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Title:	Harnessing the Photocatalytic Potential of Polypyrroles in Water through Nanointervention: Synthesis and Photophysical Evaluation of Biodegradable Polypyrrolic Nanoencapsulates
Authors:	Nikhilshwar Reddy, Y. (/jspui/browse?type=author&value=Nikhilshwar+Reddy%2C+Y.)
Keywords:	Porphyrin BODIPY Nanoencapsulates Photochemistry
Issue Date:	2020
Publisher:	Wiley-VCH Verlag GmbH & Co. KGaA, Weinheim
Citation:	ChemNanoMat 6(2), pp. 239-247
Abstract:	Polypyrroles, being natural mimics, have promising photophysical properties which facilitate light harvesting. Due to the lack of solubility in aqueous media, their practical applications are restricted. Hence, the development of biodegradable polymeric nanoencapsulates can be of considerable interest to leverage the photophysical properties of polypyrroles. Herein, we report the high-yielding synthesis of polypyrroles (BODIPYs and porphyrins) which were further encapsulated into PLGA polymer to impart hydrophilicity into them. The polypyrroles and their nanoencapsulates were further examined for photophysical properties (namely, fluorescence quantum yield, singlet oxygen quantum yield, and fluorescence lifetime measurements). Then the photocatalytic dye degradation potential of the synthesized entities in the presence of low-cost LED lights was evaluated and correlated with their photophysical characteristics. This photocatalytic phenomenon exhibited by the polypyrrolic nanoencapsulates can be further translated for various light harvesting applications.
Description:	Only IISERM authors are available in the record.
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