

Abstract

Pharmaceutical compounds are introduced into the environment and may pose adverse environmental and human health effects. The sources of pharmaceuticals include sewage, animal waste, and/or improper disposal from homes and hospitals. In this study, the spectroscopic, and chromatographic properties of carbamazepine (CBZ), diclofenac (DF), and ketoprofen (KT) were analyzed by using UV-Vis, fluorescence and HPLC. Via UV-VIS spectroscopy, CBZ, DF, and KT exhibited absorption peaks at 285 nm, 284 nm and 255.6 nm, respectively. The determined fluorescence quantum yield (Φ_f) for CBZ, DF, and KT were $\Phi_f = 0.226$, 0.287 , and 0.327 , respectively. Retention times was observed at 3.84 (CBZ), 4.84 (KT), and 9.84 (DF) min. The removal efficacies are in the range 8.8% (KT) to 39.2% (CBZ). This study is useful for the quantitation of these pharmaceuticals in wastewater treatment plants and possible risks.