

ALTERNATIVE BIOSYNTHESIS OF THE ANTINEOPLASTIC SUBSTANCE

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The development of technological science improved the diagnosis and treatment of many diseases. At the same time, the Pharmaceutical Industry searches for novel active substances as well as better biotechnological process. In fact, one of five drugs that arrive in the market was obtained by Biotechnology. Several research groups studied asparaginase production using different media and microorganisms including *Escherichia coli*, *Erwinia*, *Aspergillum*, *Penicillium*, *Fusarium* and *Saccharomyces cerevisiae*. Herein, we addressed the possible use of an alternative microorganism and culture medium of low cost for asparaginase (L-asparagine amido hydrolase, E.C. 3.5.1.1) production. This drug is an antineoplastic agent used for lymphoblastic leukaemia chemotherapy. Thus, *Zymomonas mobilis* was used to leaven molasses (55.0g.L⁻¹) supplemented with asparagine (10.0g.L⁻¹) as inductive. The inoculum was 2g.L⁻¹, distributed in Erlenmeyers of 125mL containing 25mL of medium, which were kept at 28°C without movement. At 10 hours of fermentation, it was obtained the maximum enzymatic activity of 9 UI/L (asparaginase/g of biomass). The fermentation was satisfactory considering the consumption of 84% of the available carbon. Concluding, this study provides a novel and low cost biotechnological process for the production of the antineoplastic asparaginase by *Z. mobilis* leavening of molasses. Key words: antineoplastic, asparaginase, Biotechnology, *Zymomonas mobilis*.