



## Illinois Wesleyan University Digital Commons @ IWU

---

John Wesley Powell Student Research  
Conference

1992, 3rd Annual JWP Conference

---

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: <http://digitalcommons.iwu.edu/jwprc>

---

Jane A. Johnson and Timothy R. Rettich, Faculty Advisor, "Photochemistry of Nitrous Acid and Nitrite Ion" (April 25, 1992). *John Wesley Powell Student Research Conference*. Paper 30.  
<http://digitalcommons.iwu.edu/jwprc/1992/posters/30>

This Event is brought to you for free and open access by The Ames Library, the Andrew W. Mellon Center for Curricular and Faculty Development, the Office of the Provost and the Office of the President. It has been accepted for inclusion in Digital Commons @ IWU by the faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto: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 NO<sub>2</sub><sup>-</sup>.

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.