one month of cultivation in the greenhouse with a maximum effect obtained with the SqW strain (*Lentinus* sp.) (Figure below).

## PERSPECTIVES

The perspectives of this work will mainly consist in optimising the production of mushrooms AND their biofertilising properties by

- Testing a greater diversity of edible fungi
- Manipulating the composition of the culture substrate

The aim of the project will be to identify high-performance strains which, depending on an appropriate multiplication technique, will be able to offer significant production capacity but also proven biofertilising properties.

**Responsable :**

**Date de démarrage :** 07/02/2016

**Date de clôture :** 07/05/2016

**Montant :**

