

Evaluation of Phthalates Contents and Their Health Effects in Consumed Sachet Water Brands in Delta State, Nigeria

Authors : Edjere Oghenekohwiroro, Asibor Irabor Godwin, Uwem Bassey

Abstract : This paper determines the presence and levels of phthalates in sachet and borehole water source in some parts of Delta State, Nigeria. Sachet and borehole water samples were collected from seven different water packaging facilities and level of phthalates determined using GC-MS instrumentation. Phthalates concentration in borehole samples varied from 0.00-0.01 (DMP), 0.06-0.20 (DEP), 0.10-0.98 (DBP), 0.21-0.36 (BEHP), 0.01-0.03 (DnOP) $\mu\text{g/L}$ and (BBP) was not detectable; while sachet water varied from 0.03-0.95 (DMP), 0.16-12.45 (DEP), 0.57-3.38 (DBP), 0.00-0.03 (BBP), 0.08-0.31 (BEHP) and 0-0.03 (DnOP) $\mu\text{g/L}$. Phthalates concentration in the sachet water was higher than that of the corresponding boreholes sources and also showed significant difference ($p < 0.05$) between the two. Sources of these phthalate esters were the interaction between water molecules and plastic storage facilities. Although concentration of all phthalate esters analyzed were lower than the threshold limit value(TLV), over time storage of water samples in this medium can lead to substantial increase with negative effects on individuals consuming them.

Keywords : phthalate esters, borehole, sachet water, sample extraction, gas chromatography, GC-MS

Conference Title : ICWMEE 2016 : International Conference on Waste Management and Environmental Engineering

Conference Location : London, United Kingdom

Conference Dates : February 25-26, 2016