

Urban Effluent Discharge into Rivers; A Forensic Chemistry Approach to Evaluate the Environmental Deterioration

ABSTRACT

Development of urban area provides deterioration of natural resources in the environment. Aliphatic hydrocarbons are among important chemical that show spatial changes. Fifteen surface sediment samples were collected using Ekman dredger to monitor the features of aliphatic hydrocarbons in tributaries of Likas River on December 2011. Samples were extracted using Soxhlet, followed 2 steps column chromatography then injected into GC-MS for instrumental analysis. The results show that northern tributary remained natural with odd carbon number dominance. The study has found fresh petroleum input into Inanam River where more urban development and transportation activities are existed by presence of major hydrocarbons such as C18 and C20. The values of Carbon Preferences Index indicated that natural hydrocarbons entry from land is decreasing towards estuaries where marine input increases. Construction, transportations and urban activities around southern tributary of Inanam River have deteriorated drastically the quality of the environment. The study concluded that aquatic environments such as river are susceptible to anthropogenic activities. This research can scientifically monitor new residential developments environmental effects happening at the northern part of Darau River in the study area. The current approach may be employed to observe the rehabilitation programs in the environment.