Doç. Dr. NAZİFE IŞIK SEMERCİ

Kişisel Bilgiler

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Biyografi

Research Interests

Biorefineries, valorization of lignocellulosic biomass, ionic liquids, biomass-derived solvents, platform chemicals, biofuels

Education

2/2008–2/2013 Middle East Technical University, Department of Chemical Engineering, Turkey

Ph.D., "Pretreatment of cotton stalks with ionic liquids for enhanced enzymatic hydrolysis of cellulose and ethanol production"

9/2004–6/2007 Middle East Technical University, Department of Chemical Engineering, Turkey

M.Sc., "Investigation of bioprocess parameters for glucose isomerase production by *Bacillus thermoantarcticus*"

9/2000–6/2004 Hacettepe University, Department of Chemical Engineering, Turkey

B.Sc., "Microencapsulation of Mixed Enzyme Preparates in Detergent Products"

Career Summary

Associate Professor (Degree given by the Council of Higher Education, Turkey-YOK), Department of Energy Engineering, Ankara University, 6/2022-Today

Assistant Professor, Department of Energy Engineering, Ankara University, 2/2015-6/2022

Postdoctoral Fellow, Department of Chemistry, Imperial College London, 10/2013-7/2014

Tutor, Department of Chemistry, Imperial College London, 10/2013-7/2014

Teaching Assistant, Department of Chemical Engineering, Middle East Technical University, 2/2008 –2/2013

Research Assistant, Department of Chemical Engineering, Middle East Technical University, 7/2004–7/2007

Publications

Semerci I, Unal B, Simsek N, Ozcan S.E., Valorization of paper mill sludge using protic ionic liquids and deep eutectic solvents as a potential feedstock for biorefineries, Journal of Wood Chemistry and Technology, 2022, 42, 4, 274-285.

Semerci I, Evaluation of biomass-derived solvents and protic ionic liquids as lignin-selective pretreatment agents for poplar fractionation, Journal of Wood Chemistry and Technology, 2022, 42, 2, 91-103.

Semerci I, Assessment of Biogas and Syngas Potential of Cotton Stalks in Turkey, Cukurova University Journal of the Faculty of Engineering, 2022, 37, 1.

Semerci I, Soysal K, Yaglikci S, Gokce Y. Assessing the effect of protic ionic liquid pretreatment of Pinus radiata from different perspectives including solvent-water ratio, Journal of Wood Chemistry and Technology, 2021, 41, 6, 236-248.

Semerci I, Guler, F. Levulinic acid production from wood with green solvents, Journal of Wood Chemistry and Technology 2021, 41, 1.

Semerci I, Ersan G. Hornbeam pretreatment with protic ionic liquids: Cation, particle size, biomass loading and recycling effects. Industrial Crops and Products, 2021,159.

Yagmur E, Gokce Y, Tekin S, **Semerci N.I**, Aktas Z. Characteristics and comparison of activated carbons prepared from oleaster (elaeagnus angustifolia L.) fruit using KOH and ZnCl2. Fuel, 2020, 267.

Semerci I, Güler F, Ersan G, Soysal K, Ozturk O, Altinisik H, Tirpan S, Ozcelik F. Assessment of a protic ionic liquid with respect to fractionation and changes in the structural features of hardwood and softwood. Bioresource Technology Reports, 2019, 8.

Semerci I, Güler F. Pretreatment of crop wastes from edible biomass with a protic ionic liquid. Internaional Journal Renewable Energy Research, 2019, 9, 1, 7-23.

Semerci I, Güler F. Protic ionic liquids as effective agents for pretreatment of cotton stalks at high biomass loading. Industrial Crops and Products, 2018, 125, 588-595.

Gurbuz EI, **Semerci N.I**. Recent developments in biorefinery catalysis. In: Advances in refining catalysis, 2017, 329-374. Book chapter in Taylor and Francis.

Haykir N.I, Bakir U. Ionic liquid pretreatment allows utilization of high substrate loadings in enzymatic hydrolysis of biomass to produce ethanol from cotton stalks. Industrial Crops and Products, 2013, 51, 408-414.

Haykir N.I, Bahcegul E, Bicak N, Bakir U. Pretreatment of cotton stalk with ionic liquids including 2-hydroxy ethyl ammonium formate to enhance biomass digestibility. Industrial Crops and Products, 2013, 430-436.

Bahcegul E, Apaydin S, **Haykir N.I**, Tatli E, Bakir U. Different ionic liquids favor different lignocellulosic biomass particle sizes during pretreatment to function efficiently. Green Chemistry, 2012, 14, 1896-903.

Bahcegul E, Tatli E, **Haykir N.I**, Apaydin S, Bakir U. Selecting the right blood glucose monitor for the determination of glucose during the enzymatic hydrolysis of corncob pretreated with different methods. Bioresource Technology, 2011, 102, 9646-9652.

Çalik P, Angardi V, **Haykir N.I**, Boyaci IH. Glucose isomerase production on a xylan-based medium by bacillus thermoantarcticus. Biochemical Engineering Journal, 2009, 43, 8-15.

Projects

COST Action - CA 20127 - Waste biorefinery technologies for accelerating sustainable energy processes (WIRE), 2021-2025 - Management Committee Member of Turkey.

Utilization of protic ionic liquid fractionated biomass components in electrode material production and supercapacitor applications, 2022-today, **TUBITAK 2531 Bilateral Cooperation Program Application with German Academic Exchange Service (DAAD) - Principal Investigator.**

Valorization cellulose from baby diapers using ionic liquids, 2022-Today, **in collaboration with Procter&Gamble (P&G) TURKEY- Principal Investigator.**

Cellulose recovery from process sludge generated during sanitary paper production via green solvents, 2021-today, **TUBITAK 1005 National New Ideas And New Products Research Funding Program – Principal Investigator, in collaboration with Eczacibasi Consumer Products.**

Conversion of Lignocellulosic Biomass into High Value-Added Products by Protic Ionic Liquids, 2017-2020, **TUBITAK National Young Researchers Career Development Program – Principal Investigator.**

Recombinant Enzyme Production via Metabolic+Genetic+Biochemical Reaction Engineering Principles, TUBITAK, 2005 - 2007 (National) **– Scholar.**

Supervision

Gulsah Ersan, Evaluation of the potential of low-cost ionic liquids for the pretreatment of hardwood, hornbeam, 2018-2020, M.Sc. Thesis.

Fellowships and Memberships

American Chemical Society GCCE (Global Chemists' Code of Ethics) Fellowship for the workshop held in Nairobi, Kenya, 5/2017.

TUBITAK 2219 International Postdoctoral Research Fellowship, 10/2013-6/2014.

American Chemical Society (ACS) Membership, 11/2016-Today.

Languages

German, basic knowledge-Goethe-Zertifikats: Zertifikat Deutsch

English, fluent

Turkish, native speaker

Eğitim Bilgileri

Doktora, Orta Doğu Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Kimya Mühendisliği (Dr), Türkiye 2008 - 2013
Yüksek Lisans, Orta Doğu Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Kimya Mühendisliği (Yl) (Tezli), Türkiye 2004 - 2007
Lisans, Hacettepe Üniversitesi, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, Türkiye 2000 - 2004

Yaptığı Tezler

Doktora, Pretreatment of cotton stalks with ionic liquids for enhanced enzymatic hydrolysis of cellulose and ethanol production, Orta Doğu Teknik Üniversitesi, Genel Biyoloji Anabilim Dalı, Kimya Mühendisliği (Dr), 2013
Yüksek Lisans, Investigation of bioprocess parameters for glucose isomerase production, Orta Doğu Teknik Üniversitesi, Genel Biyoloji Anabilim Dalı, Kimya Mühendisliği (Yl) (Tezli), 2007