

TITLE: DEVELOPMENT OF BIOPROCESSE FOR THE PRODUCTION OF NATURAL PIGMENTS BY *Fusarium graminearum*

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ABSTRACT :

The obtaining natural dyes from fungi present advantage as a replaceable source, low environmental impact and high capacity for biodegradation, being more harmonic to the environment and less harmful to health than synthetic dyes. Natural dyes come from a variety of sources such as plants and microorganisms, and filamentous fungi are more efficient producers due the presence of anthraquinone pigments, an important natural compound responsible for the phenomenon of color. Natural pigments have wide application and can be used in the textile, pharmaceutical and food industries. However, not yet was described bioprocesses for the production of natural dyes, evaluating several fermentation parameters until obtaining of pigment. Therefore, this study aims evaluate the production of pigments by *Fusarium graminearum* in different fermentation media varying parameters essential for the process such as temperature and pH. The isolate was inoculated by a micelial disk (5mm diam.) to ferment in mineral Salts-Glucose medium and potato semi-solid and incubated under steady conditions in the absence of light. After the pigments were extracted with 95% ethanol solution and pigment production was analyzed by spectrophotometry at 530nm. The mycelium was separated and dried in hothouse for quantification of the biomass. The Semisolid potato medium showed coloring, thus the experiments continued to use this medium. The temperature was evaluated at 20 and 27°C, and pH at 2, 3, 4, 5, 6, 7 and a flask without change in pH. There was a difference in mycelial growth, being the temperature of 20°C ideal for growth, because it presented 0.1g of mass more than the growth to 27°C. The temperature of 27°C was ideal for the pigment production process. The lowest pigment production was observed at pH 3, with O.D of 0.114, and the highest at pH 6, with O.D of 0.483. However, the excellent pigment production was evaluated in the fermentation medium without pH changed, presenting a D.O of 1.283. From the results obtained it was possible to determine that the favorable conditions for the production of pigments by *Fusarium graminearum* is under semi-solid fermentation using as potato substrate, without change of pH, incubated at 27°C under stationary conditions and in the absence of light.

Keywords: Bioprocresse, natural dyes, Fusarium.