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## COMPARISON OF PHOTOCATALYTIC TREATMENT EFFECTIVENESS ON SEWAGE AND INDUSTRIAL WASTEWATERS

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### Abstract

Water samples from two types of sources: *partially treated sewage* generated by a medium-sized city, with a high quantity of total coliforms and *partially treated industrial wastewater*, which contained mostly petroleum products from refineries, were treated using the same concentration of TiO<sub>2</sub> catalyst, for different exposure periods. UV-Vis and fluorescence spectroscopic evaluation of the composition changes of wastewaters under non selective oxidation conditions (achieved by photocatalysis) revealed that the higher removal rate was obtained for the industrial water sample compared to the sewage water sample, with respect to oxidation time. Considering the diverse characteristics and the solution matrix effects of the wastewaters, UV-Vis and fluorescence spectra revealed different patterns by increasing the quantity of TiO<sub>2</sub> catalyst from 0.25 mg mL<sup>-1</sup> to 1 mg mL<sup>-1</sup>, denoting that the amount of total coliforms in a sample greatly impacts the degree of photocatalytic oxidation.

*Key words:* fluorescence spectroscopy, photocatalysis, UV-Vis, wastewater treatment

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