

The presence of low, medium and high molecular weight PAHs in water and sediment samples obtained from both sites were detected. Total concentration of PAHs in surface water samples obtained from Sebastian canal during rainy season (April 2015), dry season (July 2015) and rainy season (June 2016) were 0.11-1.71 µg/L, 2.36-14.68 µg/L and 6.88 µg/L - 10.05 µg/L, respectively. Furthermore, PAH content in water samples obtained from Hamilton canal during rainy season (April 2015), dry season (July 2015) and rainy season (April 2016) were 0.16-2.74 µg/L, 11.06- 54.89 µg/L and 5.35 - 7.79 µg/L, respectively. Well water samples obtained from Kelanitissa (W1) and Kerawalapitiya (W3) showed the presence of high amounts of BaP (0.025 µg/L) and BkF (0.339 µg/L) respectively which are higher than the guideline values for BaP (0.01 µg/L) and BkF (0.1 µg/L) according to European Unions' drinking water standards.

The total PAH amount in surface water in both sites were higher in dry season than that of in rainy season. This may due to accumulation of PAHs over the time in water bodies around diesel fueled power stations during dry seasons due to lack of water flow. By investigating more dry and rainy seasons, an accumulation trend can be identified to address the seasonal variation of PAHS in water bodies.

Keywords: PAH, Kelanitissa, Kerawalapitiya, Seasonal variation, Sediment, Organic pollutant

INTRODUCTION

Polycyclic aromatic hydrocarbons (PAHs) are a diverse and ubiquitous class of chemical contaminants present in the environment. These PAHs are emitted as a result of carbonization and incomplete combustion of organic matter. Incomplete combustion of fossil fuels for industrial plants, heating and diesel powered motor vehicles, combustion sources inside house and workplaces are some sources of PAHs to the environment (Masih, 2012). These PAHs are also identified as semi-volatile organic compounds (SOCs) (Sehili and Lammel, 2007) and class of persistent organic pollutants (POPs) due to their increased resistance to oxidation and degradation with high molecular weights (Abdel-Shafy and Mansour, 2015). An increased attention has been given on PAHs since some of them are known to be mutagenic or carcinogenic (Ross and Nesnow 1999; Salamone *et al.*, 1979).