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Impact of landfill leachate from municipal solid waste dumpsites on environmental pollution

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Landfill leachate contains different types of pollutants, organic, inorganic pollutants and heavy metals. A research was conducted to study the impact of landfill leachate on environment from municipal solid waste dumpsites in Sri Lanka. The objective of the study was to study the impact of landfill leachate on environmental pollution by quantifying different pollutant concentrations. Leachate samples were collected from five landfills from different areas of Sri Lanka. Collected samples were analyzed for pH, EC, DO, TDS, Cl-, BOD5, COD, TN, TP and heavy metals. Concentration of pollutants in landfill leachate was compared with the standards level of pollutants to be discharged into inland surface waters. Further, BOD5/COD ratio for organic pollutants and quality rating scale (QRS) values for heavy metals were used. Results show that all the leachate has a very low DO concentration. Leachate from Kolonnawa and Rathnapura show an acidic pH and pH of the other sites are basic. The ratio of BOD5/COD is highest, 0.6 from Kolonnawa leachate followed by Rathnapura leachate (0.27). Quality rating scale values of all the samples exceed the 100% except for the Cr concentration in Hambantota leachate sample. Chromium concentration in leachate from Hambantota sample was 80%. From the results of the study, it can be concluded that the soil and water nearby the open dumpsites are prone to be polluted by heavy metals present in the leachate. Further, the inorganic and organic pollutants can cause environmental imbalance in receiving bodies.

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