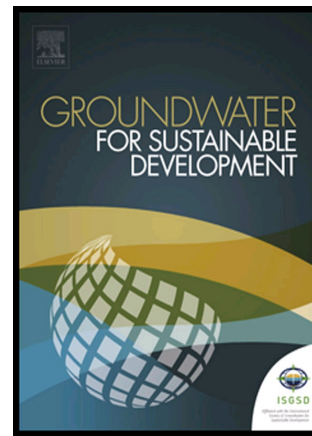


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C.N. Nupearachchi, Kushani Mahatantila, M. Vithanage



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Application of Graphene for Decontamination of Water; Implications for Sorptive Removal

C.N. Nupearachchi^a, Kushani Mahatantila^b, M. Vithanage^{c,d,e*}

^a*Department of Physics, The Open University of Sri Lanka, Nawala, Nugegoda, Sri Lanka*

^b*Industrial Technology Institute, Bauddhaloka Mawatha, Colombo 7, Sri Lanka*

^c*Environmental Chemodynamics Project, Institute of Fundamental Studies, Kandy, Sri Lanka,*

^d*Office of the Dean, Faculty of Applied Sciences, University of Sri Jayewardenepura, Nugegoda 10250, Sri Lanka*

^e*School of Civil Engineering and Surveying and the International Centre for Applied Climate Science, University of Southern Queensland (USQ), West Street, Toowoomba, Queensland 4350, Australia*

meththikavithanage@gmail.com

meththika@sjp.ac.lk

*Corresponding Author. Meththika Vithanage, Tele: +94 812 232 002, Fax: +94 812 232 131

Abstract

Graphene has shown to be a promising material for many different fields due to its unique structure with exceptional physicochemical characteristics and capacities. It has been widely used for water treatment as an adsorbent for heavy metal/loids and organic contaminants. Many studies have focused their attention on producing different graphene based nano materials such as graphene/metal nano particle composites, modified graphene, graphene-complex oxide composites and graphene/semiconductor hybrids along with improved performance and inherent qualities of graphene for contaminant removal in water. Its outstanding ability for excellent immobilization of various contaminants such as organic dyes; methylene blue (MB), methyl orange (MO), rhodamine, inorganic pollutants such as chromium, arsenic, uranium, mercury, fluoride, antimony, zinc, lead and copper are due to the high surface area and functional groups of graphene. Simultaneous removal of organic and inorganic contaminants with desorption

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