Accepted Manuscript

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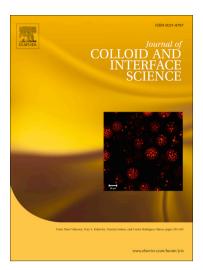
PII: S0021-9797(17)31436-4

DOI: https://doi.org/10.1016/j.jcis.2017.12.046

Reference: YJCIS 23118

To appear in: Journal of Colloid and Interface Science

Received Date: 24 October 2017 Revised Date: 29 November 2017 Accepted Date: 17 December 2017



Please cite this article as: B. Vellaichamy, P. Periakaruppan, R. Arumugam, K. Sellamuthu, B. Nagulan, A novel photocatalytically active mesoporous metal-free PPy grafted MWCNT nanocomposite, *Journal of Colloid and Interface Science* (2017), doi: https://doi.org/10.1016/j.jcis.2017.12.046

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ACCEPTED MANUSCRIPT

A novel photocatalytically active mesoporous metal-free PPy grafted MWCNT nanocomposite

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Abstract

A new mesoporous metal-free functionalized multi-walled carbon nanotube (f-MWCNT) covalently grafted polypyrrole (PPy) nanocomposite has been synthesized via chemical oxidative polymerization method keeping different weight ratio of f-MWCNT (1-4). Various instrumentation techniques such as UV-DRS, FT-IR, XRD, Raman, TGA, BET and TEM were used to characterize the as-prepared nanocomposite. The successfully constructed photocatalytically active mesoporous metal-free PPy grafted MWCNT nanocomposite was employed for the decontamination of nitrobenzene (NB). Among all the catalysts, f-MWCNT-PPy (3) is found to be efficient due to a large specific surface area and high pore volume by which 99.9% reduction has been achieved within 60 min. The obtained mesoporous, covalently grafted and synergistic f-MWCNT-PPy can be used as an efficient and recyclable photocatalyst

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