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STATISTICAL ANALYSIS OF WASTEWATER CONSTITUENTS FOR A TOURISTIC CITY: CASE STUDY OF ANTALYA, TURKEY

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Abstract

Nowadays, environmental degradation is increasing as a result of rising population, urbanization, and consumption. Within the scope of the study, four wastewater treatment plants (WWTPs) located in Antalya, which is on the Mediterranean coast in the south of Turkey were evaluated by analyzing wastewater constituents of influent data on a wet-dry day basis between 2016 and 2019. The box-plot graphics and seasonal fluctuations of the pollutant loads were drawn and compared. The goodness-of-fit Chi-square (χ^2) test was applied to determine the theoretical distribution considering wet and dry days basis. The mass loading rate and sustained peak mass loading rates of the pollutant loads were determined and the typical wastewater constituents were calculated for each WWTP. The results demonstrated that during the summer months, pollutant loads increased in the Kemer and Belek WWTPs, while there was no considerable difference in the Hurma and Lara WWTPs. Hurma WWTP is the most pollutants for all parameters except TP, whereas Kemer and Belek WWTPs are extremely close to each other and have the least amount of pollutant loads for all parameters. In brief, a comprehensive investigation of the WWTPs in touristic regions was conducted by considering statistical and seasonal analysis.

Keywords: flow weighted average, mass loading, peaking factor, wastewater constituents

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