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Data Article

Data on metal levels in the inlet and outlet wastewater treatment plant of hospitals in Bushehr province, Iran



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ABSTRACT

In this paper, we measured the levels of metals including Pb, Cr, Cd, Ni, Hg, Fe, and Cu in the inlet and outlet wastewater of hospitals. The samples were taken from wastewater in Bushehr's province hospitals, Iran. After the collection of samples, the concentration levels of metals were determined by using graphite furnace absorption spectrometer (AAS) method (Varian, SpectrAA 240, Australia). Statistical analysis of the data was carried out using Special Package for Social Sciences (SPSS 16).

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Specifications Table

Subject area	Environment
More specific subject area	Metals
Type of data	Table, figure
How data was acquired	Graphite furnace absorption spectrometer (AAS) method (Varian, AA 240, Australia)
Data format	Raw, analyzed
Experimental factors	All wastewater samples in polyethylene bottles after acidification were stored in a dark place at 4 °C temperature until the metals analysis.
Experimental features	Determine the concentration levels of metals including Pb, Cr, Cd, Ni, Hg, Fe, and Cu.
Data source location	Bushehr province, Iran
Data accessibility	Data is available within this article.

Value of the data

- The data presented here will be useful for the hospital managers for proper treatment and disposal of produced wastewaters in hospital.
- The data shown here may be used for health risk assessment related to hospital wastewater properties.
- Data shown here may serve as benchmarks for other groups working or studying in the field of effluent disposal, pollution control, aquatic ecosystem, and toxicology.

1. Data

The mean \pm SD concentration levels of metals including Pb, Cr, Cd, Ni, Hg, Fe, and Cu in wastewater samples in all hospital inlet samples were 0.53 ± 0.08 , 0.9 ± 0.2 , 0.035 ± 0.008 , 0.86 ± 0.09 , 0.002 ± 0.00 , 1.31 ± 0.51 , and $0.43 \pm 0.1 \mu\text{g l}^{-1}$ respectively. In the case of outlet these values were 0.5 ± 0.04 , 0.77 ± 0.23 , 0.03 ± 0.007 , 0.72 ± 0.08 , 0.001 ± 0.00 , 1.12 ± 0.52 , and $0.37 \pm 0.06 \mu\text{g l}^{-1}$ respectively. As shown in Table 1, total mean concentration levels of metals are always higher in the inlet than in the outlet wastewater. In Table 2, the value removal efficiencies of Pb, Cr, Cd, Ni, Hg, Fe, and Cu in all hospitals shown.

2. Experimental design, materials and methods

2.1. Study area description

Nine hospitals in Bushehr province, Iran were selected as sampling points including Shohadaye Khalije Fars (in Bushehr), Salman Farsi (in Bushehr), Ghalb (in Bushehr), Shahid Ganji (in Borazjan), Mehr (in Borazjan), 17 Shahrivar (in Borazjan), Emam Khomeini (in Kangan), Nabi Akram (in Asaluye) and Tohid (in Jam) (see Fig. 1). In Table 3, type of wastewater treatment in every hospital is shown.

2.2. Sample collection and analytical procedures

In each hospital, samples were collected from inlet and outlet wastewaters monthly (in total 3 samples from every hospital). In each hospital inlet and outlet wastewaters were taken during the same days by a grab sampling method. Wastewater samples were collected by using 200 mL poly-

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