ISTANBUL AYDIN UNIVERSITY
FACULTY OF PHARMACY

E-NEWSLETTER

1 OCTOBER – 31 OCTOBER 2026



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- Biochemistry
- Pharmaceutical Microbiology

Our Faculty Member Asst. Prof. Dr. Merve Ataman Participated in the DRD 2026 Symposium

Our faculty member in the Department of Pharmaceutical Microbiology, Asst. Prof. Dr. Merve Ataman, participated in the “International Multidisciplinary Symposium on Drug Research & Development (DRD 2026),” held at Fenerbahçe University on October 1–3, 2026. During the symposium, she delivered an oral presentation entitled “Antibacterial and Antifungal Activities of Hydrazide-Hydrazone Derivatives.”



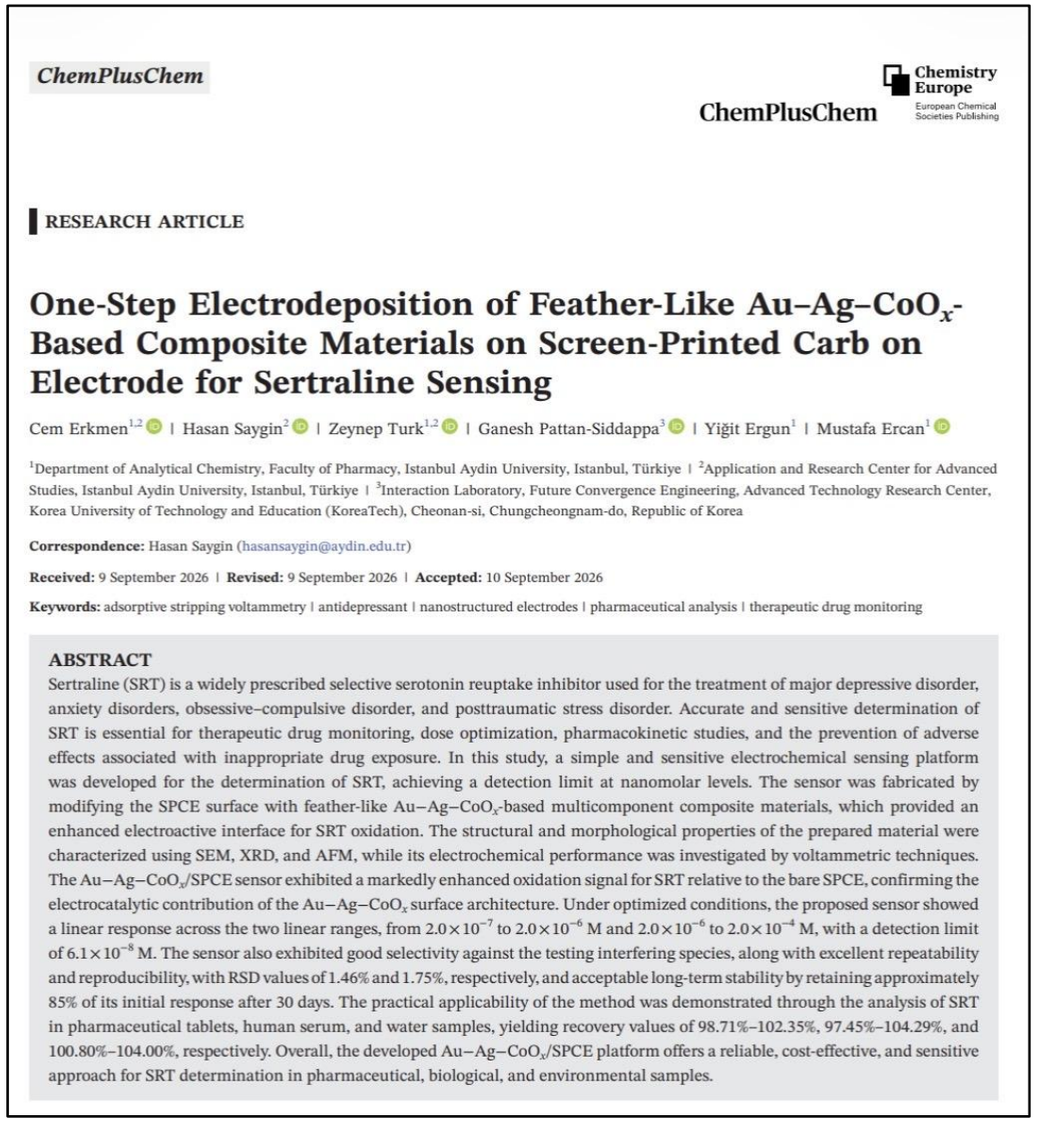
Our Faculty Member Asst. Prof. Dr. Gizem Sena Elagöz Delivered Practical Training as Part of the Cosmetic Product Safety Assessor Training



Asst. Prof. Dr. Gizem Sena Elagöz, a faculty member in our Department of Pharmaceutical Toxicology, delivered eight hours of practical training as part of the “Cosmetic Product Safety Assessor Training” organized by the Istanbul University-Cerrahpaşa Continuing Education Center, under the coordination of NBC Uygunluk Değerlendirme Eğitim Ltd. Şti.

Research by Our Faculty Members Assoc. Prof. Dr. Cem Erkmen and Asst. Prof. Dr. Zeynep Türk Published in *ChemPlusChem*

The study entitled "One-Step Electrodeposition of Feather-Like Au-Ag-CoO_x-Based Composite Materials on Screen-Printed Carbon Electrode for Sertraline Sensing" by our Department of Analytical Chemistry faculty members Assoc. Prof. Dr. Cem Erkmen and Asst. Prof. Dr. Zeynep Türk was published in *ChemPlusChem*, a Q2-ranked journal.



ChemPlusChem

Chemistry Europe
European Chemical Societies Publishing

ChemPlusChem

RESEARCH ARTICLE

One-Step Electrodeposition of Feather-Like Au–Ag–CoO_x-Based Composite Materials on Screen-Printed Carb on Electrode for Sertraline Sensing

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Keywords: adsorptive stripping voltammetry | antidepressant | nanostructured electrodes | pharmaceutical analysis | therapeutic drug monitoring

ABSTRACT

Sertraline (SRT) is a widely prescribed selective serotonin reuptake inhibitor used for the treatment of major depressive disorder, anxiety disorders, obsessive–compulsive disorder, and posttraumatic stress disorder. Accurate and sensitive determination of SRT is essential for therapeutic drug monitoring, dose optimization, pharmacokinetic studies, and the prevention of adverse effects associated with inappropriate drug exposure. In this study, a simple and sensitive electrochemical sensing platform was developed for the determination of SRT, achieving a detection limit at nanomolar levels. The sensor was fabricated by modifying the SPCE surface with feather-like Au–Ag–CoO_x-based multicomponent composite materials, which provided an enhanced electroactive interface for SRT oxidation. The structural and morphological properties of the prepared material were characterized using SEM, XRD, and AFM, while its electrochemical performance was investigated by voltammetric techniques. The Au–Ag–CoO_x/SPCE sensor exhibited a markedly enhanced oxidation signal for SRT relative to the bare SPCE, confirming the electrocatalytic contribution of the Au–Ag–CoO_x surface architecture. Under optimized conditions, the proposed sensor showed a linear response across the two linear ranges, from 2.0×10^{-7} to 2.0×10^{-6} M and 2.0×10^{-6} to 2.0×10^{-4} M, with a detection limit of 6.1×10^{-8} M. The sensor also exhibited good selectivity against the testing interfering species, along with excellent repeatability and reproducibility, with RSD values of 1.46% and 1.75%, respectively, and acceptable long-term stability by retaining approximately 85% of its initial response after 30 days. The practical applicability of the method was demonstrated through the analysis of SRT in pharmaceutical tablets, human serum, and water samples, yielding recovery values of 98.71%–102.35%, 97.45%–104.29%, and 100.80%–104.00%, respectively. Overall, the developed Au–Ag–CoO_x/SPCE platform offers a reliable, cost-effective, and sensitive approach for SRT determination in pharmaceutical, biological, and environmental samples.

Our Faculty Member Asst. Prof. Dr. Tuğçe Tüccar Has Been Appointed as Guest Editorial Assistant for a Special Issue of *Microorganisms*

Asst. Prof. Dr. Tuğçe Tüccar, a faculty member in the Department of Pharmaceutical Microbiology, has been appointed as “Guest Editorial Assistant” for the special issue entitled “Microbiologically Influenced Corrosion: Biofilm Formation and Inhibition” of *Microorganisms*, published by MDPI.


Special Issue

Microbiologically Influenced Corrosion: Biofilm Formation and Inhibition

Message from the Guest Editors

Microbiologically Influenced Corrosion (MIC) poses a significant economic threat across global industries, particularly in the oil, gas, and marine sectors. Although the corrosion mechanisms of iron and its alloys under controlled laboratory conditions have become clearer in recent years, the processes underlying MIC in other critical metals remain poorly understood. Common engineering materials such as aluminum, copper, zinc, and titanium rely on passive surface layers for protection. However, bacterial biofilms can degrade these barriers, rendering even highly corrosion-resistant materials susceptible to accelerated corrosion. Understanding the fundamental mechanisms of MIC and recent advances in metallurgical protection is critical to addressing this knowledge gap. This domain encompasses biofilm formation dynamics, passive layer degradation, and innovative mitigation strategies. Current research highlights next-generation countermeasures, including advanced antibacterial coatings, environmentally friendly inhibitors, and smart biocides designed to disrupt biofilms.

Guest Editors

Dr. Tuba Unsal
Institute of Marine Science and Management, Istanbul University, Istanbul, Türkiye

Dr. Di Wang
School of Materials and Engineering, Northeastern University, Shenyang, China

Guest Editorial Assistant

Dr. Tuğçe Tücca
Department of Pharmaceutical Microbiology, Faculty of Pharmacy, Istanbul Aydin University, Istanbul, Turkey

Deadline for manuscript submissions

30 June 2027

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Research by Our Faculty Member Asst. Prof. Dr. Ömer Yedikaya Published in the *Journal of Oleo Science*

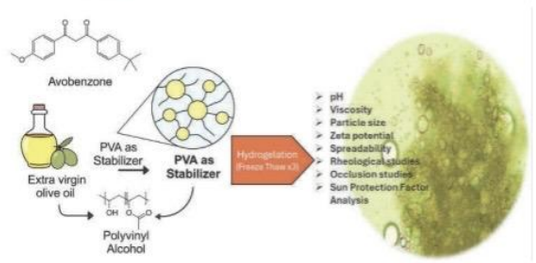
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Replacing Emulsifiers with Gelation: A Surfactant-Free Approach to Emulgel Formulation Using Polyvinyl Alcohol

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Abstract: Conventional emulgels require emulsifiers to stabilize oil and water, which may cause skin irritation and complicate formulations. This study aimed to develop a surfactant-free emulgel using polyvinyl alcohol (PVA) as both gelling and stabilizing agent. Methods: A 3^2 factorial design evaluated the effects of PVA concentrations (2 %, 4 %, 10 %) and olive oil ratios (10 %, 20 %, 40 %) on emulgel properties. Nine formulations were prepared via freeze–thaw gelation and homogenization. They were analyzed for pH, viscosity, particle size, and zeta potential. The optimized formulation was further assessed through spreadability, Texture Profile Analysis (TPA), rheological tests, and in vitro occlusion studies. Results: All formulations showed skin-compatible pH and viscosity. Higher PVA increased viscosity and network strength, while olive oil influenced droplet size and viscosity. The optimized formulation (4 % PVA, 20 % olive oil) exhibited favorable rheology, texture, and spreadability. Occlusion studies showed a moderate occlusion factor of 62.69 ± 7.95 %, lower than petrolatum (89.26 ± 3.19 %) but higher than control (0 %), indicating formation of a thin semi-occlusive film that reduced transepidermal water loss and promoted hydration. Conclusions: Surfactant-free emulgels using PVA can be successfully formulated. The moderate occlusion effect highlights their potential in dermal and cosmetic applications as biocompatible, stable, and patient-friendly systems.

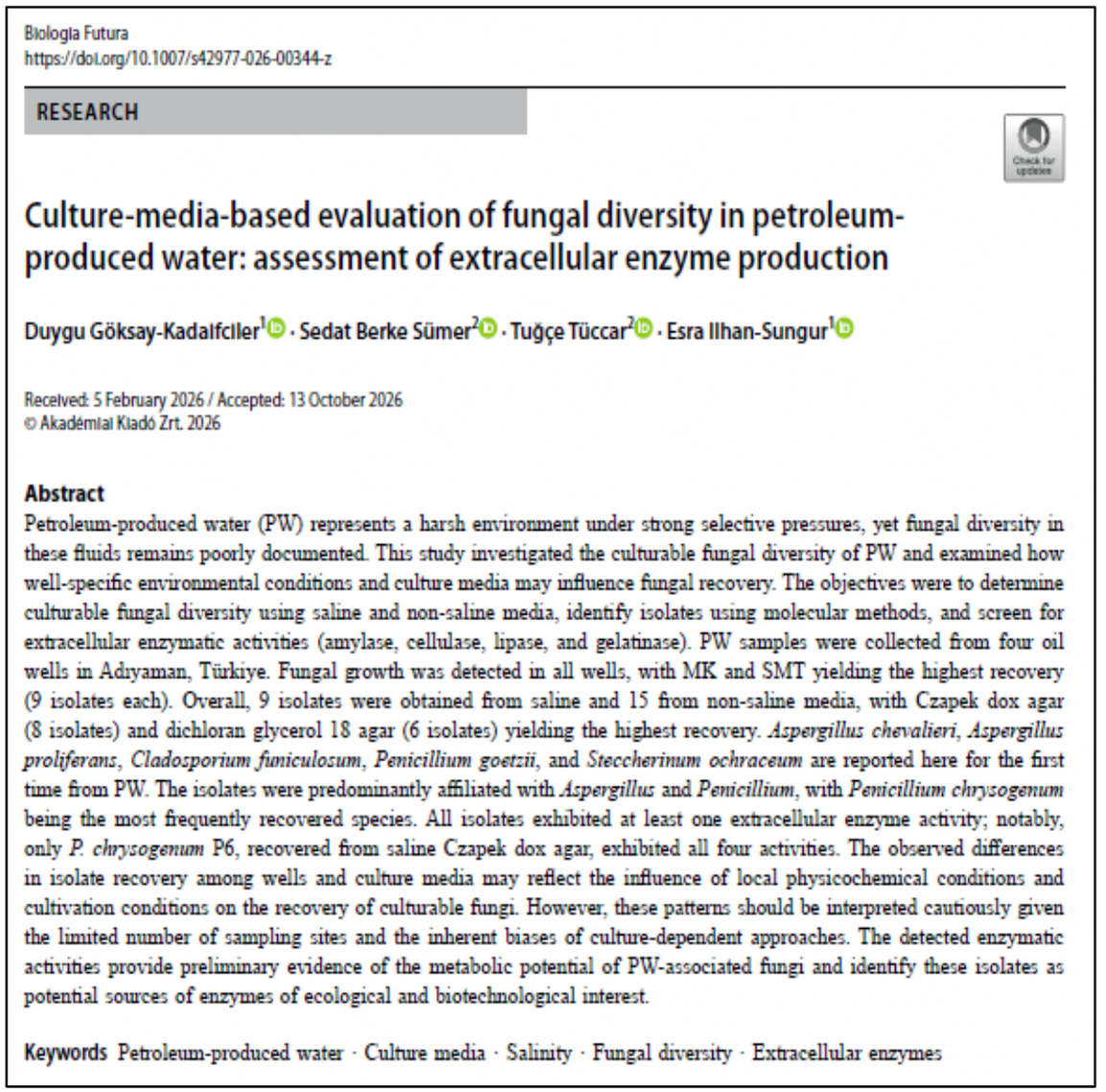


Keywords: Surfactant-free emulgel, polyvinyl alcohol, factorial design, rheology.

The research article entitled "Replacing Emulsifiers with Gelation: A Surfactant-Free Approach to Emulgel Formulation Using Polyvinyl Alcohol" by Asst. Prof. Dr. Ömer Yedikaya of the Department of Pharmaceutical Technology was published in the *Journal of Oleo Science*, a Q3-ranked journal.

Research by Our Faculty Member Asst. Prof. Dr. Tuğçe Tüccar Published in Biologia Futura

The study entitled “Culture-media-based evaluation of fungal diversity in petroleum-produced water: assessment of extracellular enzyme production,” co-authored by Asst. Prof. Dr. Tuğçe Tüccar, a faculty member in our Department of Pharmaceutical Microbiology, was published in *Biologia Futura*, a Q2-ranked journal.



Biologia Futura
https://doi.org/10.1007/s42977-026-00344-z

RESEARCH

Culture-media-based evaluation of fungal diversity in petroleum-produced water: assessment of extracellular enzyme production

Duygu Göksay-Kadalfciler[1] · Sedat Berke Sümer[2] · Tuğçe Tüccar[2] · Esra Ilhan-Sungur[1]

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Abstract
Petroleum-produced water (PW) represents a harsh environment under strong selective pressures, yet fungal diversity in these fluids remains poorly documented. This study investigated the culturable fungal diversity of PW and examined how well-specific environmental conditions and culture media may influence fungal recovery. The objectives were to determine culturable fungal diversity using saline and non-saline media, identify isolates using molecular methods, and screen for extracellular enzymatic activities (amylase, cellulase, lipase, and gelatinase). PW samples were collected from four oil wells in Adıyaman, Türkiye. Fungal growth was detected in all wells, with MK and SMT yielding the highest recovery (9 isolates each). Overall, 9 isolates were obtained from saline and 15 from non-saline media, with Czapek dox agar (8 isolates) and dichloran glycerol 18 agar (6 isolates) yielding the highest recovery. *Aspergillus chevalieri*, *Aspergillus proliferans*, *Cladosporium funiculosum*, *Penicillium goetzii*, and *Steccherinum ochraceum* are reported here for the first time from PW. The isolates were predominantly affiliated with *Aspergillus* and *Penicillium*, with *Penicillium chrysogenum* being the most frequently recovered species. All isolates exhibited at least one extracellular enzyme activity; notably, only *P. chrysogenum* P6, recovered from saline Czapek dox agar, exhibited all four activities. The observed differences in isolate recovery among wells and culture media may reflect the influence of local physicochemical conditions and cultivation conditions on the recovery of culturable fungi. However, these patterns should be interpreted cautiously given the limited number of sampling sites and the inherent biases of culture-dependent approaches. The detected enzymatic activities provide preliminary evidence of the metabolic potential of PW-associated fungi and identify these isolates as potential sources of enzymes of ecological and biotechnological interest.

Keywords Petroleum-produced water · Culture media · Salinity · Fungal diversity · Extracellular enzymes

Our Faculty Member Asst. Prof. Dr. Tuğçe Tüccar, Accepted as a Working Group Member of COST Action CA25

The application of Asst. Prof. Dr. Tuğçe Tüccar, a faculty member in the Department of Pharmaceutical Microbiology, for working group membership within COST Action CA25129, "NutriSENSE: A European Network on Bioactives for Personalized Nutrition and Gut Health," has been accepted.



Our Faculty's TEB Youth Commission Representative Team Has Been Elected





An election was held on 19 October 2026 to select the student team that will represent our faculty within the Turkish Pharmacists' Association (TEB) Youth Commission during the 2026–2027 academic year.

Following the election, conducted by secret ballot and open vote counting, Gizem Seyis was elected **Faculty Representative**, Mustafa Emre Gülgür as **Treasurer and Faculty Coordinator for Social Projects**, Doruk Koçhan as **Faculty Coordinator for Education and Information**, and Yağmur Kaya as **Faculty Coordinator for International Relations**.



We thank our Dean, Prof. Dr. Ayşe Nurten Özdemir, and the faculty members who served on the election committee for their contributions to the election process. We congratulate our elected students and wish them success in their roles.