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L-asparaginase derived from *Aspergillus niger*

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Asparaginase catalyzes the hydrolysis of the amide group of the side chain of asparagine to produce aspartic acid and ammonium. In the food industry, L-asparaginase from fungal sources is widely used for acrylamide reduction in fried, starchy foods. Acrylamide is a probable carcinogen that is produced when starchy food such as potatoes, root vegetables, and bread are cooked at high temperatures. It is a natural compound that gets generated during cooking temperatures above 120°C and a reaction of amino acid, specifically L-asparagine, and reducing sugars. The thermal process improves the texture and the taste of food, but it may result in an unwanted effect. The research supports a claim that it causes cancer in mice by interacting with the DNA, which makes it a probable cause of cancer in humans. As the removal of acrylamide in food products is impractical, reduction strategies have focused on limiting the formation of acrylamide. The way to reduce this intake is by adapting the cooking and storing of food, as well as applying an enzyme treatment during production such as L-asparaginase. Decreasing the amount of asparagine, impulsively the acrylamide aggregate is reduced. Aside from the benefits, this enzyme may conduct in the food industry, it finds applications in medicine in acute lymphoblastic leukemia treatment. Production of L-asparaginase is procured through several microorganisms, including *Aspergillus niger*. L-asparaginase has attracted significant attention in several investigations and in recent years fungi have occupied advanced rank among enzymes produced through microorganisms. Several pieces of research support the advantages of fungal enzyme and its application in the food industry, as well as in medications. Further research is required, mainly in the methodology of the experimental design during the fermentation process to maximize the production process, stability, and quality of the enzyme which is going to be applied in the production process.