



Apr 25th, 10:30 AM - 4:30 PM

Photochemistry of Nitrous Acid and Nitrite Ion

Jane A. Johnson
Illinois Wesleyan University

Timothy R. Rettich, Faculty Advisor
Illinois Wesleyan University

Follow this and additional works at: <https://digitalcommons.iwu.edu/jwprc>

Johnson, Jane A. and Rettich, Faculty Advisor, Timothy R., "Photochemistry of Nitrous Acid and Nitrite Ion" (1992). *John Wesley Powell Student Research Conference*. 30.
<https://digitalcommons.iwu.edu/jwprc/1992/posters/30>

This is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.

PHOTOCHEMISTRY OF NITROUS ACID AND NITRITE ION

Jane A. Johnson and Timothy R. Rettich*

Department of Chemistry, Illinois Wesleyan University

A study of the solution phase photochemistry of nitrous acid/nitrite ion system in both water and nonaqueous solvents has been undertaken. Photolysis at 365nm of the aqueous system is known to form hydroxyl radical and nitric oxide. The relative contributions of the molecular and ionic forms to the photochemical production of radicals is unknown. Scavenging reactions of the hydroxyl radicals in aqueous and nonaqueous solution are used to determine the relative production of OH· formed by photolysis of HONO and NO₂⁻.

Molecular nitrous acid is isolated from its conjugate base by extraction into various solvents. Extraction of an aqueous mixture of nitrous acid and nitrite ion with benzene, selectively puts only HONO into the organic phase. The products of the photolysis of this benzene solution indicate hydroxyl radical formation. Nitrite ion dissolves in aprotic solvents, such as DMF and DMSO, without the formation of nitrous acid. The study of the photochemistry of such solutions is currently in progress.