Phytoremediation through Mineralization of Epipremnum aureum in the Reduction of Benzene and Other Volatile Organic Compounds (VOCs) in Residential Dwellings

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Benzene is a volatile organic compound and a recognized carcinogen linked to leukemia. The Environmental Protection Agency released a statement that claimed exposure to benzene levels above 0.4 ppb over a lifetime could increase one's risk of developing leukemia. The purpose of the study was to determine if placing Epipremnum aureum, an air purifier, in residential dwellings would reduce the levels of benzene below 0.4 ppb and the overall levels of other volatile organic compounds (VOCs). This would be a practical and green method to creating a healthier environment that could potentially decrease the rates of leukemia incidences. The twenty-six day study was conducted through the use of a photoionization detector. On day 1, initial readings were performed at every home, inside and outside. This process was repeated twice a week for four weeks. Halfway through the study, the plants were taken out in order to determine the effects of the absence of E. aureum on the benzene and VOC levels. On day 22, the plants were placed back in the homes, and on day 26, the final data was collected. Through a correlation coefficient test, the data revealed that the E. aureum and the levels of benzene and other VOCs shared a weak to moderate relationship, and was statistically insignificant due to the small sample size. The null hypothesis was accepted as the placement of E. aureum in residential dwellings had no effect on the levels of benzene or other VOCs. Further research is necessary.

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