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Mohan Receives National Science Foundation Grant

BLOOMINGTON, Ill. — Ram Mohan, associate professor of chemistry at Illinois Wesleyan University, has received a \$205,300 grant from the National Science Foundation to support his continuing research into the use of bismuth compounds for environmentally friendly chemical processes.

The grant will permit the purchase of a high pressure liquid chromatograph which will permit Mohan to explore new directions in the research. In addition, this will permit several students to do paid research over the summer at the University and also travel to a meeting of the American Chemical Society to present their findings.

Mohan's work continues to demonstrate that bismuth compounds could offer both effective and economical solutions to the search for non-toxic or low-toxic reagents, which minimize the use of materials that are hazardous to the environment.

"Even though bismuth as a metal has been known since the middle ages and the first bismuth compound was reported in 1850, the potential of bismuth compounds as reagents in organic synthesis has been recognized only in the past decade," says Mohan. "We believe that we've been making strides in the past several years, and this grant will allow us to continue this important work in 'green chemistry.'"

Green chemistry is the use of chemistry for pollution prevention and has become increasingly important since Congress passed the Pollution Prevent Act in 1990, which established a national policy to prevent or reduce pollution at its source whenever feasible.

From his previous studies, Mohan believes that bismuth has considerable potential as a "green reagent." Because bismuth is the least toxic of the heavy metals and the majority of its compounds are relatively non-toxic, bismuth is already used in a variety of pharmaceutical applications, including antacids and dressings for wounds.

"Pollution prevention at the source is an important concept with particular relevance to synthetic organic chemistry," notes Mohan. "Ideally, all synthetic processes would be carried out with relatively non-toxic or low-toxic reagents in non-toxic or solvent free conditions. However, a significant number of reagents used in synthetic organic chemistry continue to be toxic, corrosive and pose significant disposal problems. It is imperative that newer reagents that are "environment friendly" be developed. At the same time, these new reagents must meet the important criteria of efficacy and low cost."

Mohan has been a member of the Illinois Wesleyan faculty since 1996. A graduate of Hansraj College in Delhi, India, he holds the M.S. in organic chemistry from the University of Delhi and the Ph.D. in chemistry from the University of Maryland, Baltimore County. He conducted postdoctoral research at the University of Illinois at Urbana-Champaign. Mohan was the 2002 winner of the University of Maryland, Baltimore County, Distinguished Alumnus Award and a 2001 winner of a Henry Dreyfus Teacher-Scholar Award.