BIOMASS AND PIGMENT PRODUCTION BY *Pisolithus tinctorius* IN LIQUID-SURFACE CULTURE

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Introduction. Color is an important feature in the industry; synthetic dyes have advantages such as easy production, low cost, stability, extensive range of colors and great coloring properties (1). However, some of them cause harmful effects to health and environment. An alternative is the use of natural pigments which have lower toxicity (2). Filamentous fungi represent a novel source for pigment production; their study has led to the discovery of new compounds (3). *Pisolithus tinctorius* is an ectomycorrhizal basidiomycete, during its growth produces large amount of pigments.

In this work, we studied the biomass and pigment production by *Pisolithus tinctorius* in liquid-surface culture in order to obtain kinetic variables that describe the process.

Methods. Mycelia were obtained from 22 day old cultures in PDA; sections of 2 cm^2 were inoculated into Erlenmeyer flasks containing 120 mL of Potato Dextrose Broth (PDB, 500g potato infusion/L, dextrose 20g/L, pH 5.6) (4). The cultures were incubated at 25ºC in static conditions. Biomass was evaluated by dry weight. The mycelia-free culture filtrate was centrifuged at 5000 rpm for 5 minutes; pH was measured. The pigment production was estimated spectrophotometrically (5).

Results. The culture of *Pisolithus tinctorius* not showed lag phase. The stationary phase of biomass production started at day 35. The maximum growth rate was 0.241 day^{-1}.

The wavelength of maximum absorbance of the media with the secreted pigment was 318 nm. The pigment production showed two phases, as shown in Fig. 1. The second one corresponds with the stationary phase in biomass production.

An increase of pH, from 5.6 to 7, was observed. Possibly, due to culture media nutrients.

An opposite behavior of biomass productivity and increase in absorbance was observed (Fig. 2). This suggests that some of the pigments produced are secondary metabolites.

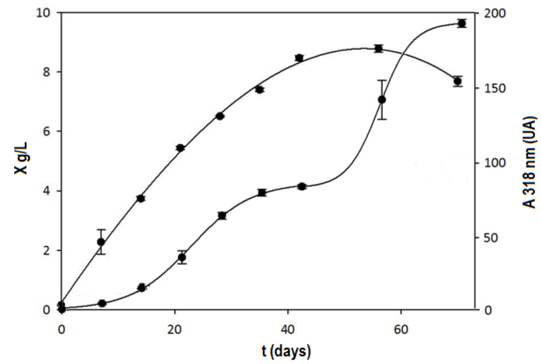

Fig.1. Biomass and pigment production by *Pisolithus tinctorius*.

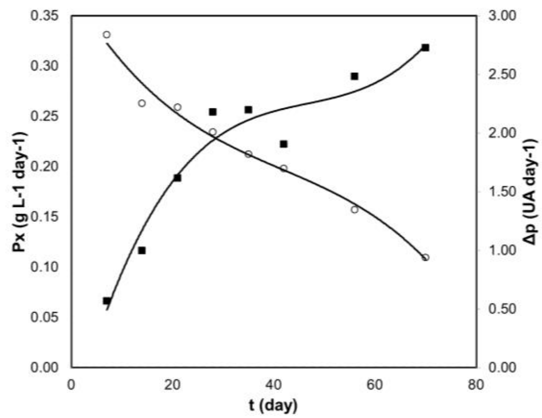

Fig.2. Biomass productivity (*Px*) and increase in absorbance (*Δp*).

Conclusions. The liquid-surface culture of *Pisolithus tinctorius* in PDB showed an acceptable biomass production and great pigment production. However, a thorough study is necessary.

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