

Assoc. Prof. DENİZ AKGÜL



Personal Information

Office Phone: [+90 216 777 3597](tel:+902167773597)

Email: deniz.tufan@marmara.edu.tr

Web: <https://avesis.marmara.edu.tr/deniz.tufan>

International Researcher IDs

ScholarID: [_m3kyt0AAAAJ](https://orcid.org/_m3kyt0AAAAJ)

ORCID: 0000-0002-8095-5645

Publons / Web Of Science ResearcherID: AAA-2913-2022

ScopusID: 54386443300

Yoksis Researcher ID: 183931

Education

Post Doctorate, The University of British Columbia, Faculty of Engineering, Civil Engineering, Canada 2013 - 2014

Doctorate, Marmara University, Faculty of Engineering, Environmental Engineering, Turkey 2007 - 2012

Postgraduate, Marmara University, Faculty of Engineering, Environmental Engineering, Turkey 2005 - 2007

Undergraduate, Marmara University, Faculty of Engineering, Environmental Engineering, Turkey 2000 - 2005

Biography

Dr. Deniz Akgül received her PhD in Environmental Engineering at Marmara University, Turkey in 2012. In 2013, she was awarded a TUBITAK Postdoctoral Scholarship and joined a research project in the University of British Columbia on emerging pretreatment technologies (i.e. microwave, sonication, chemical treatment, high-pressure homogenization) for enhanced biogas production from anaerobic digestion and improved digestate quality. She has been working as a faculty member in Marmara University since 2015.

Her current research interests are Wastewater and Sludge Treatment, Pretreatment Technologies for Enhanced Biomethane from Organic Waste and Biological Nutrient Removal Processes.

Foreign Languages

English, C2 Mastery

Dissertations

Doctorate, Characterization of landfill leachates in turkey and assessment of treatment alternatives, Marmara Üniversitesi, Faculty of Engineering, Environmental Engineering, 2012

Postgraduate, Effect of polymer characteristics on floc strength, Marmara Üniversitesi, Faculty of Engineering, Environmental Engineering, 2007

Research Areas

Environmental Sciences, Environmental Technology, Waste Water Collection and Treatment, Pollution Prevention and Waste Reduction, Water Supply and Treatment, Engineering and Technology

Academic Positions

Associate Professor, Marmara University, Faculty of Engineering, Environmental Engineering, 2021 - Continues

Assistant Professor, Marmara University, Faculty of Engineering, Environmental Engineering, 2015 - 2021

Research Assistant, Marmara University, Faculty of Engineering, Environmental Engineering, 2006 - 2015

Academic and Administrative Experience

Vice Dean, Marmara University, Faculty of Engineering, 2024 - 2025

Supervised Theses

Akgül D., Assessment of biological hydrazine production using anammox bacteria, Doctorate, T.SARI(Student), 2024

Akgül D., Çalli B., An integrated approach for methane enriched biogas production and nutrient recovery from nitrogen rich biomass, Doctorate, Ö.ŞENGÜR(Student), 2024

Akgül D., LEED sertifikası versiyonlarının kaynak verimliliği açısından değerlendirilmesi, Postgraduate, D.NUR(Student), 2020

Akgül D., Kerç A., Pamuklu dokuma gömlek yaşam döngü değerlendirmesi ve alternatif üretim teknikleri, Postgraduate, H.KAZAN(Student), 2019

Akgül D., Molecular investigation of anaerobic ammonium oxidation (Anammox) bacteria under long-term nanoparticle exposure, Postgraduate, T.SARI(Student), 2019

AKGÜL D., Short and long-term effects of titanium dioxide nanoparticles on anammox bacteria, Postgraduate, A.ÖZLEM(Student), 2018

AKGÜL D., Inhibitory effects of zinc oxide nanoparticles on anammox process, Postgraduate, S.CAN(Student), 2018

Journal articles indexed in SCI, SSCI, and AHCI

- I. **Hydrazine (Bio) synthesis and separation: Advances, state-of-the-art methods, and patent review**
Sari T., Akgül D.
BIOMASS CONVERSION AND BIOREFINERY, 2025 (SCI-Expanded)
- II. **Long-term response of anammox process to hydrazine under different exposure strategies**
Sari T., Akgül D., Mertoğlu B.
Journal of Environmental Chemical Engineering, vol.12, no.5, 2024 (SCI-Expanded)
- III. **Enhancement of hydrazine accumulation in anammox bioreactors**
Sari T., AKGÜL D., MERTOĞLU B.
Chemosphere, vol.359, 2024 (SCI-Expanded)
- IV. **In situ methane enrichment with vacuum application to produce biogas with higher methane content**
Sengur O., AKGÜL D., ÇALLI B.
Environmental Science and Pollution Research, 2024 (SCI-Expanded)

- V. **Enhancing biogas production from chicken manure through vacuum stripping of digestate**
Sengur O., AKGÜL D., Bayrakdar A., ÇALLI B.
Biomass Conversion and Biorefinery, 2023 (SCI-Expanded)
- VI. **Accumulation of TiO₂ Nanoparticles in the Anammox Bioreactor: Their Effects on Treatment Performance and Microbial Dynamics**
Sarı T., Akgül D., Mertoğlu B.
BIOCHEMICAL ENGINEERING JOURNAL, vol.187, no.2022, pp.1-37, 2022 (SCI-Expanded)
- VII. **Recovery profile of anaerobic ammonium oxidation (anammox) bacteria inhibited by ZnO nanoparticles**
Can S., Sari T., Akgül D.
WATER SCIENCE AND TECHNOLOGY, vol.85, pp.342-353, 2022 (SCI-Expanded)
- VIII. **Assessment of Anammox process against acute and long-term exposure of ZnO nanoparticles**
Sarı T., Can S., AKGÜL D.
SCIENCE OF THE TOTAL ENVIRONMENT, vol.727, 2020 (SCI-Expanded)
- IX. **Life cycle assessment of cotton woven shirts and alternative manufacturing techniques**
Kazan H., Akgül D., Kerç A.
Clean Technologies and Environmental Policy, vol.22, no.4, pp.849-864, 2020 (SCI-Expanded)
- X. **Nitrogen Converters in Various Landfill Leachates**
AKGÜL D., Yuzer B., Yapsakli K., MERTOĞLU B.
POLISH JOURNAL OF ENVIRONMENTAL STUDIES, vol.27, no.5, pp.1941-1948, 2018 (SCI-Expanded)
- XI. **Assessing iron and aluminum-based coagulants for odour and pathogen reductions in sludge digesters and enhanced digestate dewaterability**
Akgul D., Abbott T., Eskicioglu C.
SCIENCE OF THE TOTAL ENVIRONMENT, vol.598, pp.881-888, 2017 (SCI-Expanded)
- XII. **Influences of low-energy input microwave and ultrasonic pretreatments on single-stage and temperature-phased anaerobic digestion (TPAD) of municipal wastewater sludge**
Akgul D., Cella M. A., Eskicioglu C.
ENERGY, vol.123, pp.271-282, 2017 (SCI-Expanded)
- XIII. **Assessment of microbial viability in municipal sludge following ultrasound and microwave pretreatments and resulting impacts on the efficiency of anaerobic sludge digestion**
Cella M. A., Akgul D., Eskicioglu C.
APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, vol.100, no.6, pp.2855-2868, 2016 (SCI-Expanded)
- XIV. **Treatment of landfill leachate using UASB-MBR-SHARON-Anammox configuration**
AKGÜL D., KALKAN AKTAN Ç., Yapsakli K., MERTOĞLU B.
BIODEGRADATION, vol.24, no.3, pp.399-412, 2013 (SCI-Expanded)
- XV. **Solidification/stabilization of landfill leachate concentrate using different aggregate materials**
Hunçe S., AKGÜL D., DEMİR G., MERTOĞLU B.
WASTE MANAGEMENT, vol.32, no.7, pp.1394-1400, 2012 (SCI-Expanded)
- XVI. **Evaluation of Biological Activated Carbon (BAC) process in wastewater treatment secondary effluent for reclamation purposes**
Kalkan C., Yapsakli K., MERTOĞLU B., Tufan D., Saatci A.
DESALINATION, vol.265, pp.266-273, 2011 (SCI-Expanded)
- XVII. **CHARACTERIZATION OF LANDFILL LEACHATES IN TURKEY**
AKGÜL D., MERTOĞLU B., Yuzer B.
FRESenius ENVIRONMENTAL BULLETIN, vol.20, no.10, pp.2638-2642, 2011 (SCI-Expanded)

Articles Published in Other Journals

- I. **Short-term inhibitory effects of TiO₂ NPs on Anammox process**
Sarı T., Yar A. Ö., Akgül D.

Biotech Studies, vol.29, no.1, pp.29-37, 2020 (Peer-Reviewed Journal)

II. **Farklı LEED Versiyonlarının İç Mekânlardaki Su ve Enerji Verimliliği Üzerindeki Etkileri**

Keskin D. N., Akgül D.

International Journal of Advances in Engineering and Pure Sciences, vol.32, no.3, pp.340-350, 2020 (Peer-Reviewed Journal)

III. **Temperature phased anaerobic digestion of municipal sewage sludge: a Bardenpho treatment plant study**

Akgul D., Cella M. A., Eskicioglu C.

WATER PRACTICE AND TECHNOLOGY, vol.11, no.3, pp.569-573, 2016 (ESCI)

IV. **Treatment of Landfill Leachate by Advanced Oxidation Processes**

Koçak S., Güney C., Tarkın B., Kirtman E. Ö., AKGÜL D., MERTOĞLU B.

Marmara Fen Bilimleri Dergisi, 2013 (Peer-Reviewed Journal)

V. **Effect of High Ammonia Concentration on UASB Reactor Treating Sanitary Landfill Leachate**

YÜZER B., AKGÜL D., MERTOĞLU B.

Marmara Fen Bilimleri Dergisi, 2012 (Peer-Reviewed Journal)

Papers Presented at Peer-Reviewed Scientific Conferences

I. **Assessment of Environmental Impacts of Using Reverse Vending Machines in the Management of Waste Beverage Packaging**

Yetgin S., AKGÜL D.

7 th Eurasia Waste Management Symposium, İstanbul, Turkey, 21 October 2024, (Summary Text)

II. **A novel digester configuration for simultaneous biogas production and ammonia recovery**

Şengür Ö., AKGÜL D., BAYRAKDAR A., ÇALLI B.

International Sustainable Resource Recovery Strategies Towards Zero Waste (FULLRECO4US), İstanbul, Turkey, 13 - 15 September 2023, (Summary Text)

III. **Long-term effects of microplastics polymers on anammox process**

BAKIRCI K., Sari T., AKGÜL D., MERTOĞLU B.

International Sustainable Resource Recovery Strategies Towards Zero Waste (FULLRECO4US) Conference, Turkey, 13 - 15 September 2023, (Summary Text)

IV. **Effects of vacuum treatment on anaerobic digestion of chicken manure digestate**

Şengür Ö., AKGÜL D., BAYRAKDAR A., ÇALLI B.

10th International Conference on Sustainable Solid Waste Management, Chania, Greece, 21 - 24 June 2023, (Summary Text)

V. **Assessing the potential of anammox bacteria as an alternative bioenergy resource**

Sari T., AKGÜL D., MERTOĞLU B.

10th International Conference on Sustainable Solid Waste Management, Greece, 21 - 24 June 2023, (Summary Text)

VI. **Bioenergy production from wastewater: The case study of hydrazine biosynthesis tolerance of anammox bacteria**

Sari T., AKGÜL D., MERTOĞLU B.

31st European Biomass Conference & Exhibition, Bologna, Italy, 3 - 08 June 2023, (Summary Text)

VII. **Heat-Assisted Vacuum Disintegration of Waste Activated Sludge for Improved Biogas Production**

Kaplan Ö., AKGÜL D., ÇALLI B.

Euresia Waste Management Symposium, 26 - 28 October 2020, (Full Text)

VIII. **Long-term molecular investigations of Anammox bacteria exposed to TiO₂ nanoparticle**

Sari T., Akgül D.

European Biotechnology Congress, Valencia, Spain, 11 - 13 April 2019, vol.305, (Summary Text)

IX. **Identification of Anammox bacteria in landfill leachates of Turkey**

BAKIRCI K., AKGÜL D., MERTOĞLU B.

IWA World Conference on Anaerobic Digestion, 17 October 2017 - 20 October 2107, (Summary Text)

- X. **Inhibitory effects of zinc oxide nanoparticles on anammox process**
Can S., AKGÜL D.
ICETI 2017, 22 - 26 March 2017, (Summary Text)
- XI. **Start Up of Anammox Reactor and Short Term Effects of TiO₂ Nanoparticles on Anammox Bacteria**
Yar A. Ö., AKGÜL D.
ICETI 2017, 22 - 26 March 2017, (Summary Text)
- XII. **Size and Coating Effects of ZnO Nanoparticles on Mesophilic and Thermophilic Sludge Digestion**
OLAYA W., AKGÜL D., ESKİCİOĞLU C.
10th International Society for Environmental Biotechnology Conference Barcelona, 1 - 03 June 2016
- XIII. **Application of Microbial Stains in Pre Treated Municipal Sludge to Study Subsequent Effects on Biogas and Methane Production During Anaerobic Digestion**
CELLA M., AKGÜL D., ESKİCİOĞLU C.
WEF/IWA Residuals and Biosolids 2015 Conference, Washington, DC, 7 - 10 June 2015, (Full Text)
- XIV. **Temperature Phased Anaerobic Digestion of Municipal Sewage Sludge A Bardenpho Treatment Plant Study**
AKGÜL D., CELLA M., ESKİCİOĞLU C.
WEF/IWA Residuals and Biosolids 2015 Conference, Washington, DC, 7 - 10 June 2015, (Full Text)
- XV. **QUANTITATIVE EVALUATION OF NITROGEN CONVERTERS IN VARIOUS LANDFILL LEACHATES**
MERTOĞLU B., YÜZER B., AKGÜL D.
16th International Biotechnology Symposium and Exhibition, 14 - 19 September 2014, (Summary Text)
- XVI. **Türkiye’de beyaz eşya üretiminden kaynaklanan tehlikeli atıklar**
Yazıcı B., CAN Z. S., ÇALLI B., MERTOĞLU B., GÖKYAY O., AKGÜL D., YETİŞ Ü.
İTÜ 13. Endüstriyel Kirlenme Kontrolü Sempozyumu, Turkey, 17 - 19 October 2012, (Full Text)
- XVII. **Türkiye’de otomotiv sektöründen kaynaklanan tehlikeli atıkların azaltılması çalışmaları**
CAN Z. S., GÖKYAY O., ÇALLI B., MERTOĞLU B., AKGÜL D., Yazıcı B., YETİŞ Ü.
İTÜ 13. Endüstriyel Kirlenme Kontrolü Sempozyumu, Turkey, 17 - 19 October 2012, (Full Text)
- XVIII. **Hazardous Waste Generation From Household Appliances Industry in Turkey**
YAZICI B., ÇALLI B., MERTOĞLU B., CAN Z. S., GÖKYAY O., AKGÜL D., YETİŞ Ü.
EurAsia Waste Management Symposium, 14 - 16 November 2011, (Full Text)
- XIX. **Investigation of Hazardous Waste Generation by Turkish Automotive Industry**
YAZICI B., CAN Z. S., GÖKYAY O., ÇALLI B., MERTOĞLU B., AKGÜL D., YETİŞ Ü.
EurAsia Waste Management Symposium, 14 - 16 November 2011, (Full Text)
- XX. **Samsun katı atık düzenli depo sahası sızıntı suyu karakterizasyonu**
YÜZER B., AKGÜL D., MERTOĞLU B.
9. Ulusal Çevre Mühendisliği Kongresi, Samsun, Turkey, 5 - 08 October 2011, (Full Text)
- XXI. **Characterization of Landfill Leachates in Turkey**
AKGÜL D., YÜZER B., MERTOĞLU B.
International Sustainable Water and Wastewater Management Symposium, 26 - 28 October 2011, (Full Text)
- XXII. **Characterization of dissolved organic matter in landfill leachate by fluorescence spectroscopy**
MERTOĞLU B., BAKIRCI K., AKGÜL D., YÜZER B.
Fourth IWA Specialty Conference Natural Organic Matter: From Source to Tap and Beyond, 27 July 2011, (Summary Text)
- XXIII. **Tertiary treatment of Paşaköy Advanced Wastewater Treatment Plant by biological activated carbon (BAC)**
BAKIRCI K., KALKAN AKTAN Ç., AKGÜL D., MERTOĞLU B.
IWA World Water Congress and Exhibition 2010, 19 - 24 September 2010, (Summary Text)
- XXIV. **Co-occurrence of aerobic and anaerobic ammonium oxidizing microorganisms in landfill leachate**
AKGÜL D., Aliyazıcıoğlu Ç., YÜZER B., MERTOĞLU B.
IWA World Water Congress and Exhibition, 19 - 24 September 2010, (Summary Text)
- XXV. **Havalandırılmalı katı atık depo sahasındaki mikrobiyal çeşitliliğin moleküler tekniklerle incelenmesi**

MERTOĞLU B., ÇALLI B., AKANYETİ İ., AKGÜL D., Akalm N., İNANÇ B.
6. Ulusal Çevre Mühendisliği Kongresi, Turkey, 24 - 26 November 2005, (Full Text)

Funded Projects

Çallı B., Akgül D., Bakırcı K., TUBITAK Project, 2019 YILI MARMARA ÜNİVERSİTESİ VE ARÇELİK AŞ İŞ BİRLİĞİ İLE ÇEVRESEL SÜRDÜRÜLEBİLİRLİK ALANINDA DOKTORA - SANAYİ PROJESİ, 2020 - 2027

Mertoğlu B., Akgül D., Bakırcı K., Aydın C., TUBITAK Project, Anammox Bakterilerinden Hidrazin (Roket Yakıtı) Üretimi, 2022 - 2025

Akgül D., Sari T., Project Supported by Higher Education Institutions, Evaluation of Biological Hydrazine Production Using Anammox Bacteria, 2022 - 2024

Çallı B., Akgül D., Bayrakdar A., EU Supported Other Project, A biorefinery approach to exploit digestate as key feedstock in the energy – nutrient nexus, 2022 - 2023

Akgül D., Çallı B., Kaplan Ö., TUBITAK Project, Vakum Destekli Biyogaz Zenginleştirme İşlemi, 2020 - 2022

Akgül D., Mertoğlu B., TUBITAK Project, Anammox Prosesinde Hidrazin Toleransı ve Metabolizmasının Araştırılması, 2019 - 2020

Akgül D., Mertoğlu B., TUBITAK Project, Nanoparçacıkların Zenginleştirilmiş Anammox Kültürü Üzerindeki İnhibisyon Etkileri, 2018 - 2020

Akgül D., Sarı T., Project Supported by Higher Education Institutions, Uzun Süreli Nanopartikül Maruziyetinde Bırakılan Anaerobik Amonyum Oksidasyon (Anammox) Bakterilerinin Moleküler İncelenmesi, 2018 - 2019

Akgül D., Mertoğlu B., Project Supported by Higher Education Institutions, Zenginleştirilmiş Anammox kültüründe çinko oksit nanoparçacık inhibisyonunun araştırılması, 2016 - 2019

Akgül D., Can S., Project Supported by Higher Education Institutions, Çinko Oksit Nanoparçacıklarının Anammox Prosesi Üzerindeki İnhibisyon Etkileri, 2017 - 2018

Akgül D., Yar A. Ö., Project Supported by Higher Education Institutions, TiO₂ Nanoparçacıklarının Anammox Bakterileri Üzerindeki Kısa ve Uzun Süreli Etkileri, 2017 - 2018

Gökyay O., Can Z. S., Çallı B., Mertoğlu B., Akgül D., TUBITAK Project, Türkiye de AB Çevre Mevzuatı ile uyumlu Tehlikeli Atık Yönetimi, 2009 - 2013

Can Z. S., Yükselen M. A., Gökyay O., TUBITAK Project, Yüksek Çözünmüş Organik Madde İçeren Sularda Flok Yapılarının İncelenmesi , 2005 - 2008

Mobility Activity

Post Doc, Post Doc, The University of British Columbia, Canada, 2013 - 2014

Metrics

Publication: 47

Citation (WoS): 379

Citation (Scopus): 456

H-Index (WoS): 8

H-Index (Scopus): 9

Scholarships

TUBITAK, 2013 - 2014

Non Academic Experience

The University of British Columbia, Doktora Sonrası Arařtirmacı