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TOPIC(s) : Enzyme discovery and engineering

Microorganisms as sources of bio-based functionalization of Polyethylene Glycol (PEG)

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PURPOSE OF THE ABSTRACT

Synthetic polymers such as polyethylene glycol (PEG) are fundamental components of many functional materials. Their uses extend to drug delivery, pharmaceuticals, personal care, research, textiles and other fields. These polymers harbor potential for further improvement and novelty. Novel functionalities and applications of PEG can be achieved through the introduction of functional groups into its structural backbone. However, attempts at chemical synthesis strategies targeting internal functionalization of PEG have failed drastically. Microorganisms, such as bacteria and fungi, hold great potential for the biodegradability and modification of such polymers. Therefore, we propose a bio-based functionalization approach using enzymes from microbial sources as biocatalysts. This could lead the way towards internal functionalization of PEG. Additionally, the biodegradability and environmental sustainability of such polymer could be improved as a by-product of the project.

FIGURES

FIGURE 1

FIGURE 2

KEYWORDS

BIBLIOGRAPHY