

the average COD concentration achieved when the wastewater was subjected to the Ti-Al electrode arrangement. While an average BOD concentration of 10.39 mg/L was achieved when the wastewater was subjected to the Ti-Al electrode arrangement; which is equivalent to 1.5 times lower or 34.9% lower than the average BOD concentration achieved when the wastewater was subjected to the Ti-Al electrode arrangement.

To assess the distribution of data from the studied parameters in the treated effluents, box and whisker plots were also developed. In this case, the water quality parameters (turbidity, COD, and manganese) were selected as case studies. Figure 4, shows that the median line of the turbidity boxplot is closer to the middle, indicating that the data distribution within the boxplot is symmetric or normal. While, the general boxplot touched the zero line, meaning that the turbidity concentration values were relatively low in the treated effluent when the wastewater was subjected to the Ti-Al electrode arrangement. For the COD and manganese boxplots, the median line can be observed to be closer to the lower quartile meaning that the water quality data constitute a higher frequency of more high concentration values than the low concentration values, a phenomenon that can be termed as “positive skewness”. Meaning that the water quality data distribution within the boxplot constituted a higher frequency of more high concentration values than the low concentration values, a phenomenon that can be termed as “positive skewness”.

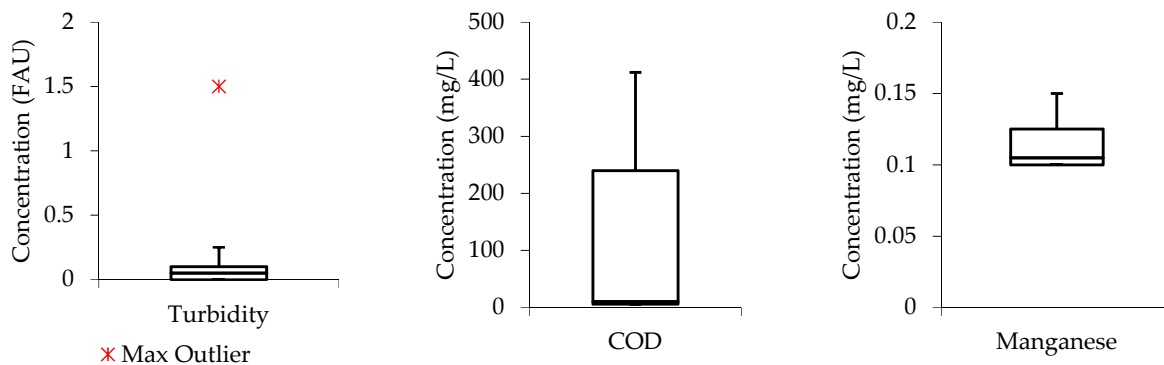


Figure 4. Boxplots from Ti-Al treated effluent.

Figure 5, shows that the turbidity boxplot is empty with an indication that the Al-Ti electrode arrangement achieved 100% removal efficiency from turbidity. The COD and manganese median lines are observed to be closer to the middle of the boxplots indicating that the data distribution is symmetric or normal.

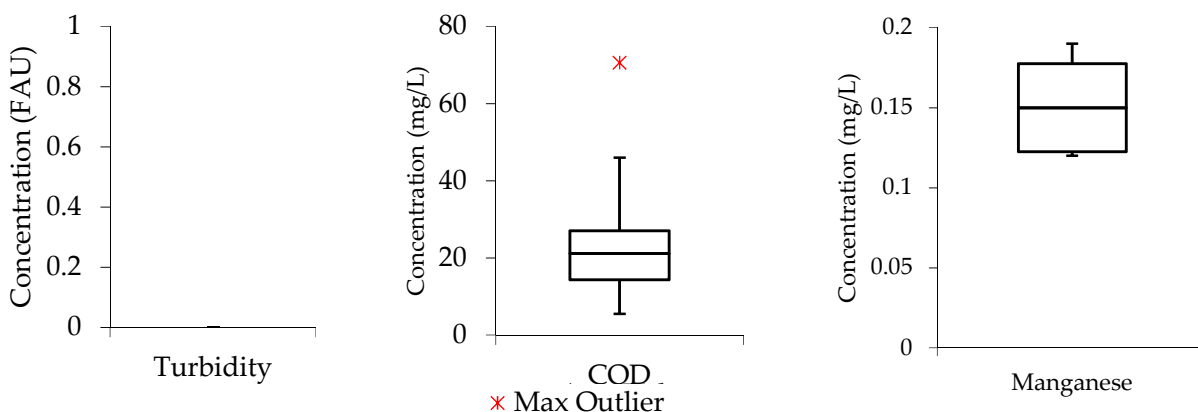


Figure 5. Boxplots from Al-Ti treated effluent.

2.4. Removal Efficiencies

2.4.1. Hydraulic Retention Time—20 min

Figure 6 presents the removal efficiencies from 20 min retention time; it can be observed that despite a close tie in terms of removal efficiencies between the two investigated