Abstract

Reactive oxygen species (ROS) are a family of chemical compounds that are physiologically and environmentally important. One member of this family is the hydroxyl radical (HO•). A previous study explored the rates of HO• reactions with aromatic substrates in a nonaqueous solution and correlated these rates with the ionization potential of those substrates. Developing this correlation is the first step in being able to estimate how fast HO• will react in nonaqueous physiological or environmental systems. The following research is a continuation of this primary study and expands upon it with a wider variety of activated and deactivated ring structures. The experimental procedure included sample preparation, laser-flash photolysis (LFP), and data analysis. The findings of this study were subsequently published in the *Journal of Physical Chemistry* in 2018 (Appendix A).