

2nd International Conference on

Past and Present Research Systems of Green Chemistry

September 14-16, 2015 Orlando, USA

Comparing the effect of ecofriendly adsorbents and bioturbators on the concentration pyrene

Febbe Louka¹, Sommer Y Osman¹, Paul Morandi² and Paul Klerks³

¹University of Louisiana at Lafayette, USA

²Université de Poitiers, France

In the present study we intended to investigate and compare two methods that can be applied in case of oil spills. The waste produced in Louisiana such as sugarcane "*Sacharum officinarum*" bagasse and crawfish "*Austropotamobius pallipes*" shells were used as low cost ecofriendly adsorbents. These adsorbents were used to examine the removal of pyrene one of the most abundant polycyclic aromatic hydrocarbons (PAHs). Pyrene is the precursor of benzo(a)pyrene the most common PAH to cause cancer. Sediment and water dosed with a known concentration of pyrene were used in this study. Microcosms containing beach sediment, seawater and bioturbators (the ghost shrimp "*Lepidophthalmus louisianensis*" or the razor clams "*Tagelus plebeius*") and dosed with pyrene were used for this study. Water, and sediment (surface and subsurface) samples were analyzed to determine the concentration of pyrene in them. The influence of bioturbators on biodegradation and distribution the petroleum hydrocarbon under investigation in sediments of coastal ecosystems was tested in day 1 and day 15 from dosing day. Sediment bioturbators often function as ecosystem engineers, moving large amounts of sediment and changing sediment characteristics. During the biological transport of sediment, pyrene in the sediment will move as well. Pyrene in water samples was extracted using liquid-liquid extraction. Microwave Extraction was used for sediment samples. PAH under investigation extracted using both treatments were analyzed using gas chromatography with flame ionization detector (GC-FID). Preliminary results indicated that the concentration of pyrene decreased significantly using the sugarcane bagasse within hours, whereas it took days for crawfish shells to absorb pyrene. On the other hand, in presence of both the bioturbators especially ghost shrimp the concentration pyrene decreased compared to the controls that are under the same condition in absence of the marine animals.

Biography

Febbe Louka has completed her PhD in 2004, from Ohio University in Medicinal Analytical Chemistry. She is Associate professor in Analytical/Environmental Chemistry, at the University of Louisiana at Lafayette (ULL). She is a CoPI in million dollars grant on effect of oil spills. She was awarded the Outstanding Undergraduate Research Mentoring in 2014. She is also the awardee of Marvin and Warren Boudreaux / BoRSF Professorship in Chemistry at ULL (2012-2018). She was awarded the Summer Research Award Summer 2012. She has published more than 27 papers in peer reviewed journals and over 25 presentations in National and International meetings

fr16631@louisiana.edu

Notes: