

4.36 Assessment of Tietê River water using the mollusk *Biomphalaria glabrata* (Say, 1818)

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Introduction: The surface waters of Tietê River in the region of Suzano, São Paulo, receive a wide range of domestic and industrial wastes and the biological treatment of effluents is performed by the Wastewater Treatment Plant of SABESP – Companhia de Saneamento Básico do Estado de São Paulo (WWTP Suzano). This plant works at 70% of power capacity at present, and domestic effluents represent the main contribution. In addition to validating acute toxicity assays, official aquatic environmental monitoring programs have requested chronic toxicity studies with assessment of effects on fecundity, embryo-larval development, reproduction and biomass production. A good model for toxicity and mutagenic studies for a variety of physical and chemical agents is the freshwater snail *B. glabrata*, which has a short lifespan and shows easy breeding and reproduction in the laboratory throughout the year. Besides acute toxicity, effects on fecundity, reproduction and embryo-larval development have been studied. **Objectives:** The aim of the study was to evaluate the potential impact of secondary effluent discharge into Tietê River by analyzing acute toxicity and dominant lethal mutations in freshwater snails *Biomphalaria glabrata*. **Methods:** Acute toxicity assays were conducted in adult specimens and embryos at blastula, gastrula, trocophore and veliger stages. The main lethal test was performed by analyzing heterozygous embryos from non-exposed albino snails crossed with wild-type exposed snails. The samples were collected and transported by SABESP (Companhia de Saneamento Básico do Estado de São Paulo). The following points were chosen: P0 – Ponte Nova Dam, P1 – 200 meters upstream to the plant, P2 – the affluent of plant, P3 – the effluent treated by plant before discharge into the river and P4 – 200 meters from the discharge into the river. Four samplings were performed. **Results and discussion:** In samples of August 2006 and August 2008, the station affluent was toxic for embryos and adults. The results were similar, with LC₅₀ values of 43.04%, 41.56%, 57.16% and 60.06% for embryos at blastula, gastrula, trocophore and veliger stages, respectively, and 100% for adult snails in first sample, and 48.24%, 43.71%, 55.43% and 62.64% for embryos at blastula, gastrula, trocophore and veliger stages, respectively, and 84.16% for adult snails in August 2008. Sampling in February 2007 was toxic only for adult snails, with a LC₅₀ value of 41.25%, and sampling in February 2008 was not toxic for adults and embryos. In all samplings, after discharge into the river, treated effluents were not toxic for *B. glabrata* adults and embryos. There was no mutagenicity in any sample. In these study, the potential impact of effluent discharge to the biota of Tietê River was shown. These results show the importance of the WWTP biological treatment of effluents in reducing acute toxicity. Measures of preservation of these environments should be proposed to improve the conditions of the river's water, through control of emission sources and identification of the most affected regions.

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