

## Res. Asst. PhD GÜLCAN ŞAHAL

### Personal Information

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### Education Information

Doctorate, Hacettepe University, Fen Bilimleri Enstitüsü, Biyoloji/Biyoteknoloji, Turkey 2011 - 2016

Postgraduate, Hacettepe University, Fen Bilimleri Enstitüsü, Turkey 2008 - 2011

Undergraduate, Hacettepe University, Fen Fakültesi, Turkey 2004 - 2008

### Foreign Languages

English, C1 Advanced

### Certificates, Courses and Trainings

Education Management and Planning, Eğitimcilerin Eğitimi Programı, Hacettepe Üniversitesi Yaşam Boyu Öğrenme Merkezi, 2016

Health&Medicine, Deney Hayvanı Kullanımı, Hacettepe Üniversitesi Hayvan Deneyleri Etik Kurulu, 2016

Education Management and Planning, Diksiyon, Hacettepe Üniversitesi, 2013

Health&Medicine, Biyoteknoloji Sektörel İnovasyon Sistemi, Türkiye Teknoloji Geliştirme Vakfı (TTGV), 2013

Health&Medicine, Hibridoma Teknolojisi Ve Antikora Dayalı Tanı Sistemlerinin Geliştirilmesi, TÜBİTAK Marmara Araştırma Merkezi, Gen Mühendisliği Ve Biyoteknoloji Enstitüsü, 2011

Health&Medicine, Türkiye’de Adli Toksikolojinin Bugünü Ve Geleceği, Hacettepe Üniversitesi, 2010

Health&Medicine, Doku Mühendisliği Uygulamalarında: Biyomalzeme-Doku Uyumu, Hacettepe Üniversitesi Tıp Fakültesi, 2009

Education Management and Planning, Temel Biyoinformatik Yöntemleri” Konulu Uygulamalı Eğitim Programı, 1. TÜBİTAK Marmara Araştırma Merkezi, Gen Mühendisliği Ve Biyoteknoloji Enstitüsü, 2008

### Research Areas

Life Sciences, Biotechnology, Biomaterial, Industrial Biotechnology, Microbial Biotechnology, Natural Sciences

### Academic Titles / Tasks

Research Assistant PhD, Hacettepe University, Fen Fakültesi, Biyoloji Bölümü, 2009 - Continues

### Published journal articles indexed by SCI, SSCI, and AHCI

1. Chemical characterization of *Thymus zygis* L. (thyme) and *Elettaria cardamomum* L. (cardamom)

**essential oils and investigation of their inhibitory potentials against cervicovaginal Escherichia coli isolates**

Şahal G., Donmez H. G., Beksac M. S.

EUROPEAN JOURNAL OF INTEGRATIVE MEDICINE, vol.68, no.102366, pp.1-10, 2024 (SCI-Expanded)

- II. **Evaluation of glycyl-arginine and lysyl-aspartic acid dipeptides for their antimicrobial, antibiofilm, and anticancer potentials.**  
Sevim Akan H., Şahal G., Karaca T. D., Gürpınar Ö. A., Maraş M., Çetin A.  
Archives of microbiology, vol.205, no.12, pp.365, 2023 (SCI-Expanded)
- III. **Cervicovaginal Bacillus velezensis Isolate: A Potential Probiotic and an Antagonist Against Candida and Staphylococcus**  
ŞAHAL G., DÖNMEZ H. G., BEKSAÇ M. S.  
Current Microbiology, vol.80, no.10, 2023 (SCI-Expanded)
- IV. **Thyme essential oil as an antimicrobial and biofilm inhibitory agent against abscesses with P. mirabilis Infections**  
Beksac K., ŞAHAL G., DÖNMEZ H. G.  
JOURNAL OF HERBAL MEDICINE, vol.28, 2021 (SCI-Expanded)
- V. **The relationship between the presence of HPV infection and biofilm formation in cervicovaginal smears**  
DÖNMEZ H. G., ŞAHAL G., AKGÖR U., ÇAĞAN M., ÖZGÜL N., BEKSAÇ M. S.  
INFECTON, vol.48, no.5, pp.735-740, 2020 (SCI-Expanded)
- VI. **Electrospun essential oil-polycaprolactone nanofibers as antibiofilm surfaces against clinical Candida tropicalis isolates**  
ŞAHAL G., NASSERI B., EBRAHIMI A., BILKAY I. S.  
BIOTECHNOLOGY LETTERS, vol.41, pp.511-522, 2019 (SCI-Expanded)
- VII. **Antifungal and biofilm inhibitory effect of Cymbopogon citratus (lemongrass) essential oil on biofilm forming by Candida tropicalis isolates; an in vitro study**  
ŞAHAL G., WOERDENBAG H. J., HINRICHS W. L. J., VISSER A., TEPPER P. G., QUAX W. J., VAN DER MEI H. C., BILKAY I. S.  
JOURNAL OF ETHNOPHARMACOLOGY, vol.246, 2019 (SCI-Expanded)
- VIII. **Distribution of clinical isolates of Candida spp. and antifungal susceptibility of high biofilm-forming Candida isolates**  
ŞAHAL G., BILKAY I. S.  
REVISTA DA SOCIEDADE BRASILEIRA DE MEDICINA TROPICAL, vol.51, no.5, pp.644-650, 2018 (SCI-Expanded)
- IX. **Higher Biofilm Formation by Multi-Drug Resistant K-pneumoniae and K-rhinoscleromatis Strains and Effects of Lemon and Ginger Essential Oils on Biofilm Formation**  
ŞAHAL G., AVCIOĞLU N. H., BILKAY I. S.  
INDIAN JOURNAL OF PHARMACEUTICAL EDUCATION AND RESEARCH, vol.50, no.2, 2016 (SCI-Expanded)
- X. **ANTIBIOFILM EFFECTS of Citrus limonum and Zingiber officinale Oils on BIOFILM FORMATION of Klebsiella ornithinolytica, Klebsiella oxytoca and Klebsiella terrigena SPECIES**  
AVCIOĞLU N. H., ŞAHAL G., BILKAY I. S.  
AFRICAN JOURNAL OF TRADITIONAL COMPLEMENTARY AND ALTERNATIVE MEDICINES, vol.13, no.6, pp.61-67, 2016 (SCI-Expanded)
- XI. **Anti-biofilm effect of nanometer scale silver (NmSAg) coatings on glass and polystyrene surfaces against P-mirabilis, C-glabrata and C-tropicalis strains**  
ŞAHAL G., NASSERI B., BILKAY I. S., PISKIN E.  
JOURNAL OF APPLIED BIOMATERIALS & FUNCTIONAL MATERIALS, vol.13, no.4, 2015 (SCI-Expanded)
- XII. **Multidrug resistance by biofilm-forming clinical strains of Proteus mirabilis**  
ŞAHAL G., BILKAY I. S.  
ASIAN BIOMEDICINE, vol.9, no.4, pp.535-541, 2015 (SCI-Expanded)
- XIII. **Multi drug resistance in strong biofilm forming clinical isolates of Staphylococcus epidermidis**  
ŞAHAL G., BILKAY I. S.  
BRAZILIAN JOURNAL OF MICROBIOLOGY, vol.45, no.2, pp.539-544, 2014 (SCI-Expanded)

- XIV. **Determination of biofilm formation in clinical strains of *Proteus mirabilis***  
ŞAHAL G., BILKAY I. S.  
NEW BIOTECHNOLOGY, vol.29, 2012 (SCI-Expanded)

### Articles Published in Other Journals

- I. **Accelerating the environmental biodegradation of poly-3-hydroxybutyrate (PHB) via plasma surface treatment**  
Akdoğan E., Şirin H. T., Şahal G., Deniz Z., Kaya A., Çökeliler D.  
Bioresource Technology Reports, vol.25, pp.1-11, 2023 (Peer-Reviewed Journal)
- II. **ANTIMICROBIAL PIGMENT FROM FUSARIUM GRAMINEARUM: OPTIMIZING CONDITIONS AND UTILIZING AGRO-INDUSTRIAL RESIDUES**  
Dag T., ŞAHAL G., Bilkay I. S.  
Journal of Microbiology, Biotechnology and Food Sciences, vol.13, no.2, 2023 (ESCI)
- III. **Candida Biofilm Formation Assay on Essential Oil Coated Silicone Rubber**  
ŞAHAL G., Woerdenbag H. J., Hinrichs W. L. J., Visser A., van der Mei H. C., SEYİS BİLKAY I.  
BIO-PROTOCOL, vol.11, no.5, 2021 (ESCI)
- IV. **Investigation of Biofilm Formation in Clinically Acquired *Escherichia coli* Strains**  
AVCIOĞLU N. H., ŞAHAL G., SEYİS BİLKAY I.  
HACETTEPE JOURNAL OF BIOLOGY AND CHEMISTRY, vol.43, no.1, pp.43-48, 2015 (Peer-Reviewed Journal)
- V. **Determination of Antibiotic Resistance and Plasmid DNA Profiles of *Escherichia coli* Strains Isolated from Clinical Materials**  
Şahal G., Avcioğlu N. H., Seyis Bilkay I.  
INTERNATIONAL JOURNAL OF AGRICULTURE AND BIOLOGY, vol.12, no.5, pp.724-728, 2010 (Scopus)

### Refereed Congress / Symposium Publications in Proceedings

- I. **Influence of *E. coli* cell density on antibiotic resistance**  
ŞAHAL G.  
5th International Euroasian Conference on Biological and Chemical Sciences, Ankara, Turkey, 23 - 25 November 2022
- II. **Belirli Uçucu Yağların *E. coli* İzolatlarına Karşı Antimikrobiyal Etkilerinin Araştırılması**  
ŞAHAL G.  
5.Ulusal Uygulamalı Biyolojik Bilimler Kongresi, Adana, Turkey, 29 October 2022
- III. **Determination and distribution of biofilm forming cervicovaginal polymicrobial cultures**  
Şahal G., Dönmez H. G.  
Determination and distribution of biofilm forming cervicovaginal polymicrobial cultures, Ankara, Turkey, 16 December 2020 - 18 November 2023, pp.82
- IV. **Importance of biofilm formation during the management of cytolytic vaginosis; Necessity of essential oils**  
Şahal G., Dönmez H. G.  
3rd International Eurasian Conference on Biological and Chemical Sciences, Ankara, Turkey, 19 - 20 March 2020, pp.311
- V. **Effect of Lemongrass Oil Containing Polycaprolactone Nanofibers on Biofilm Formation of *Proteus mirabilis***  
ŞAHAL G., NASSERI B., EBRAHİMİ A. A., SEYİS BİLKAY I.  
18th International Conference on Bioinformatics, Biomedicine, Biotechnology and Computational Biology, 15 - 16 August 2016
- VI. **Effects of Cinnamon Lemon and Lemongrass Essential Oils on Biofilm Formation of *Candida***

## **tropicalis upon Polyethylene Polytetrafluoroethylene and Glass Surfaces**

ŞAHAL G., Van der MEI H., SEYİS BİLKAY I.

W.J. Kolff Conference, 29 - 31 March 2015

- VII. **Anti Biofilm Effect of Nanometer Scale Silver NmsAg Coatings on Glass and Polystyrene Surfaces Against Clinical P mirabilis C glabrata and C tropicalis Strains**  
ŞAHAL G., BEHZAD N., SEYİS BİLKAY I., PİŞKİN E.  
20th International Symposium on Biomedical Science and Technology, 23 - 26 August 2014
- VIII. **Escherichia coli Suşlarında Antibiyotik Dirençliliğinin ve Biyofilm Oluşumunun Araştırılması**  
ŞAHAL G., AVCIOĞLU N. H., SEYİS BİLKAY I.  
22. Ulusal Biyoloji Kongresi, Turkey, 23 - 27 June 2014
- IX. **Klinik Proteus mirabilis Suşlarının Cam Malzeme Üzerindeki Biyofilm Oluşumlarının Araştırılması**  
ŞAHAL G., SEYİS BİLKAY I.  
22. Ulusal Biyoloji Kongresi, Turkey, 23 - 27 June 2014
- X. **Klinik Klebsiella ornithinolytica Klebsiella oxytoca ve Klebsiella terrigena izolatlarında biyofilm oluşumunun araştırılması**  
AVCIOĞLU N. H., ŞAHAL G., SEYİS BİLKAY I.  
22. Ulusal Biyoloji Kongresi, Turkey, 23 - 27 June 2014
- XI. **Investigation of Biofilm Formation in Clinical Strains of Klebsiella pneumoniae and Klebsiella rhinoscleromatis**  
ŞAHAL G., AVCIOĞLU N. H., SEYİS BİLKAY I.  
International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering, 15 - 16 May 2014
- XII. **Determination of Biofilm Formation in Different Clinical Candida Species and Investigation of Effects of Some Plant Substances on These Biofilms**  
ŞAHAL G., SEYİS BİLKAY I.  
International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering, 15 - 16 May 2014
- XIII. **Staphylococcus epidermidis Proteus mirabilis ve Candida albicans Suşlarında Antibiyotik Dirençliliğinin Araştırılması**  
ŞAHAL G., SEYİS BİLKAY I.  
1. Antibiyotik Farkındalık Sempozyumu, Turkey, 20 - 22 November 2012
- XIV. **Determination of Biofilm Formation in Clinical Strains of Proteus mirabilis**  
ŞAHAL G., SEYİS BİLKAY I.  
15th European Congress on Biotechnology (ECB15) 23-26 Eylül 2012, İstanbul, 170-171., 23 - 26 September 2012
- XV. **Determination of Biofilm Formation and Antifungal Resistance in Candida albicans and Candida glabrata.**  
Şahal G.  
Biofilms in Nosocomial Fungal Infections, Paris, France, 31 January - 01 February 2011, pp.82
- XVI. **İdrar Yolu Enfeksiyonlarından İzole Edilen Escherichia coli Suşlarının Antibiyotik Dirençliliği ve Plazmid Profillerinin Belirlenerek Karşılaştırılması**  
ÜRKMEZ N. H., ŞAHAL G., SEYİS BİLKAY I.  
XVI. Ulusal Biyoteknoloji Kongresi, Turkey, 13 - 16 December 2009

## **Supported Projects**

ŞAHAL G., DÖNMEZ H. G., SÜTEKİN S. D., KARAHİSAR TURAN S., SEYİS BİLKAY I., GÜVEN O., TANER A., Project Supported by Higher Education Institutions, Bitkisel madde içerikli hidrojel ve mikrobiyal selülozların antimikrobiyal ve antibiyofilm etkileri ile sitotoksik potansiyellerinin araştırılması, 2020 - 2023

ŞAHAL G., SEYİS BİLKAY I., Project Supported by Higher Education Institutions, Çeşitli Esansiyel Yağlar içeren Polikaprolakton Nanofiberlerin Farklı Candida Türleri Üzerindeki Antibiyofilm Etkilerinin Araştırılması, 2017 - 2018

ŞAHAL G., Project Supported by Higher Education Institutions, Limonotu Yağı içeren Polikaprolakton Nanofiberlerinin, Proteus mirabilis'in Biyofilm Oluşumuna Etkisi, 2016 - 2016

SEYİS BİLKAY I., ŞAHAL G., Project Supported by Higher Education Institutions, Farklı Klinik Candida Suşlarının Çeşitli Malzemeler Üzerinde Oluşturdukları Biyofilmlerin Ve Bu Biyofilmler Üzerine Etkisi Olan Farklı Bitkisel Maddelerin Araştırılması, 2016 - 2016

## Scientific Refereeing

Journal of International Research in Medical and Pharmaceutical Sciences, Other Indexed Journal, December 2016

## Metrics

Publication: 35

Citation (WoS): 37

Citation (Scopus): 32

H-Index (WoS): 3

H-Index (Scopus): 4

## Congress and Symposium Activities

18th International Conference on Bioinformatics, Biomedicine, Biotechnology and Computational Biology, Attendee, Kobenhavn, Denmark, 2016

W.J. Kolff Conference, Attendee, Groningen, Netherlands, 2015

The 5th Thesinge Biofilm Meeting, Attendee, Groningen, Netherlands, 2014

20th International Symposium on Biomedical Science and Technology, Attendee, Muğla, Turkey, 2014

22. Ulusal Biyoloji Kongresi, Attendee, Eskişehir, Turkey, 2014

International Conference on Agricultural, Biotechnology, Biological and Biosystems Engineering, Attendee, Amsterdam, Netherlands, 2014

10. Ulusal Çevre Mühendisliği Kongresi, Attendee, Ankara, Turkey, 2013

10. Ulusal Çevre Mühendisliği Kongresi, Attendee, Ankara, Turkey, 2013

International Conference on Environmental Science and Technology (ICOEST 2013), Attendee, Nevşehir, Turkey, 2013

1. Antibiyotik Farkındalık Sempozyumu, Attendee, Kırıkkale, Turkey, 2012

15th European Congress on Biotechnology (ECB15), Attendee, İstanbul, Turkey, 2012

21. Ulusal Biyoloji Kongresi, Attendee, İzmir, Turkey, 2012

Biofilms In Nosocomial Fungal Infections, Attendee, Paris, France, 2011

XVI. Ulusal Biyoteknoloji Kongresi, Attendee, Denizli, Turkey, 2010

4. Kök Hücre Sempozyumu, Attendee, Ankara, Turkey, 2009

## Non Academic Experience

Hacettepe Üniversitesi