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TAL 797 – Seminário

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**ENZYME-INCORPORATED ANTIMICROBIAL PACKAGING**

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The microbiological quality of food products can be preserve and ensured through active packaging manufacture with antimicrobial properties. These antimicrobial-enhanced packaging films can ensure the safety of food surfaces through the controlled release of antimicrobial substances from the film structure onto the food surface as an alternative to reducing the amount of additives. Besides, for chemical substance replacement, the inclusion of natural antimicrobial substances into packaging films is preferable. One option is the use of enzymes, which are proteins with the specific function of accelerating chemical reactions in cells, widely used in Molecular Biology and Biomedicine in the development of analytical methodologies, the production of technological products, and waste treatment. Often used as a catalyst due to being highly active and versatile, they have the ability to carry out a variety of transformations selectively and rapidly under mild reaction conditions, without requiring high temperatures and extreme pH values. Generally, industrial processes employing enzymes are relatively simple, easy to control, energy-efficient. Moreover, with the emergence of new enzymes and techniques, industrial production costs are expected to decrease, allowing for the continuous expansion of their application. In this context, enzymes have been applied as antibacterial agents through various mechanisms, such as metabolic inhibition, damage to the cell wall, cell disintegration and so forth. Antimicrobial enzymes like lysozyme, lactoperoxidase, chitinase, and glucose oxidase can serve as biopreservative agents and be incorporated into packaging films, contributing to increased shelf life, quality, and safety of food products.

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