8.36 Application of biological assays in the evaluation of water quality in Rio Tietê

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Introduction and Objectives: Bioindicator organisms were used to evaluate the effects of Rio Tiete pollutants produced by inhabitants of the upper Tiete region. The river receives industrial and domestic waste, passing through the Waste Treatment Plant (WTP) (ETE/Suzano of the Companhia de Saneamento Ambiental do Estado de São Paulo-SABESP) in Suzano city, Sao Paulo state. **Methods and Results:** The micro crustacean *Daphnia similes*, the freshwater snail *Biomphalaria glabrata*, and the luminescent bacteria *Vibrio fischeri* were used for the evaluation of acute toxicity. A micronucleus assay in Chinese-hamster cells was used for the assessment of *in vitro* mutagenic potential. Two affluent and effluent water samples were collected and transported near the WTP by SABESP. The first affluent was 200 meters upstream from the WTP (P1) and the second was the affluent of the WTP (P2). There were two effluent points: the first was where the WTP discharged into the river (P3), whereas the last was 200 meters downstream from the discharge effluent (P4). The sample P1 and P4 were not toxic for all organisms tested, while the P2 was toxic for all organisms tested. The P3 was moderately toxic for *Biomphalaria glabrata* embryos. All samples were mutagenic for CHO cells, without S9. **Conclusions:** Therefore, the WTP biological treatment reduced the toxicity of effluents, as shown by the absence of toxicity of the P4 in all bioindicators.

Supported by: FAPESP, CNPq and Technical Support: SABESP/Suzano

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