Red River Valley American Chemical Society

Is hosting

Badal C. Saha
National Center for Agricultural Utilization Research

Fuels and Chemicals from Biomass: Challenges and Opportunities

In the U.S., the production of corn grain based ethanol reached 4.5 billion gallons in 2005, a fraction of the 140 billion gallons of transportation fuel used annually. The goal is to displace 30% of the nation's current gasoline use with ethanol by 2030 and this will require production levels equal to roughly 60 billion gallons a year. If all corn grain now grown in the US is converted to ethanol, it can satisfy approximately 15% of current transportation fuel needs. Thus, developing ethanol as fuel, beyond its current role as fuel oxygenate, will require developing lignocellulosic biomass as feedstock because of its abundance. This includes various agricultural residues such as corn fiber, corn stover, rice straw, wheat straw and sugarcane bagasse, and energy crops such as switchgrass. In this presentation, the current state of research and development for cost-effective conversion of lignocellulosic feedstock to fuel ethanol, and efforts to bring the technology into the market place will be reviewed. Recent research progress dealing with the production of some other value-added chemicals from biomass will also be described.

Place: Hidatsa Room, NDSU Memorial Union

Date: Friday, 12 September 5:30 PM

Dinner: 7:00 PM Grazies Italian Grill
2000 44th St. S, Fargo

Dr. Badal Saha is a Research Chemist and Lead Scientist with the Fermentation Biotechnology Research Unit, National Center for Agricultural Utilization Research, USDA-ARS, Peoria, IL. He conducts basic and applied research on the conversion of agricultural residues to fuel alcohol and value-added fermentation products. Dr. Saha was previously a research scientist with the Michigan Biotechnology Institute, Lansing, MI (1985-92) and AssistantVisiting Professor at the Department of Biochemistry, Michigan State University, East Lansing, MI. Dr. Saha did his post-doctoral training in Enzymology at the University of Maryland, College Park, MD after receiving his M. S. (1981) and Ph.D. (1984) in MicrobialTechnology from Kyushu University, Fukuoka, Japan. He received his B.Sc. (Honors) and M.Sc. in Biochemistry from Dhaka University, Dhaka, Bangladesh. Dr. Saha also holds a post-graduate diploma in Microbiology and Biotechnology (one year UNESCO course) from Osaka University, Osaka, Japan. Dr. Saha has over 130 research publications that include book chapters, review articles and patents. In addition, he has 120 published abstracts. Dr. Saha has edited four books: *Fuels and Chemicals from Biomass* (1997), *Applied Biocatalysis in Specialty Chemicals and Pharmaceuticals* (2000), *Fermentation Biotechnology* (2003) and*Lignocellulose Biodegradation* (2004). He serves on the Editorial Board of seven journals:Applied and Environmental Microbiology, Applied Microbiology and Biotechnology, BioresourceTechnology, Journal of Biobased Materials & Bioenergy, Journal of Food, Agriculture & Environment, Journal of Industrial Microbiology & Biotechnology, and Process Biochemistry. Dr. Saha served as an Editor of Process Biochemistry for 1½ years (2005-2006). He is an ad-hoc reviewer of 27 other scientific journals and research grant proposals for USDA and NSF. He has given 30 invited seminar presentations and organized 20 symposiums at national and international meetings. Dr. Saha has served Peoria (renamed Illinois Heartland) Local Section-ACS as Chair-Elect (2000), Chair (2001) and Past Chair (2002). He is currently serving as Director,The Society for Industrial Microbiology (SIM), Chair of SIMAwards & Honors Committee, and 2007 SIMAnnual Meeting Program Chair. He has also served in three SIMAnnual Meeting Program Committees (2003-2005).