

**WATER QUALITY AT SELECTED SITES OF THE RIVER KALU,
SRI LANKA: *Escherichia coli* AND PHYSICOCHEMICAL ASPECTS**

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River Kalu in Sri Lanka serves as a major source of recreational water. Increasing environmental degradation due to urbanisation and industrialisation threatens its water quality. The aim of the study was to assess water quality in terms of microbiological and physicochemical parameters at seven sites along the river, during pluvial and non-pluvial periods. Water samples were analysed for *Escherichia coli* and physicochemical parameters; pH, biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), turbidity and chloride, following APHA standards. *Escherichia coli* counts exceeded the permissible limit of 410 cfu/100 mL for recreational purposes (USEPA, 2012), in two study sites, Halwathura and Kalutara. The *E. coli* levels differed by sampling location, with the lowest average recorded at the origin (98.5±144.3 MPN/100 mL) and the highest at Kalutara (708.6±744.2 MPN/100 mL), the river mouth. The counts were significantly higher at Kiriella ($p = 0.016$) and Narthupana ($p = 0.019$), compared to other locations. While not significant, *E. coli* levels were generally higher during the non-pluvial period (388.0±492.0 MPN/100 mL) than in the pluvial period (257.3±431.4 MPN/100 mL) ($p = 0.069$). Turbidity, TSS and chlorine were notably elevated during the pluvial season compared to the non-pluvial, with turbidity rising from 4.6±3.8 NTU to 12.0±9.0 NTU ($p < 0.001$), TSS increasing from 19.2±30.0 mg L⁻¹ to 46.7±49.3 mg L⁻¹ ($p < 0.001$) and chloride levels from 4.3±5.5 mg L⁻¹ to 14.8±23.6 mg L⁻¹ ($p < 0.001$). BOD, COD and pH did not exhibit significant seasonal differences. The findings highlight progressive water quality deterioration along the river, with significant microbial and chemical pollution at downstream sites. These results underscore the need for integrated water quality monitoring and pollution control strategies to safeguard public health and environmental sustainability. Correlation among parameters needs to be investigated as future work.

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