

Assoc. Prof. EDA ÇELİK AKDUR

Personal Information

Office Phone: [+90 312 297 7400](tel:+903122977400)

Fax Phone: [+90 312 299 2124](tel:+903122992124)

Email: edacelik@hacettepe.edu.tr

Web: <http://yunus.hacettepe.edu.tr/~edacelik/index.htm>

International Researcher IDs

ORCID: 0000-0003-3203-2181

Publons / Web Of Science ResearcherID: G-6092-2013

ScopusID: 7006256208

Yoksis Researcher ID: 52335

Education Information

Post Doctorate, Cornell University, Faculty of Engineering, Chemical and Biomolecular Engineering, United States Of America 2009 - 2011

Doctorate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 2003 - 2008

Postgraduate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 2001 - 2003

Undergraduate, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, Turkey 1997 - 2001

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Bioprocess development for therapeutical protein production, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, 2008

Postgraduate, Bioprocess desing parameters for beta-lactamase production by Bacillus species, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, 2003

Research Areas

Chemical Engineering and Technology, Biotechnology, Biotechnological Processes and Fermentation Technology, Enzyme Engineering , Engineering and Technology

Academic Titles / Tasks

Associate Professor, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2020 - Continues

Assistant Professor, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2018 - 2020
Assistant Professor, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2013 - 2018
Lecturer PhD, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2011 - 2013
Research Assistant, Cornell University, Chemical And Biomolecular Engineering, 2009 - 2011
Research Assistant, Middle East Technical University, Faculty Of Engineering, Department Of Chemical Engineering, 2001 - 2008

Academic and Administrative Experience

Deputy Head of Department, Hacettepe University, Fen Bilimleri Enstitüsü, Biyomühendislik A.B.D., 2015 - 2018

Advising Theses

Çelik Akdur E., Production of recombinant antibody fragments in bacteria and their development towards medical diagnosis, Doctorate, İ.KOÇER(Student), 2021
Çelik Akdur E., Polihidroksialkanoatların genetiği değiştirilmiş bakterilerde üretimi, karakterizasyonu ve matematiksel modellenmesi, Doctorate, M.AKDOĞAN(Student), 2021
Çelik Akdur E., Tetrasiklin tayinine yönelik aptamer bağlı peroksidaz benzeri mikropartiküllerin geliştirilmesi, Postgraduate, S.KILIÇ(Student), 2021
Çelik Akdur E., Biyobozunur plastik polihidroksialkanoatların Bacillus megaterium'da genetik mühendisliği yoluyla üretiminin artırılması, Postgraduate, B.DOĞAN(Student), 2021
Çelik Akdur E., Investigation of Metabolic Modeling Strategies to Predict Phenotypes of Microbial Mutants Under Data Scarcity, Postgraduate, E.ANTURAN(Student), 2020
Çelik Akdur E., Türk M., Kanser tedavisinde gen susturulması için hyalüronik asit-polietilenimin taşıyıcı sisteminin geliştirilmesi, Doctorate, B.ÇAĞDAŞ(Student), 2019
Çelik Akdur E., Selection and validation of aptamers against osteosarcoma by cell-selex method, Postgraduate, K.TSOĞTBAATAR(Student), 2019
Çelik Akdur E., SELECTIVE ENRICHMENT OF GLYCOPROTEINS USING MAGNETIC MICROSPHERES AND THEIR SENSITIVE DETECTION WITH SURFACE ENHANCED RAMAN SPECTROSCOPY, Postgraduate, B.BİLGİÇ(Student), 2018
YAVUZ ERSAN H., ÇELİK AKDUR E., Farklı yöntemlerle kitosan eldesi ve karakterizasyonu, Postgraduate, İ.KOÇER(Student), 2015
ÇELİK AKDUR E., Novel cellulase enzyme production towards biofuels sector by recombinant bacterium Escherichia coli, Postgraduate, Z.YILDIRIM(Student), 2015
ÇELİK AKDUR E., Development of bacteriophage nanoparticles for glycomics analysis by genetic engineering, Postgraduate, G.GÜR(Student), 2014

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Enhanced production and single step purification of biologically active recombinant anti-IL6 scFv from Escherichia coli inclusion bodies**
Şahinbaş D., Çelik E.
Process Biochemistry, vol.133, pp.151-157, 2023 (SCI-Expanded)
- II. **Ni(II) functionalized polyhedral oligomeric silsesquioxane based capillary monolith for purification of histidine-tagged proteins by immobilized metal affinity micro-chromatography**
Çambay Kuban F., Koçer İ., Kip Ç., Çelik E., Tuncel A.
Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences, vol.1225, 2023 (SCI-Expanded)
- III. **Delivery of siRNA using hyaluronic acid-guided nanoparticles for downregulation of CXCR4**

Çağdaş Tunali B., Çelik E., Budak Yıldırım F. A., Türk M.

Biopolymers, vol.114, no.4, 2023 (SCI-Expanded)

- IV. **In silico analysis of the different variable domain oriented single-chain variable fragment antibody-antigen complexes**
Koçer İ., Çelik E.
Journal of Biomolecular Structure and Dynamics, 2023 (SCI-Expanded)
- V. **In vitro selection of DNA aptamers against human osteosarcoma**
Tsogtbaatar K., Sousa D. A., Ferreira D., Tevlek A., Aydın H. M., Çelik E., Rodrigues L.
INVESTIGATIONAL NEW DRUGS, vol.40, no.1, pp.172-181, 2022 (SCI-Expanded)
- VI. **Effects of variable domain orientation on anti-HER2 single-chain variable fragment antibody expressed in the Escherichia coli cytoplasm**
Koçer Kuloğlu İ., Cox E. C., Delisa M. P., Çelik E.
BIOTECHNOLOGY PROGRESS, vol.37, no.2, 2021 (SCI-Expanded)
- VII. **Enhanced production of poly(3-hydroxybutyrate-co-3-hydroxyvalerate) biopolymer by recombinant Bacillus megaterium in fed-batch bioreactors**
AKDOĞAN M., Çelik E.
BIOPROCESS AND BIOSYSTEMS ENGINEERING, vol.44, no.2, pp.403-416, 2021 (SCI-Expanded)
- VIII. **Tailoring the Microbial Community for Improving the Biodegradation of Chitosan Films in Composting Environment**
Altun E., Çelik E., Yavuz Ersan H.
JOURNAL OF POLYMERS AND THE ENVIRONMENT, vol.28, no.5, pp.1548-1559, 2020 (SCI-Expanded)
- IX. **Microfluidic immobilized metal affinity chromatography based on Ti(IV)-decorated silica microspheres for purification of phosphoproteins**
Yildirim D., Kip C., Tsogtbaatar K., KOÇER İ., Çelik E., Tuncel A.
JOURNAL OF CHROMATOGRAPHY B-ANALYTICAL TECHNOLOGIES IN THE BIOMEDICAL AND LIFE SCIENCES, vol.1140, 2020 (SCI-Expanded)
- X. **Silica microspheres functionalized with the iminodiacetic acid/copper(II) complex as a peroxidase mimic for use in metal affinity chromatography-based colorimetric determination of histidine-tagged proteins**
Gokcal B., Kip C., Sahinbas D., Çelik E., Tuncel A.
MICROCHIMICA ACTA, vol.187, no.2, 2020 (SCI-Expanded)
- XI. **Ni(II)-decorated porous titania microspheres as a stationary phase for column chromatography applications: Highly selective purification of hemoglobin from human blood**
Kip C., Tosun R. B., Alpaslan S., KOÇER İ., Çelik E., Tuncel A.
TALANTA, vol.200, pp.100-106, 2019 (SCI-Expanded)
- XII. **Isolation of RNA and beta-NAD by phenylboronic acid functionalized, monodisperse-porous silica microspheres as sorbent in batch and microfluidic boronate affinity systems**
Kip C., Gulusur H., Çelik E., Usta D. D., Tuncel A.
COLLOIDS AND SURFACES B-BIOINTERFACES, vol.174, pp.333-342, 2019 (SCI-Expanded)
- XIII. **Purification and characterization of polyhydroxyalkanoate (PHA) from a Bacillus megaterium strain using various dehydration techniques**
AKDOĞAN M., Çelik E.
JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY, vol.93, no.8, pp.2292-2298, 2018 (SCI-Expanded)
- XIV. **Protein A and protein A/G coupled magnetic SiO₂ microspheres for affinity purification of immunoglobulin G**
Salimi K., Usta D. D., KOÇER İ., Çelik E., Tuncel A.
International Journal of Biological Macromolecules, vol.111, pp.178-185, 2018 (SCI-Expanded)
- XV. **Periplasmic and extracellular production of cellulase from recombinant Escherichia coli cells**
YILDIRIM Z., Çelik E.
JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY, vol.92, no.2, pp.319-324, 2017 (SCI-Expanded)
- XVI. **Highly selective magnetic affinity purification of histidine-tagged proteins by Ni²⁺ carrying**

monodisperse composite microspheres

SALIMI K., Usta D. D., KOÇER İ., Celik E., Tuncel A.

RSC ADVANCES, vol.7, no.14, pp.8718-8726, 2017 (SCI-Expanded)

- XVII. **Glycoarrays with engineered phages displaying structurally diverse oligosaccharides enable high-throughput detection of glycan-protein interactions**
Celik E., Ollis A. A., Lasanajak Y., Fisher A. C., Gur G., Smith D. F., DeLisa M. P.
BIOTECHNOLOGY JOURNAL, vol.10, no.1, pp.199-209, 2015 (SCI-Expanded)
- XVIII. **Expanding the glycoengineering toolbox: the rise of bacterial N-linked protein glycosylation**
Baker J. L., Celik E., DeLisa M. P.
TRENDS IN BIOTECHNOLOGY, vol.31, no.5, pp.49-59, 2013 (SCI-Expanded)
- XIX. **Production of recombinant proteins by yeast cells**
Celik E., ÇALIK P.
BIOTECHNOLOGY ADVANCES, vol.30, no.5, pp.1108-1118, 2012 (SCI-Expanded)
- XX. **Production of Secretory and Extracellular N-Linked Glycoproteins in Escherichia coli**
Fisher A. C., Haitjema C. H., Guarino C., Celik E., Endicott C. E., Reading C. A., Merritt J. H., Ptak A. C., Zhang S., DeLisa M. P.
APPLIED AND ENVIRONMENTAL MICROBIOLOGY, vol.77, no.3, pp.871-881, 2011 (SCI-Expanded)
- XXI. **A filamentous phage display system for N-linked glycoproteins**
Celik E., Fisher A. C., Guarino C., Mansell T. J., DeLisa M. P.
PROTEIN SCIENCE, vol.19, no.10, pp.2006-2013, 2010 (SCI-Expanded)
- XXII. **A structured kinetic model for recombinant protein production by Mut(+) strain of Pichia pastoris**
Celik E., ÇALIK P., Oliver S. G.
CHEMICAL ENGINEERING SCIENCE, vol.64, no.23, pp.5028-5035, 2009 (SCI-Expanded)
- XXIII. **Fed-batch methanol feeding strategy for recombinant protein production by Pichia pastoris in the presence of co-substrate sorbitol**
Celik E., ÇALIK P., Oliver S. G.
YEAST, vol.26, no.9, pp.473-484, 2009 (SCI-Expanded)
- XXIV. **Expression System for Recombinant Human Growth Hormone Production from Bacillus subtilis**
Oezdamar T. H., Sentuerk B., Yilmaz O. D., Calik G., Celik E., ÇALIK P.
BIOTECHNOLOGY PROGRESS, vol.25, no.1, pp.75-84, 2009 (SCI-Expanded)
- XXV. **Use of biodiesel byproduct crude glycerol as the carbon source for fermentation processes by recombinant Pichia pastoris**
ÇELİK E., ÖZBAY N., OKTAR N., ÇALIK P.
Industrial Chemistry Research, vol.47, pp.2985-2990, 2008 (SCI-Expanded)
- XXVI. **Production of recombinant human erythropoietin from Pichia pastoris and its structural analysis**
Celik E., ÇALIK P., Halloran S. M., Oliver S. G.
JOURNAL OF APPLIED MICROBIOLOGY, vol.103, no.6, pp.2084-2094, 2007 (SCI-Expanded)
- XXVII. **Bioprocess parameters and oxygen transfer characteristics in beta-lactamase production by Bacillus species**
Celik E., ÇALIK P.
BIOTECHNOLOGY PROGRESS, vol.20, no.2, pp.491-499, 2004 (SCI-Expanded)
- XXVIII. **Protein-based complex medium design for recombinant serine alkaline protease production**
ÇALIK P., Celik E., TELLİ İ. E., OKTAR C., Ozdemir E.
ENZYME AND MICROBIAL TECHNOLOGY, vol.33, no.7, pp.975-986, 2003 (SCI-Expanded)

Refereed Congress / Symposium Publications in Proceedings

- I. **Development of Hyaluronic Acid-Polyethylenimine Delivery System for Gene Silencing in Cancer Treatment**
ÇAĞDAŞ TUNALI B., ÇELİK AKDUR E., TÜRK M.

24th International Biomedical Science Technology Symposium, İzmir, Turkey, 17 - 20 October 2019

- II. **Biodegradation Behavior of Two Different Chitosan Films under Controlled Composting Environment**
altun e., ÇELİK E., YAVUZ ERSAN H.
Eurasia 2018 Waste Management Symposium, İstanbul, Turkey, 2 - 04 May 2018
- III. **Hyaluronic acid-polyethylenimine Delivery System for Gene Silencing**
ÇAĞDAŞ TUNALI B., ÇELİK E., TÜRK M.
22nd International Biomedical Science Technology Symposium, Ankara, Turkey, 12 - 14 May 2017, vol.1
- IV. **Glycophage based arrays as an alternative biosensor for pathogen detection**
ÇELİK E.
3rd International Congress on Biosensors, 5 - 07 October 2016
- V. **Producton and chracterization of poly 3 hydroxybutyrate PHB under different dehydrattion techniques by Bacillus megaterium strain**
AKDOĞAN M., ÇELİK AKDUR E.
15th International Symposium on Biopolymers, 26 - 29 September 2016, vol.1
- VI. **Rekombinant selülazın glikoprotein yapısında Escherichia coli bakterisinde üretimi**
YILDIRIM Z., ÇELİK E.
12. Ulusal Kimya Mühendisliği Kongresi, Turkey, 23 - 26 August 2016
- VII. **A New Magnetic silica Based Sorbent for Isolation of Green Fluorescent Protein by Immobilized Metal Affinity Chromatography**
USTA D. D., SALİMİ K., KOÇER İ., ÇELİK E., TUNCEL S. A.
44th International Symposium & Exhibit on High Performance Liquid Phase Separations and Related Techniques (HPLC2016), 19 - 24 June 2016
- VIII. **The Bacterial Glycoengineering Toolbox**
ÇELİK E.
4th Nanomedicine World Congress and 2nd International NanoBioTechnology Symposium, Muğla, Turkey, 8 - 12 September 2015, pp.74
- IX. **Enhanced Production of Novel Cellulase Enzyme Towards Biofuels Sector By Recombinant Bacterium Escherichia coli**
TATLI Z., DELİSA M. P., ÇELİK E.
4th Nanomedicine World Congress and 2nd International NanoBioTechnology Symposium, Muğla, Turkey, 8 - 12 September 2015, pp.112
- X. **Glycan protein interaction studies via GlycoPhage ELISA**
ÇELİK E., GÜR G., BİLGİÇ B., DELİSA M.
International Conference on Chemical and Biochemical Engineering, Paris, France, 20 - 22 July 2015
- XI. **Production and Characterization of the Recombinant Enzyme for Synthesis of Chitosan Biopolymer**
KOÇER İ., YAVUZ ERSAN H., ÇELİK E.
International Conference on Chemical and Biochemical Engineering, Paris, France, 20 - 22 July 2015, vol.1, pp.44
- XII. **Glycoarrays constructed with engineered glycophage nanoparticles**
ÇELİK E., MATTHEW D.
XXIII International Symposium on Glycoconjugates, Split, Croatia, 15 - 20 September 2015, vol.32
- XIII. **Glycan arrays constructed with engineered glyco phage nanoparticles for pathogen detection**
ÇELİK E.
2nd International Congress on Biosensors, İzmir, Turkey, 10 - 12 June 2015
- XIV. **Mikroorganizmalardan kitosan eldesinde verimin artırılması**
KOÇER İ., ÇELİK E., YAVUZ ERSAN H.
11. Ulusal Kimya Mühendisliği Kongresi, Eskişehir, Turkey, 2 - 05 September 2014, pp.24-25
- XV. **Production of biologicals by genetically engineered microorganisms**
ÇELİK E.
1st International NanoBiotechnology Symposium (NanoBioTech 2014), Muğla, Turkey, 27 - 29 August 2014
- XVI. **Effect of co carbon sources on erythropoietin production by Pichia pastoris**

ESKİTOROS M., ÇELİK E., ÇALIK P.

9th European Symposium on Biochemical Engineering Science (ESBES-9), İstanbul, Turkey, 24 - 26 September 2012

XVII. Glyco phage display system for N linked glycoproteins

ÇELİK E., FISHER A. C., GUARINO C., MANSELL T. J., DELİSA M. P.

International Conference on Biomolecular Engineering (ICBE2011), San-Francisco, United States Of America, 16 - 19 January 2011

XVIII. Pichia pastoris mayası ile insan hormonu üretimi ve yapısal analizi

ÇELİK E., ÇALIK P., HALLORAN M., OLİVER S. G.

8. Ulusal Kimya Mühendisliği Kongresi (UKMK-8), Malatya, Turkey, 26 - 29 August 2008, pp.80-81

XIX. Recombinant protein production in Pichia pastoris using byproduct of biodiesel production

ÇELİK E., ÖZBAY N., OKTAR N., ÇALIK P.

BioTech2008- Biopharmaceuticals: Why use yeasts?, Wadenswil, Switzerland, 22 - 23 May 2008, pp.52

XX. Expression and structural characterization of recombinant human erythropoietin from Pichia pastoris

Celik E., ÇALIK P., Halloran S. M., Oliver S. G.

13th European Congress on Biotechnology (ECB 13), Barcelona, Spain, 16 - 19 September 2007, vol.131

XXI. Production and metabolic flux analysis of recombinant human erythropoietin from Pichia pastoris

ÇELİK E., ÇALIK P., OLİVER S. G.

Somer Symposium Series 1 (SSS-1), Ankara, Turkey, 14 - 15 May 2007, pp.132

XXII. Investigation of Pichia pastoris as a system for recombinant erythropoietin production

ÇELİK E., WİSHART J., ZHANG N., ÇALIK P., OLİVER S. G.

10th International Symposium on the Genetics of Industrial Microorganisms (GIM2006), Prag, Czech Republic, 24 - 28 June 2006, pp.256

XXIII. Effects of temperature on intracellular reaction rates in beta lactamase production by Bacillus licheniformis

ÇELİK E., ÇALIK P.

5th European Conference on Biochemical Engineering Science (ESBES-5), Stuttgart, Germany, 8 - 11 September 2004, pp.169

Supported Projects

ÇELİK AKDUR E., Cilasan S., KOÇER İ., Project Supported by Higher Education Institutions, Anti-HER2 Antikor Fragmentinin Bakterilerde Çözünür Formda Üretimine Yönelik Proses Geliştirilmesi, 2021 - 2023

Çelik Akdur E., Yavuz Ersan H., TUBITAK Project, Ortopedik implant kaynaklı enfeksiyon etkeni olan Staphylococcus epidermidis'e özgü aptamer geliştirilmesi ve aptamerin biyofilm oluşumuna etkisinin in vitro koşullarda incelenmesi, 2019 - 2022

ÇELİK AKDUR E., Tsogtbaatar K., Project Supported by Higher Education Institutions, Tıbbi tanıya yönelik ve osteosarkoma özgü aptamerin hücre-SELEX yöntemi ile geliştirilmesi, 2018 - 2019

ÇELİK AKDUR E., AKDOĞAN M., Project Supported by Higher Education Institutions, Rekombinant Bacillus megaterium ile Biyopolimer Üretimi ve Karakterizasyonu, 2016 - 2019

ÇELİK AKDUR E., KOÇER İ., Project Supported by Higher Education Institutions, Selülaz Enzimlerine Bakteriyel Glikozilasyonunun Etkilerinin Araştırılması, 2017 - 2017

ÇELİK AKDUR E., Project Supported by Higher Education Institutions, Rekombinant Glikoproteinlerin E. coli'de Üretimi, 2017 - 2017

YAVUZ ERSAN H., ÇELİK AKDUR E., TUBITAK Project, Antimikrobiyal Polimerlerin Kompostlaştırma Veriminin Baskın Türler Kullanılarak Arttırılması, 2015 - 2017

ÇELİK AKDUR E., YILDIRIM Z., Project Supported by Higher Education Institutions, Rekombinant selülazın glikoprotein yapısında E. coli bakterisinde üretimi, 2016 - 2016

ÇELİK AKDUR E., TUBITAK Project, Biyoyakıt Sektörüne Yönelik Yeni Nesil Selülaz Enzimlerinin Rekombinant Escherichia

Coli Bakterisinde Üretimi, 2014 - 2016

ÇELİK AKDUR E., TUBITAK Project, Biyoyakıt Sektörüne Yönelik Yeni Nesil SelülaZ Enzimlerinin Rekombinant Escherichia coli Bakterisinde Üretimi, 2014 - 2016

Çelik Akdur E., Aksu Z., FP7 Project, Development of Glyco Phage Arrays as a novel high throughput method for glycomics, 2012 - 2016

ÇELİK AKDUR E., Project Supported by Higher Education Institutions, Glikofaj nanopartikülleri ile oluşturulan glikan dizinleri, 2015 - 2015

ÇELİK AKDUR E., Project Supported by Higher Education Institutions, Avrupa Birliği kariyer projesi kapsamında endüstriyel biyoteknoloji laboratuvarı alt yapısının iyileştirilmesi, 2015 - 2015

ÇELİK AKDUR E., Project Supported by Higher Education Institutions, Patojen tanısı için glikofaj nanopartikülleri ile geliştirilmiş glikan dizinleri, 2015 - 2015

ÇELİK AKDUR E., Project Supported by Higher Education Institutions, Kitosan Biyopolimerinin Sentezine Yönelik Rekombinant Enzimin Üretimi ve Karakterizasyonu, 2014 - 2015

ÇELİK AKDUR E., Project Supported by Other Private Institutions, YENİ NESİL KANSER VE PATOJEN TANI ÇİPLERİNE YÖNELİK GLİKO FAJ DİZİNLERİ GLİKOFAJ ELISA TEKNİĞİNİN GELİŞTİRİLMESİ, 2014 - 2015

ÇELİK AKDUR E., Project Supported by Higher Education Institutions, GlikoFaj nanopartiküllerinin sentezini etkileyen parametrelerin incelenmesi, 2014 - 2015

TUBITAK Project, Metabolik Genetik Biyokimyasal Reaksiyon Mühendisliği Prensipleriyle Rekombinant Enzim Üretimi, 2005 - 2008

Activities in Scientific Journals

FRONTIERS IN MICROBIOLOGY, Committee Member, 2022 - Continues

Metrics

Publication: 52

Citation (WoS): 728

Citation (Scopus): 838

H-Index (WoS): 15

H-Index (Scopus): 17

Awards

Çelik Akdur E., Young Women in Science, Unesco - L'oreal, May 2014

Non Academic Experience

Cornell University - Chemical and Biomolecular Engineering Dept.

Cornell University - Chemical and Biomolecular Engineering Dept.

University of Manchester - Faculty of Life Sciences

Procter&Gamble Co. - R&D Dept.- Brüksel, Belçika