Diverse origins of microbial L-asparaginases and their current miscellaneous applications

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Abstract

L-asparaginase, also known as amidohydrolase, catalyzes the breakdown of asparagine into aspartic acid and ammonia. Due to its ability to inhibit the biosynthesis of protein lymphoblasts, it is used to treat acute lymphoblastic leukemia (ALL). It also has other applications in the food industry by preventing the formation of acrylamide. Different organisms including bacteria, fungi, actinomycetes, and plants produce L-asparaginase. This review highlights different applications of L-asparaginase in the industrial fields, the major sources of L-asparaginase, its immunological reactions and production techniques through the solid state (SSF) and submerged (SmF) fermentation as well as optimization of the production process.

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