

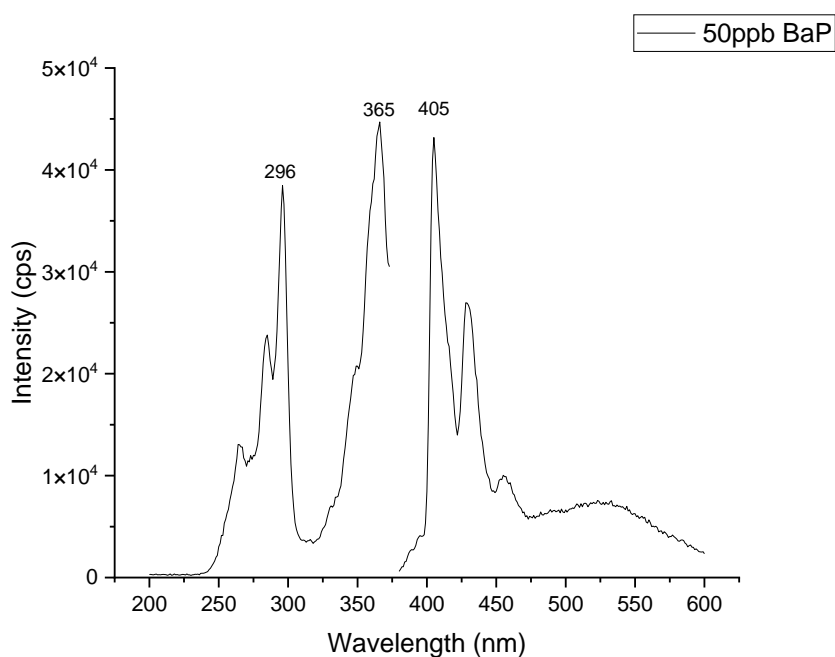
# Investigation of the Effects of Dioctyl Sulfosuccinate on the Photodegradation of Benzo[a]Pyrene in Aqueous Solutions Under Various Wavelength Regimes

Anthony M. Santana <sup>1</sup>, Sadia Arif <sup>1</sup>, Kristina Evteyeva <sup>1</sup>, Fernando Barbosa Jr. <sup>2</sup>, and Andres D. Campiglia <sup>1,\*</sup>

<sup>1</sup> Department of Chemistry, University of Central Florida, 4111 Libra Dr., Orlando, FL 32816-2366, USA; antmsantana@knights.ucf.edu (A.M.S.); sadia.arif@knights.ucf.edu (S.A.); kevteyeva@knights.ucf.edu (K.E.)

<sup>2</sup> ASTox Lab—Analytical and System Toxicology Laboratory, Department of Clinical Analyses, Toxicology and Food Sciences, School of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo, Avenida do Café s/n, Ribeirão Preto, SP 14040-903, Brazil; fbarbosa@fcfrp.usp.br

\* Correspondence: andres.campiglia@ucf.edu; Tel.: +1-407-823-4162

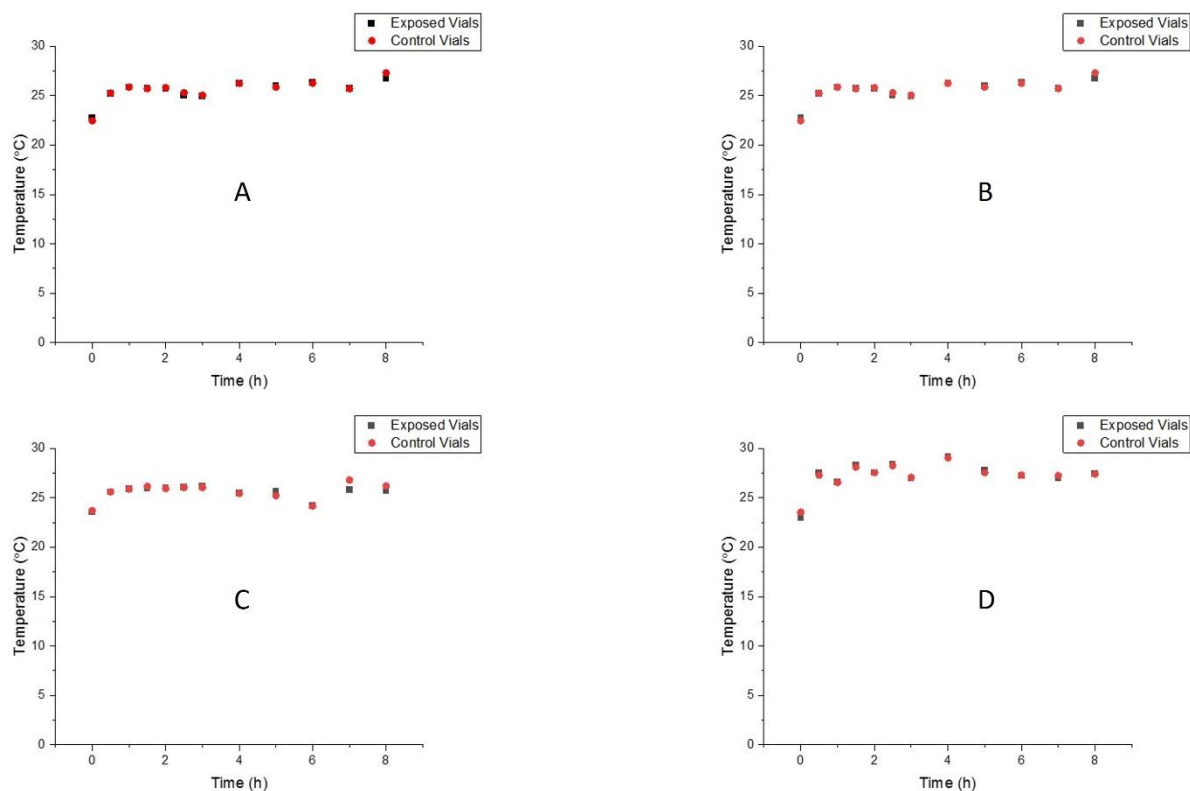


**Figure S1.** Excitation and Fluorescence Spectra of BaP in 99.5/0.5 Water/Methanol. PAH concentration was 50 ng·mL<sup>-1</sup>.

**Table S1.** Analytical Figures of Merit for BaP.

Compound	$\lambda_{ex}/\lambda_{em}$ (nm)	LOD <sup>a</sup> (ppb)	LOQ <sup>b</sup> (ppb)	LDR <sup>c</sup> (ppb)	RSD (%)
BaP	365/405	1.0	3.3	3.3-144	5.7

<sup>a</sup> Limit of detection was determined by the formula  $(3\sigma)/B$ , where  $\sigma$  is the standard deviation of the blank and B is the slope from the regression line. <sup>b</sup> Limit of quantitation was determined by the formula  $(10\sigma)/B$ . <sup>c</sup> Linear dynamic range was determined as the LOQ to the highest measured concentration. The maximum linear concentration was not determined for these experiments.

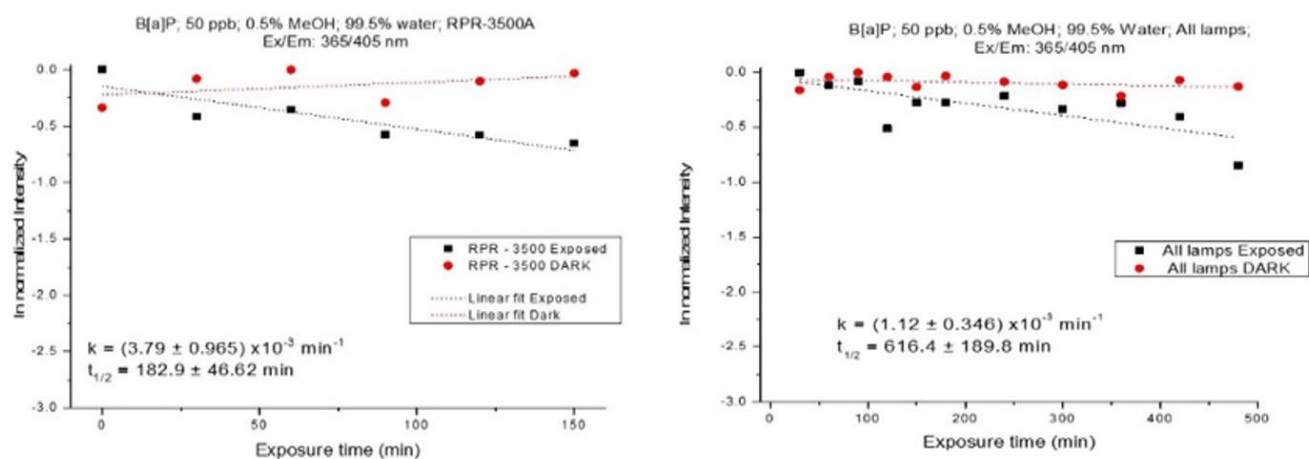


**Figure S2.** Sample temperature upon irradiation in photochemical reactor using the following: (A) 350 nm lamp; (B) 419 nm lamp; (C) 575 nm lamp; and (D) the three lamps simultaneously (350 nm + 419 nm + 575 nm).

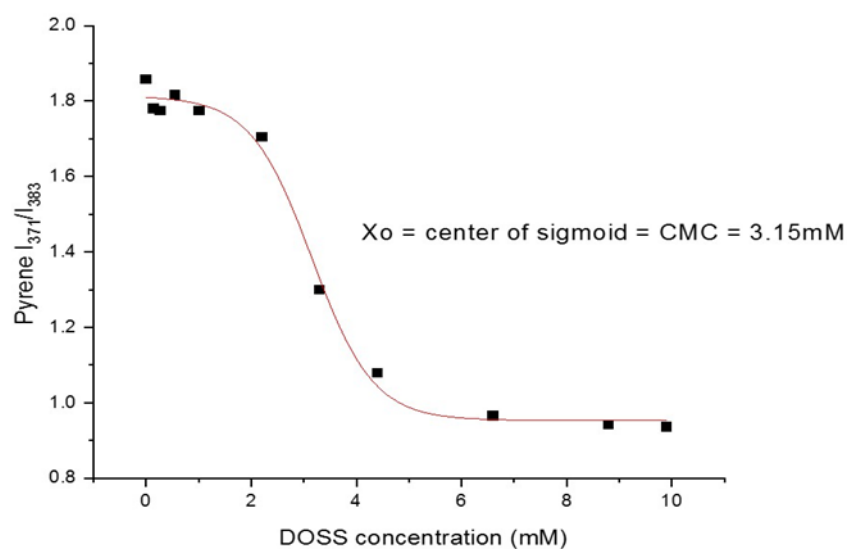
**Table S2.** Average Temperature <sup>a</sup> of BaP Solutions Under Irradiation in the Photochemical Reactor.

Lamp (nm)	Average Temperature Exposed Vials (°C)	Average Temperature Control Vials (°C)
350	25.5 ± 1.0	25.6 ± 1.1
419	25.7 ± 1.0	25.6 ± 0.9
575	25.5 ± 0.8	25.6 ± 0.8
All Lamps	27.2 ± 1.4	27.2 ± 1.3

<sup>a</sup> Averages are based on 12 measurements taken from each sample vial, with two vials for each vial type (exposed and control). Temperature was measured from each sample vial at 30-minute intervals from 0-3 hours of irradiation and 60-minute intervals for 4-8 hours of irradiation.



**Figure S3.** First order kinetics graphs for the irradiation of 50 ng.mL<sup>-1</sup> BaP in methanol/water (0.5/99.5; v/v) with the 350 nm lamp and with the three lamps; i.e., 350 nm, 419 nm and 575 nm.



**Figure S4.** Determination of the CMC of DOSS in methanol:water (0.5/99.5 v/v).