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Sommario/riassunto

This book highlights the production of xylanase from different microorganisms and their application in various bioprocesses. Its application spans industries such as biofuel production, animal feed, and food processing, where it enhances digestion, releases fermentable sugars, and improves the texture of baked goods. Fungal species, particularly *Aspergillus* and *Trichoderma*, and bacterial strains like *Bacillus* and *Streptomyces* are commonly used for xylanase production due to their ability to secrete large quantities of the enzyme. Recent biotechnological advancements, including genetic engineering, have increased enzyme efficiency and broadened its commercial use. The future of microbial xylanase research focuses on improving enzyme stability under extreme industrial conditions, such as high temperature and alkaline pH. Innovations are also geared toward lowering production costs and improving yields through optimization of fermentation processes and strain improvement. Furthermore, the use of xylanase in environmentally friendly processes is growing, especially in paper and pulp bleaching, where it offers a green alternative to harsh chemicals. The ongoing trend in sustainable industrial applications and the potential for novel uses in biorefineries and bioenergy production signal a promising future for xylanase development.