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Assessment of selected quality parameters of top soil and surface water in the vicinity of the laboratory wastewater pits of the Department of Chemistry, University of Ruhuna, Matara

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This study aimed to investigate the environmental impact of discharging laboratory wastewater containing chemical residues directly into the soaking pits by the Department of Chemistry, University of Ruhuna. The department generates a considerable amount of chemically contaminated wastewater from its laboratories and directly discharges into underground pits without any pre-treatment. Therefore, the chemicals used in these laboratories pose a significant contamination risk to water resources and soil when they escape into the environment. Two sets of soil samples were collected along two lines downward centring underground wastewater pits. In addition, a set of sample was collected following the same grid pattern but aside the underground pits as reference. Soil samples were analyzed for pH, conductivity, soil organic matter, phosphorous, Pb and Fe following standard chemical and analytical methods. A set of surface water samples was collected from the stream near the department and was analysed for pH, conductivity, DO, BOD, COD, dissolved organic matter, Pb and Fe. It was revealed that all the soil quality parameters of two sample sets are comparable with that of reference samples despite insignificant deviations from place to place. The quality parameters of surface water samples indicated no significant contamination, according to our data. The overall study reveals that there is no significant impact to the topsoil and surface water of the vicinity of the Department of Chemistry, University Ruhuna. Groundwater analysis should be carried out in order to report the complete environmental impact of this wastewater disposal.

Keywords: Chemically contaminated wastewater, disposal, topsoil, surface water

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