Annual Industrial Biotechnology and Bioprocessing Congress

September 17-18, 2018 | San Diego, USA

Evaluation of different liquid media for the production of chlamydospore of two Colombian strain of Nematophagous fungi

Carlos Castillo Saldarriaga, Johana Sanabria, Jaime andres Cubides and Martha Gomez alvarez
Colombian Corporation of Agricultural Research – CORPOICA, Colombia

Bioproducts based on chlamydospore of nematophagous fungi had been proposed as a biological alternative to control free-living nematodes. Traditionally, these resistance structures are produced through solid fermentation causing high cost during production because the space required and energy used to maintain operation parameters as temperature and relative humidity. For this reason, liquid fermentation could be a feasible alternative. In this work, different liquid media were evaluated to produce chlamydospores of two Colombian strains of nematophagous fungi, *Duddingtonia flagrans* and *Arthrobotrys musiformis*. A suspension of chlamydospores was obtained from Petri dishes with Wheat Flour Agar (WFA) incubated at 25±0.5 oC for 7 days and used as an inoculum. For the evaluation, three liquid media were used: MYPG, JP and Wheat Flour with and without 0.05 %w/v agar as a widely reported chlamydospores production inductor. Liquid fermentations were performed on Erlenmeyer flasks completely aerated at 25±0.5 oC and 200 rpm. At 7 and 14 days, chlamydospores concentration was computed. The results of this evaluation showed that no chlamydospores production was observed after 7 days of fermentation on any of the liquid media. Nevertheless, chlamydospores could be determined at 14 days for both fungi. For *A. musiformis*, the only liquid medium with a significance chlamydospores concentration was Wheat Flour with a value of 2.8x105 chlam/mL and a specific chlamydospores rate (SCR) of 0.10 d^{-1}. In the case of *D. flagrans*, the maximum chlamydospores concentration was $5.9x10^5$ chlam/mL in Wheat Flour medium supplemented with Agar and an SCR of 0.13 d^{-1}. In conclusion, *A. musiformis* and *D. flagrans* can produce chlamydospores on a liquid fermentation system, however, a big effort has to be done to design the adequate production media to increase the productivity of the process.

Biography

Master in Chemical Engineering with four years of experience in formulation and execution of research projects for the development of bioproducts and / or innovative bioprocesses with high added value to the market. Advanced knowledge in the design of bioprocesses and scaling of unit operations such as fermentation, separation and formulation.

crcastillo@corpoica.org.co

Notes: