Evaluating the Feasibility of the Direct L-Ascorbic Acid Synthesis Using a One-Stage Process and a Single Strain of *Pleurotus ostreatus*

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L-ascorbic acid (L-AA) also known as vitamin C is currently produced on a commercial scale by a complex and costly two-stage process which involves two chemical catalysis steps and two aerobic fermentation procedures. To simplify the industrial production of L-AA by a one-stage, single-strain process has been a major research goal for nearly three decades, but this has not yet been accomplished. In this study, the direct L-AA synthesis using a one-stage process and a *Pleurotus ostreatus* strain was evaluated on a laboratory scale. Inoculation of the strain for induction of mycelial growth was done on sucrose-asparagine (SA) and yeast malt extract (YM) media to determine the more suitable nutrient conditions. The vegetative cultures were grown in the dark at 25 ^{o}C for 10 days. Fungal mycelia were harvested from YM agar plates and the L-AA content was extracted with 5% metaphosphoric acid and analyzed using high performance liquid chromatography (HPLC). Our results show that invasive mycelial growth occurred only on YM medium. On a fresh weight (fw) basis, the *P. ostreatus* mycelia contain 97.17 mg/100 g of L-AA. Our findings indicate that the direct L-AA synthesis using a one-stage process and a single strain of *P. ostreatus* is feasible.

Biography

Jorge L. Betancurt is an undergraduate student at Universidad Nacional de Colombia Manizales Campus, Colombia, South America. I am expected to receive my Chemical Engineer degree in September 2020. I joined the Bioproducts Research Group of Susana Hernandez at the same University in February 2017 to work on the cultivation of *Pleurotus* mushrooms, and quantification of vitamin C and provitamin A in *Passiflora* species cultivated in Colombia using HPLC. The purpose of the Bioproducts Research Groups is to provide information that can be applied in biotechnology to simplify industrial processes and solve health and nutrition problems.

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