



EVALUATION OF MEDIUM COMPOSITION ON GROWTH AND PIGMENT PRODUCTION BY *Penicillium pinophilum*

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Key words: pigments, culture media, Penicillium pinophilum

Introduction. Microbes represent a natural source of colors with advantages of versatility and productivity over higher forms of life in the industrial-scale production of natural pigments and dyes [1,2]. Special attention has been focused on the strains belonging to the filamentous fungi. *Penicillium* strains isolated from the Mexican semi-desert were reported as pigments producers [3]. However, microorganism needs nitrogen and carbon sources and other nutrients to grow and produce primary and secondary metabolites in nature or under laboratory conditions [4]. Microorganism also requires adequate oxygen concentration, temperature and pH conditions. Therefore, the aim of this work was to evaluate the effect of media composition on the growth and pigment production by two strains of *Penicillium pinophilum*.

Methods. The strains *Penicillium pinophilum* EH2 and EH3 from the DIA-UAdeC collection were used in this study. A total of 12 culture media reported previously by others authors were evaluated [3,5,6,7]. The culture media were classified into three groups: complex media (MC), partially defined media (MPD) and chemically defined media (MQD). All the experiments were carried out in agar Petri dishes and incubated in the dark at 30 °C for 240 h. The growth was evaluated as radial invasion expressed in units of length (mm). The pigments were extracted according to the modified method reported by Su [6] for extracellular pigment and Velmurugan *et al.* [7] for intracellular pigment. After extraction, the pigment extracts were quantified using a spectrophotometer at 400 nm.

Results. The growth, morphology and pigment production for both strains were similar and dependent of the type of culture medium used. The maximal radial growth was observed in MPD5 (39.97 mm) and the minimum in MC4 (22.64 mm) and MQ12 (18.61 mm) regardless of the strain (Fig. 1). The pigment production was observed in 8 of

the 12 culture media, showed yellow and red pigment at different intensities.

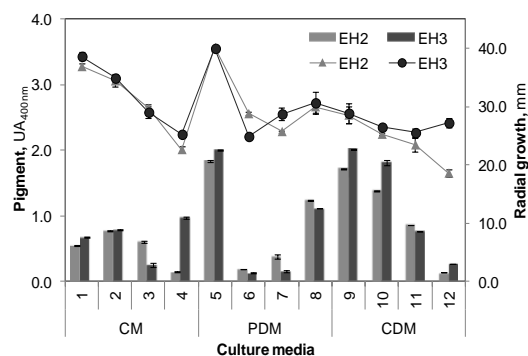


Fig.1 Radial growth and pigment production of *P. pinophilum* EH2 and EH3 under different culture media.

Yellow pigment production was higher in partially (PDM) and chemical defined (CDM) media [7], while red pigment was higher in complex media (CM). This behavior can be due to the presence of meat, soy, yeast and potatoes extracts [3,7]. The maximum pigment production was observed in PDM5 for EH2 strain (1.832 UA_{400nm}) whereas for EH3 strain (2.012 UA_{400nm}) was in CDM9. The strain EH3 showed higher pigment production than EH2 in most cases.

Conclusions. From the results it can be concluded that MPD medium showed a better radial growth, however, the maximal pigment production was observed in MQD media for both strains.

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