TITLE: ENVIRONMENTAL QUALITY OF DEMETRIO STREAM EVALUATED THROUGH PHYSICO-CHEMICAL, MICROBIOLOGICAL AND TOXICOLOGICAL CRITERIA

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ABSTRACT

Uncontrolled population growth near urban centers has a huge impact on public health and environmental quality. Raw sewage release has caused significant environmental quality loss in water resources of Rio Grande do Sul/Brazil. One of the most polluted rivers in Brazil, Gravataí River receives a large load of sanitary and industrial sewage. Therefore, evaluate affluents quality is fundamental for understanding and controlling water pollution. This study focused on the Demetrio stream water quality, Gravataí River main affluent, where physical-chemical, microbiological (total and thermotolerant coliforms) and cytotoxic analyzes (*Allium cepa* method) were performed in three points: source (sample 1), and according to anthropic occupations (samples 2 and 3). Sample 2 is located upstream of the most anthropized area and sample 3 is downstream and near Gravataí River encounter. Preliminary results showed that Demetrio stream sample 1 (source) already has total coliforms rates of 600/100ml and thermotolerant coliforms of 70/100ml, but it remains classified as Class 1, according to CONAMA Resolution 357/2005. The chemical analyzes indicated iron concentration of 0.137mg/L, which reduces its classification for Class 3. Sample 2 presents the lowest classification, Class 4, due to dissolved copper concentration of 0.021mg/L. Sample 3, near Gravataí River, presents a slight improvement in water quality, being classified as Class 3 with indexes for aluminum dissolved in 0.127mg/L, copper dissolved in 0.012mh/L, iron 0.495mg/L and manganese 0.146mg/L. Preliminary results of this study allowed to classify Demetrio stream water quality and demonstrate its dynamics through the samples analyzed, decreasing water quality from sample 1 (source) to sample 2 and a slight improvement from sample 2 to sample 3, in relation to dissolved copper.

Keywords: Demetrio stream, water quality, coliforms, CONAMA Resolution 357/2005, copper.