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Assembly of Nitroreductase and Layered Double Hydroxides toward Functional Biohybrid Materials

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KEYWORDS: enzyme immobilization, layered double hydroxides, nitroreductase, biohybrid materials, biomolecules, mesotrione

ABSTRACT

The development of new multifunctional materials integrating catalytically active and selective biomolecules, such as enzymes, as well as easily removable and robust inorganic supports that allow their use and reuse, is a subject of ongoing attention. In this work, the nitroreductase NfrA2/YncD (NR) from *Bacillus megaterium* Mes11 strain was successfully immobilized by adsorption and coprecipitation on layered double hydroxide (LDH) materials with different compositions (MgAl-LDH and ZnAl-LDH), particle sizes and morphologies, and using different enzyme/LDH mass ratios (Q). The materials were characterized and the immobilization and

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