METU Environmental Engineering
Departmental Seminar Spring 2023

Investigation of the interaction of organics with pristine and aged polyethylene: The Case for Trichlorophenol, and Tetrachloroethane

Microplastics are plastics having a size less than 5 mm in diameter, and they are widely found in every environmental compartment. Microplastics can serve as a carrier for various compounds, including inorganic and organic pollutants. There is limited information on the interaction of microplastics with halogenated aliphatic and aromatic organics. To understand this interaction, 1,1,2,2- tetrachloroethane (PCA) and Trichlorophenol are selected. The purpose of the research is to better understand the sorption behavior of selected organics on pristine and aged microplastics under various environmental conditions. One of the most abundant types of plastic, i.e., polyethylene (PE) will be used in this study. UV aging of microplastics is performed under laboratory conditions. Investigation of sorption include kinetic and isotherm studies, effect of microplastic size as well as water chemistry. Sorption mechanisms will then be evaluated based on differing physicochemical properties of the chemicals as well as their changing interaction with pristine and UV-aged microplastics.

By Gökçe Çiftçi

Advisor: Prof. Dr. İpek İmamoğlu

Date:19.04.2023 & Time: 15:40

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