19th Global Chemistry, Chromatography & Spectrometry Conference

March 20-21, 2019 | New York, USA

SCIENTIFIC TRACKS | **DAY 1** *CHEMICAL SCIENCES JOURNAL 2019, VOLUME 10 | DOI: 10.4172/2150-3494-C1-032*

Assessment of phthalate esters in leachate and groundwater of solid-waste dumpsites in Ijebu-ode and Abeokuta, Nigeria

T Adeniyi Afolabi
Federal University of Agriculture, Nigeria

Solid-waste dumpsite is a major source of phthalate esters (PEs) contamination, polluting surrounding groundwater, and a threat to human health. This study investigated the presence of PEs in leachates and groundwater from Abeokuta and Ijebu-Ode solid-waste dumpsites and assessed its effect on human health. The PEs was extracted from the samples, cleaned and eluted. The eluates were analyzed with GC–FID to determine the concentrations of dimethyl phthalate (DMP), diethyl phthalate (DEP), diisobutyl phthalate (DIBP), butyl benzyl phthalate (BBP), dicyclohexy lphthalate (DCHP) and di(-2-ethyl)hexyl phthalate (DEHP) in the leachate and groundwater samples. The lowest and highest PEs concentration in the leachates was 6% DEHP and 30% BBP in the Ijebu-Ode dumpsite, while Abeokuta dumpsite contains 7% DEHP and 29% DMP respectively. The mean concentrations of PEs at Ijebu-Ode and Abeokuta groundwater ranged from 0.31 ± to 17.00 ± 3.00 and 0.36 ± 0.20 to 31.10 ± 5.10mgL-1 and respectively; BBP and DMP account for >70% of the total PEs concentration. The percentage distribution of the PEs showed that BBP, DIBP, and DMP were the major pollutants at the dumpsites. The hazard quotient for the children and adults at the dumpsites increased in the order; DEHP > BBP > DIBP > DEP > DMP. The cancer risk (CR) values ranged from 3.94x10-7 to 9.35x10-7 and 1.08x10-6 to 9.9x10-7 in the leachate and groundwater respectively. The 1.24x10-5 CR value for DMP in the groundwater at Abeokuta dumpsite was higher than 1.0x10-5 recommended limit.

Biography

Adeniyi Afolabi obtained his Ph.D. degree in Industrial Chemistry from the University of Ibadan, Nigeria in 2009. He is a Senior Lecturer in the Department of Chemistry at the Federal University of Agriculture, Abeokuta, Nigeria. Apart from teaching and research, he has honed his leadership and administrative skills as a result of serving in different committees and Board in the University. He is the Deputy Director, Directorate of Research, Innovation, and Partnership at the Federal University of Agriculture, Abeokuta, Nigeria. The Directorate oversees the management of local and international grants in the University. He is a beneficiary of international and local grants and fellowship with over 25 publications in reputable journals.

afolabita@funaab.edu.ng