

## **Olycyclic aromatic hydrocarbons in water bodies and sediment around kerawalapitiya and kelanitissa power plants of sri lanka - preliminary study**

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Polycyclic aromatic hydrocarbons (PAHs) are a group of organic compounds composed of two or more aromatic benzene rings. PAHs are produced due to incomplete combustion of fossil fuels; such as coal, oil and due to pyrolytic processes; such as forest fires and volcanic activities. There are hundreds of PAHs in the environment, among them; sixteen PAHs have been classified as priority pollutants by the United States Environmental Protection Agency.

Due to the harmful effect of PAHs towards living beings, studies have been conducted around water bodies in different parts of the world. This study aims to determine the type and concentration of PAHs in water bodies and sediment near two power plants of Sri Lanka. Kerawalapitiya Power Station (KW) and AES Kelanitissa Power Station (KL) are diesel fuel fired combined cycle power stations, which might have an influence on accumulation of PAHs in water and sediment around these power stations.

During the dry season of the year surface water samples were collected from Hamilton Cannel (KW) and Sebasthian Cannel (KL), extracted using dichloromethane and analyzed using HPLC. PAHs from sediment samples were extracted using ultra sonicator and analyzed using HPLC. As the reference site, water and sediment samples were collected from a freshwater spring in Bandarawela. The study shows the presence of low molecular weight PAHs in water samples and most of the high molecular weight PAHs in sediments. Naphthalene, acenaphthene and fluorene are the major PAHs present in the water and naphthalene, acenaphthene, fluoranthene, pyrene and chrysene are the major PAHs present in the sediments. The total PAH concentration in surface water ranges from 0.38 – 1.89 µg/L in KL site whereas, it ranges from 0.40 – 2.21 µg/L in KW site. The preliminary study indicates the occurrence of PAHs in significant amounts around the two power plants, which is needed to be investigated further.

*Key words: PAH, priority pollutants*

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