

# SAMIR KUMAR KONAR

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## CONTACT:

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- **Contributed over 31 years of applied organic chemistry research to the University of Toronto.**
  - **Spent 19 years developing biodiesel technology currently being implemented by Biox Corporation in their Biodiesel Plant in Hamilton, Ontario.**
  - **Extensive research has culminated in many publications in reputable journals (see list).**
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## AREAS OF INTEREST

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Polymer Chemistry ▪ Biodiesel Chemistry ▪ Petro-chemistry ▪ Applied Organic Chemistry

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## WORK EXPERIENCE

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### ▪ RESEARCH EXPERIENCE ▪

UNIVERSITY OF TORONTO 2009 – todate

*Faculty of Forestry, Toronto, Ontario*

#### Senior Research Associate

- Synthesis of polyol from soybean oil
- Formulation of PVC-free foam
- Development of thermally stable, optically transparent nanocellulose composites

UNIVERSITY OF TORONTO 1990 - 2009

*Department of Chemical Engineering and Applied Chemistry, Toronto, Ontario*

#### Senior Research Associate/Research Associate

- Developed technology for fast formation of high purity biodiesel (fatty acids methyl esters) from vegetable oils, waste fats, and oils (from fast food restaurants).
- Provided new analytical protocols to enhance purity of biodiesel products.
- Produced clean diesel fuel from catalytic pyrolysis of sewage sludge lipids, waste fats and oils.

UNIVERSITY OF TORONTO 1985 – 1989

*Faculty of Forestry, Toronto, Ontario*

#### Research Associate

- Developed experimental methods and analytical tools for the quantification of herbicide residues and their metabolites in different forestry and agricultural substrates.
  - Devised new analytical method using sensitive analytical techniques (UV, IR, NMR, GC).
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UNIVERSITY OF TORONTO 1983 – 1984

*Faculty of Forestry, Toronto, Ontario*

**Postdoctoral Research Fellow**

- Quantified trace pesticide residues in boreal forest soils using advanced analytical techniques.

INDIAN INSTITUTE OF TECHNOLOGY 1981 – 1982

*Department of Chemistry, Kharagpur, West Bengal, India*

**Postdoctoral Research Fellow**

- Studied stereochemistry of 1,4-addition of nucleophiles to ethyl cyclohexylideneacyanoacetates.

▪ **TEACHING AND RELATED EXPERIENCE** ▪

UNIVERSITY OF TORONTO 1985 - 2007

*Department of Chemical Engineering and Applied Chemistry, Toronto, Ontario*

- Taught at graduate and undergraduate level.
- Provided assistance to Masters and Ph.D. research projects.
- Supervised undergraduate research projects.

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**EDUCATION**

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**Ph.D., Synthetic Organic Chemistry** 1981  
INDIAN INSTITUTE OF TECHNOLOGY, Kharagpur, India

**M.Sc., Organic Chemistry** 1974  
KALYANI UNIVERSITY, West Bengal, India

**B.Sc. (Hons.), Chemistry** 1972  
KALYANI UNIVERSITY, West Bengal, India

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**PUBLICATIONS**

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**Recent Research Articles**

R. Gu, M. Sain, and S. Konar, Development and characterization of flexible epoxy foam with reactive liquid rubber and starch, *Journal of Materials Science*, 2014; 49, 3125- 3134, DOI: 10.1007/S10853-014-8013-X

S. K. Konar, R. Gu, and M. Sain, Preparation and characterization of Baked Nitrile Latex Foam Reinforced with Biomasses, *Industrial Crops and Products*, Vol. 42, March, 2013, p. 261-267.

R. Gu, M. M. Sain, and S. K. Konar, A Feasibility Study of Polyurethane Composite Foam with Added Hardwood Pulp, *Industrial Crops and Products*, Vol. 42, March, 2013, p. 273-279.

R. Gu, S. Konar, and M. Sain, Preparation and characterization of Sustainable Polyurethane Foams from Soybean Oils, *Journal of the American Oil Chemist's Society*, 2012, DOI: 10.1007/S11746-012-2109-8.

R. Gu, M. Sain, and S. K. Konar, Studies on molded liquid rubber based epoxy foams, Manuscript submitted to *Journal of Cellular Plastics*, 2012.

R. Doell, S.K. Konar, and D.G.B. Boocock. 2008. Kinetic parameters of a homogeneous transmethylation of soybean oil. *J. Am. Oil Chem. Soc.*, 85, 271-276.

S. Mahajan, S.K. Konar, and D.G.B. Boocock. 2007. Variables affecting the production of standard biodiesel. *J. Am. Oil Chem. Soc.*, 84, 189-195.

S. Mahajan, S.K. Konar, and D.G.B. Boocock. 2006. Standard biodiesel from soybean oil by a single chemical reaction. *J. Am. Oil Chem. Soc.*, 83 (7), 641-644.

S. Mahajan, S.K. Konar, and D.G.B. Boocock. 2006. Determining the acid number of biodiesel. *J. Am. Oil Chem. Soc.*, 83 (6), 567-570.

V. Mao, S.K. Konar, and D.G.B. Boocock. 2004. The pseudo-single-phase, base-catalyzed transmethylation of soybean oil. *J. Am. Oil Chem. Soc.*, 81 (8), 803-808.

W. Zhou, S.K. Konar, and D.G.B. Boocock. 2003. Ethyl esters from the single-phase base-catalyzed ethanolysis of vegetable oils. *J. Am. Oil Chem. Soc.*, 80 (4), 367-371.

D.G.B. Boocock, S.K. Konar, G.V. Balkansky, L.R. Chi, W.Y. Zhou, and J. Lutzen. 2001. Ambient pressure technologies for the production of biodiesel methyl esters. First World Conference on Biomass for Energy and Industry, Kyritsis, S., Beenackers, A.A.C.M., Helm, P., Grassi, A., Chiaramonti, D., (eds.), Sevilla, Spain, 5-9 June, 2000, James & James (Science Publishers) Ltd., Vol.I, pp. 590-592.

D.G.B. Boocock, S.K. Konar, V. Mao, C. Lee, and S. Buligan. 1998. Fast formation of high purity methyl esters from vegetable oils. *J. Am. Oil Chem. Soc.*, 75, 1167-1172.

D.G.B. Boocock, S.K. Konar, and H. Sidi. 1996. Phase diagrams for oil/methanol/ether mixtures. *J. Am. Oil Chem. Soc.*, 73 (10), 1247-1251.

D.G.B. Boocock, S.K. Konar, V. Mao, and H. Sidi. 1996. Fast one-phase oil-rich processes for the preparation of vegetable oil methyl esters. *Biomass and Bioenergy*, 11 (1), 43-50.

## **Presentation**

M. Sain, S. Konar, L. Xu, and P. Abeykoon, Synthesis of polyol from soybean oil - using of blending method during hydroxylation, The Ontario BioCar Initiative, 7<sup>th</sup> Biannual Research meeting and Advisory Panel Meeting, 3<sup>rd</sup> June, 2011, University of Toronto, Canada.

M. Sain, S. Konar, and P. Abeykoon, Synthesis of polyol from genetically modified soybean oil using a newly developed two-step continuous process, The Ontario BioCar Initiative, 8<sup>th</sup> Biannual Research meeting and Advisory Panel Meeting, 18<sup>th</sup> November, 2011, University of Windsor, Canada.

## **Poster**

S. Konar, P. Abeykoon, and M. Sain, Synthesis of polyol from genetically modified soybean oil using a newly developed two-step continuous process, The Ontario BioCar Initiative, 8<sup>th</sup> Biannual Research meeting and Advisory Panel Meeting, 18<sup>th</sup> November, 2011, University of Windsor, Canada.

S. K. Konar and M. M. Sain, Synthesis of polyol from soybean oil by a two-step continuous process, 12<sup>th</sup> International Conference on Biocomposites, Transition to Green Materials, May 6-8, 2012, Niagara Falls, Ontario, Canada.

## **References**

Professor M. Sain  
Dean, Faculty of Forestry  
Director, Centre for Biocomposite and Biomaterials Processing  
University of Toronto  
33 Willcocks Street, Toronto, Ont.  
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Professor D.G.B. Boocock  
Professor Emeritus  
Ex-Chair, Department of Chemical Engineering and Applied Chemistry  
University of Toronto  
200 College Street, Toronto, Ont.  
M5S 3E5

Professor D.N. Roy  
Professor Emeritus  
Faculty of Forestry  
University of Toronto  
33 Willcocks Street, Toronto, Ont.  
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