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Título	Anticancer Asparaginases: Perspectives in Using Filamentous Fungi as Cell Factories
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Resumo	The enzyme L-asparaginase (L-asparagine amidohydrolase) catalyzes the breakdown of L-asparagine into aspartate and ammonia, which leads to an anti-neoplastic activity stemming from its capacity to deplete L-asparagine concentrations in the bloodstream, and it is therefore used in cases of acute lymphoblastic leukemia (ALL) to inhibit malignant cell growth. Nowadays, this anti-cancer enzyme, largely produced by Escherichia coli, is well established on the market. However, E. coli L-asparaginase therapy has side effects such as anaphylaxis, coagulation abnormality, low plasma half-life, hepatotoxicity, pancreatitis, protease action, hyperglycemia, and cerebral dysfunction. This review provides a perspective on the use of filamentous fungi as alternative cell factories for Lasparaginase production. Filamentous fungi, such as various Aspergillus species, have superior protein secretion capacity compared to yeast and bacteria and studies show their potential for the future production of proteins with humanized N-linked glycans. This article explores the past and present applications of this important enzyme and discusses the prospects for using filamentous fungi to produce safe eukaryotic asparaginases with high production yields
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