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Investigating the efficiency of economical adsorbents in removal of polycyclic cyclic aromatic hydrocarbonsFebbe R Louka¹, Sommer Y Osman¹, Amalia Shaik¹ and Theo Carme²¹University of Louisiana at Lafayette, USA²Université de Poitiers, USA

In this study we were investigating the effect of ecofriendly adsorbents in case of polycyclic cyclic aromatic hydrocarbons (PAHs) contaminated areas. Some of these PAHs can cause oxidative DNA damage. The waste produced in Louisiana such as sugarcane (*Saccharum officinarum*) bagasse, crawfish (*Procambarus clarkii*) and satsuma (*Citrus unshiu*) shells were used as low cost ecofriendly adsorbents. These adsorbents were examined in the removal of the PAHs which are the main components of oil spills. Each water sample was doused with a known concentration of the PAH under investigation. In this study the PAHs that were tested are pyrene, chrysene and benzo(a)pyrene. Several variables were tested, such as using different amounts of each ecofriendly material on the adsorption of the PAH. A known amount of the adsorbent was added to the dosed water followed by shaking. The analysis of water samples were performed using liquid-liquid extraction and comparing the quantified concentration of PAH to that of a blank which contained no adsorbent. The sample was then concentrated under nitrogen, followed by injection into gas chromatography-FID. The intervals of shaking, temperature and particle size effect on the efficiency of extraction were also examined. The results indicated that adsorbents had significant efficiency to minimize the concentrations of pyrene, chrysene and benzo(a)pyrene in the water samples. The results also showed that the amount of adsorbent as well as the time of incubation had a great effect on the adsorption efficiency. The data obtained showed different extents of adsorptions for the individual PAHs under investigation.

Biography

Febbe R Louka has completed her PhD in 2004 from Ohio University in Analytical Chemistry. She is an Associate Professor in Analytical/Environmental Chemistry, University of Louisiana at Lafayette. She was awarded the Summer Research Award 2012 and the Outstanding Undergraduate Research Mentoring 2014. She was also awarded with Marvin and Warren Boudreaux/BoRSF Professorship in Chemistry (2012-18). She has published more than 59 papers and presentations in peer reviewed journals.

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