

## **Impacts of rubber factory effluents on the macrobenthic community in Gurugoda Oya, Ruwanwella.**

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Rubber factory effluents contain a mixture of chemical compounds that bring about harmful impacts to fauna. With this view, the present study was carried out to investigate the changes in water and sediment quality parameters in a freshwater stream, and how the associated macrobenthic community responds upon receiving untreated effluents from a nearby raw rubber processing factory. This study was carried out in the Atala village section of the Gurugoda Oya, a shallow tributary of river Kelani in the Ruwanwella region. Three downstream sampling sites that are 50 m apart from each other from the point of discharge, a pristine control site that is 50 m upstream from the point of discharge, and a sampling site within the effluent feeder canal were established for the study. The water flow velocity, temperature, conductivity, pH, DO, BOD<sub>5</sub>, COD, total suspended solids, total dissolved solids, total sulphides, alkalinity and the concentration of Na<sup>+</sup>, K<sup>+</sup>, Ca<sup>2+</sup>, and Mg<sup>2+</sup> ions in the overlying water and organic matter content in the sediment and the abundance of the associated macrobenthic invertebrate faunas were measured in sufficient replication in each site twice during the dry season and twice during the wet season of the year 2010. The seasonal and site-wise variation of the physico-chemical parameters, abundance of major macrobenthic species and their community structure were analysed.

Although the results revealed that the physico-chemical characteristics of water and sediment drastically altered upon receiving the effluents, they regained their ambient levels down in the stream most probably as a result of dilution in the water flow. The macrobenthic faunas in the stream too, responded accordingly where their species richness and diversity significantly ( $p < 0.05$ ) lowered in the polluted sites including the point of discharge but regained the ambient levels down in the stream. Recovery of both the biotic and abiotic factors took place quickly during the wet season than in the dry season. Further, the abundance of tubificids and chironomids significantly elevated in the feeder canal as well as in the point of discharge both during the dry and wet seasons so that they appeared to serve as excellent biological indicator species of pollution caused by rubber factory effluents.