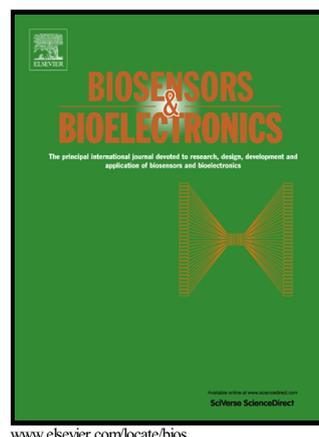


Author's Accepted Manuscript

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PII: S0956-5663(15)00218-3
DOI: <http://dx.doi.org/10.1016/j.bios.2015.03.066>
Reference: BIOS7558

To appear in: *Biosensors and Bioelectronic*

Received date: 10 February 2015
Revised date: 24 March 2015
Accepted date: 25 March 2015

Cite this article as: Pawan Kumar, Ki-Hyun Kim and Akash Deep, Recent advancements in sensing techniques based on functional materials for organophosphate pesticides, *Biosensors and Bioelectronic*, <http://dx.doi.org/10.1016/j.bios.2015.03.066>

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Recent advancements in sensing techniques based on functional materials for organophosphate pesticides

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Abstract

The use of organophosphate pesticides (OPs) for pest control in agriculture has caused serious environmental problems throughout the world. OPs are highly toxic with the potential to cause neurological disorders in humans. As the application of OPs has greatly increased in various agriculture activities, it has become imperative to accurately monitor their concentration levels for the protection of ecological systems and food supplies. Although there are many conventional methods available for the detection of OPs, the development of portable sensors is necessary to facilitate routine analysis with a much more convenient method. Some of these potent alternative techniques based on functional materials include fluorescence nanomaterials based sensors, molecular imprinted (MIP) sensors, electrochemical sensors, and biosensors. This review explores the basic features of these sensing approaches through evaluation of their performance. The discussion is further extended to describe the challenges and opportunities for these unique sensing techniques.

Keywords: *Organophosphate, Pesticides, Health Issues, Sensing, Monitoring Techniques.*

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