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Filamentous fungi as L-asparaginase producers

Patients with Acute Lymphocytic Leukemia (ALL), Acute Myeloid Leukemia (AML), some types of Non-Hodgkin's Lymphoma (NHL) and breast carcinoma can be treated with L-asparaginase (L-asnase; EC 3.5.1.1), an enzyme of microbial origin that efficiently reduces the availability of L-asparagine to cancer cells, unable to synthesize the amino acid. The commercial production of L-asnase via bioprocesses involves the Gram-negative bacillus *Erwinia chrysanthemi* and other Enterobacteriaceae. However, bacterial enzymes can provoke hypersensitivity reactions. Also, their L-glutaminase-like activity can drive to neuronal disorders. These unfavorable characteristics have led to the prospection of new L-asnases in eukaryotic microorganisms and an international effort has been made to seek such enzymes, especially in filamentous fungi from different sources. This presentation reviews the potential of many L-asnase-producing fungi for the obtaining of an effective and low-cost medicament for the above-mentioned cancers.

Biography

Professor Edvaldo Antonio Ribeiro Rosa is bpharm (Methodist University of Piracicaba, Brazil), msc and phd (State University of Campinas, Brazil). He is chair professor of Microbiology at the Pontifical Catholic University of Paraná (Brazil) and was invited professor at the University of Hong Kong (Hong Kong, 2007) and at the Newcastle University (United Kingdom, 2017). His research interests are focused on Microbial Biotechnology and Bioprocesses. The main descriptors of his research team are "microbial biotransformation", "microbial secondary metabolites", and "bioreactor development".

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