

Abstract Submitted  
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**Detection of Nitro aromatics via fluorescence quenching of pegylated and siloxanated 4, 8-dimethylcoumarins<sup>1</sup>** ABHISHEK KUMAR, MUKESH PANDEY, JAYANT KUMAR, University of Massachusetts Lowell — There is considerable interest in developing chemical sensors for detection of trace explosives. Optical sensors, which rely on the change in optical properties of the material, proved to be very effective. Therefore, there is a need to develop materials for optical sensors which can interact specifically with analytes and detect them sensitively. Here, we report the synthesis of co-polymers of 4, 8-dimethylcoumarins with poly (ethylene glycol) (PEG) and polydimethylsiloxane (PDMS) using *Candida Antarctica lipase* as a catalyst under solvent-less condition. The low  $T_g$  of PEG and PDMS may facilitate porous structure in solid films which allows quencher molecules to easily diffuse in and out of these films. In addition, the co-polymers prevent aggregation and lend themselves easily for thin film fabrication which otherwise is difficult because of low molecular weight of coumarin. Fluorescence quenching of these co-polymer in presence of nitro aromatics, 2,4-dinitrotoulne and 2,4,6-trinitrotoluene, in solution and in vapor phase will be reported.

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