

BIOGRAPHICAL SKETCH

Sasidhar Varanasi

(Research focus areas: production of fuels/chemicals from lignocellulosic and algal feed-stocks)

(a) Professional Preparation

State University of New York, Buffalo, NY	Chemical Engineering	Ph.D., 1983
Indian Institute of Technology, Kanpur, India	Chemical Engineering	M.S., 1977
Andhra University, Visakhapatnam, India	Chemical Engineering	B.S., 1975

(b) Appointments

University of Toledo	Professor of Chemical and Env. Engineering	1994-present
University of Toledo	Associate Professor of Chemical Engineering	1988-1994
University of Toledo	Assistant Professor of Chemical Engineering	1983-1988

(c) Products

(i) Relevant to the Proposed Project (publications)

1. S. Alipour, P. Zhang, S. Viamajala, P. Relue and S. Varanasi, "High Yield 5-Hydroxymethylfurfural Production from Biomass Sugar at Facile Reaction Conditions: Implementation of Simultaneous-Isomerization-and-Reactive Extraction, Back-Extraction, and Dehydration," submitted to *Energy and Environmental Science*.
2. B. Li, S. Varanasi, and P. Relue, "High yield aldose-ketose transformation for isolation and facile conversion of biomass sugar to furan," *Green Chemistry*, 15 (8): 2149 – 2157, 2013.
3. Bin Li, P. Relue, and S. Varanasi, Simultaneous isomerization and reactive extraction of biomass sugars for high yield production of ketose sugars, *Green Chemistry*, 14 (2012) 2436-2444.
4. Y. Dawei, K. Rao, P. Relue and S. Varanasi, (a) "A viable method and configuration for fermenting biomass sugars to ethanol using native *Saccharomyces cerevisiae*", *Bioresource Technology*, 117(2012) 92-98; (b) Fermentation of biomass sugars to ethanol using native industrial yeast strains, *Bioresource Technology* 102 (2011) 3246–3253
5. Anantharam P. Dadi, S. Varanasi and C. A. Schall "Enhancement of cellulose saccharification Kinetics using an ionic liquid pretreatment step", *Biotechnology and Bioengineering*, vol. 95, 904-910 (2006)

(ii) Additional Significant Products (filed/issued patents related to the proposed work)

6. B. Li, S. Varanasi and P. Relue. "Aldose-ketose transformation for separation and/or chemical conversion of C6 and C5 sugars from biomass materials". *U.S. Patent Application 20130074397, PCT/US11/33030*, November 7, 2012.
7. S. Alipour, B. Li, S. Varanasi, P. Relue, and S. Viamajala, "New methods for high yield production of furans from biomass sugars at mild operating conditions," *US Provisional Patent filed 11/1/2013*
8. S. Varanasi, C. Schall and Anantharam P. Dadi "Saccharifying Cellulose", (a) *US patent # 8,236,536, issued: August 7, 2012* (divisional patent); (b) *US patent # 7,674,608, issued: March 9, 2010*
9. S. Varanasi, C. Schall, Anantharam, P. Dadi, J. Anderson, K.Rao, P. Paripati, and G. Kumar, "Pretreatment of Biomass", (a) *US patent # 8,030,030, issued: October 4, 2011*; (b) *US patent # 8,546,109, issued: October 1, 2013* (divisional patent);
10. J. P. Byers, R. L. Fournier, and S. Varanasi (a) "Method of Producing Products with a Bilayer Pellet Containing A Coimmobilized Enzyme System That Maintains a pH Difference" *US Patent # 5,397,700*; (b) "Bilayer Pellet Containing Immobilized xylose Isomerase and Urease for the Simultaneous Isomerization and Fermentation of Xylose to Ethanol," *US Patent # 5,254, 468*

(d) Synergistic Activities

1. Received (with Professor S. LeBlanc) three successive biennium's (total of six years) funding through National Science Foundation's "Young Scholars Program" to provide graduating high school seniors training and orientation to encourage them to choose careers in science and engineering.
2. Served as a member (for seven years) of the Committee of Examiners for Graduate Records Examination Engineering Test administered by the Educational Testing Service, Princeton, N.J.
3. Has been a visiting scientist at The National Institute of Chemicals Research in Tsukuba, Japan on a National Science Foundation Fellowship during the academic year: 1994.
4. Has been a technical advisor to SuGanit systems Inc. who licensed and is scaling-up the Ionic Liquid Pretreatment technology (developed by the PI) from The University of Toledo.
5. Received about \$11 million research funding as PI or co-PI, during the past five years, from NSF, DOE-BETO, USDA, USAFO, and Third Frontier Commission of the State of Ohio.

(e) Collaborators and Other Affiliations

Collaborators and Co-Editors (past two years)

Praveen Parapati, Suganit Systems, Inc.; Dr. Constance Schall, UT; Dr. Sridhar Viamajala, UT; Dr. Patrica Relue, UT; Dr. Brent Peyton, Montana State University; Dr. Robin Gerlasch, Montana State University; Dr. Gregory Charklis; University of North Carolina, Chapel Hill

Graduate Advisor and Postdoctoral Sponsor

Graduate: Professor Eli Ruckenstein, Distinguished University Professor, State University of New York at Buffalo
Postdoctoral: None

Thesis Advisor and Postgraduate-Scholar Sponsor (past five years)

(32 total graduate students advised)

Present:

Ph.D. Students (1) Heng Shao, (2) Kelly Marbaugh, (3) Peng Zhang, (4) Balakrishna Maddi, (5) Siamak Alipour, and (6) Godwin Abel, (7) Thehazhanan Ponnaiahn.

Graduated:

Ph.D. Students (1) Dawei Yuan, Research Engineer, Solazyme, CA, (2) Kripa Rao, Project Lead - Biomass Chemistry, NexSteppe, San Francisco Bay Area, CA (3) Bin Li, Fermentation Research Engineer, Eppendorf International, Enfield, CT, (4) Pei Li, Research Scientist, National Singapore University; (5) Anantharam. P. Dadi, Scientist, SuGanit Systems Inc.

M.S. Students (1) Noureen Faize, Process Engineer II Worley Parsons, Huston, TX (2) Akinwale A. Shiitu, Eastman Chemicals, Kingsport, TN (3) Wenwen Zhang Air Gas, New Jonsonville, TN

Supervision of Undergraduate Research

Presently working on bio-renewables research in my lab: Evan Nichols and Corey Beddies;
Graduated: Amber Hall, Zachary Reaver, Alex Fitzthum, Sasha Aquino, Mariem Amami, Steven Donnelly, and Nisha Patel