

**777<sup>th</sup> Meeting of the American Chemical Society Minnesota Section  
Tuesday, September 9<sup>th</sup>, 2008  
UM Continuing Education Center, St. Paul, MN**

**Fuels and Chemicals from Biomass: Challenges and Opportunities**

**Dr. Badal Saha  
USDA-ARS, Peoria, IL**

**Abstract**

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.

**Biography**

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 Assistant Visiting 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 Microbial Technology 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*, *Bioresource Technology*, *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 SIM Awards & Honors Committee, and 2007 SIM Annual Meeting Program Chair. He has also served in three SIM Annual Meeting Program Committees (2003-2005).

**Meeting Date:** Tuesday, September 9<sup>th</sup>, 2008

**Meeting Location:** Continuing Education and Conference Center, 1890 Buford Ave South, University of Minnesota St. Paul Campus. Download campus map at:  
<http://www1.umn.edu/twincities/maps/CECC/index.html>

**Meeting Schedule:**

Executive Meeting: 5:50-6:30 pm in Room 155

Dinner: 6:30 pm -7:30 pm in the Main Dining / Courtyard of the CECC.

Presentation: 7:30 pm - 8:30 pm in Room 155

**Dinner/cost:**

Dinner will consist of chicken picatta, wild rice blend, salad, chef's blend of vegetables, apple pie dessert, and coffee/soft drinks. Cost of dinner is \$20, payable at the door.

**Reservations:** Send to Richard Walsh at [mnacs.chair@gmail.com](mailto:mnacs.chair@gmail.com) or by a detailed message at 651-795-6615 by COB **Wednesday, September 3<sup>rd</sup>**.

**Directions to CECC and Parking:**

**Incoming from the North:** I35W Southbound to the Cleveland/Hwy 36 East exit. Follow Cleveland Ave south to Larpenteur, turn left onto Larpenteur Ave. Follow to Gortner Ave (1<sup>st</sup> stoplight) and turn right. CECC is at the SouthEast corner of the intersection of Buford and Gortner. Parking is available in the Buford Ave Ramp (continue on Buford through the intersection, turn left into the lot) (pay lot) or in lots east and southeast of the CECC.

**Incoming from the East, South or West :** Either I-94 east or west to Hwy 280, or I-35W north to I-94 East to Hwy 280 North. Follow 280 to the Larpenteur Ave exit. Exit at Larpenteur and turn right at the end of the exit ramp onto Larpenteur. Follow to Gortner Ave and turn right. CECC is at the SouthEast corner of the intersection of Buford and Gortner. Parking is available in the Buford Ave Ramp (continue on Buford through the intersection, turn left into the lot) (pay lot) or in lots east and southeast of the CECC.

Map:

