The Effects of Pollutants on a Model Lung Surfactant System

Opakunle, Omobolaji

The purpose of this experiment was to determine how contaminants such as soot, affect Lung surfactant. This experiment was conducted using model lipid lung surfactants; 1,2-dipalmitoyl-sn-glycero-3-phosphocholine (DPPC) and 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphoglycerol (POPG), and a model pollutant: fullerenes. I hypothesized that if fullerenes were added to the system, it would lead to a loss of lung surfactant. The procedure began by cleaning the Langmuir trough with chloroform and acetone. Then I would align the trough so that the barriers of the trough could move freely. The trough was then calibrated at twenty five degree celsius. After calibration the solution of lipids was spread onto the subphase. I turned on the camera, microscope, and the isotherm software. After about 15 minutes of letting the solution settle, I began to run the trial. Based on the experiments conducted, I was able to conclude that fullerenes cause a loss of lung surfactants in the model lung surfactant system.

Awards Won: