



# ISTANBUL AYDIN UNIVERSITY FACULTY OF PHARMACY

**E-NEWSLETTER**

**1 AUGUST - 31 AUGUST 2025**



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# ISTANBUL AYDIN UNIVERSITY FACULTY OF PHARMACY

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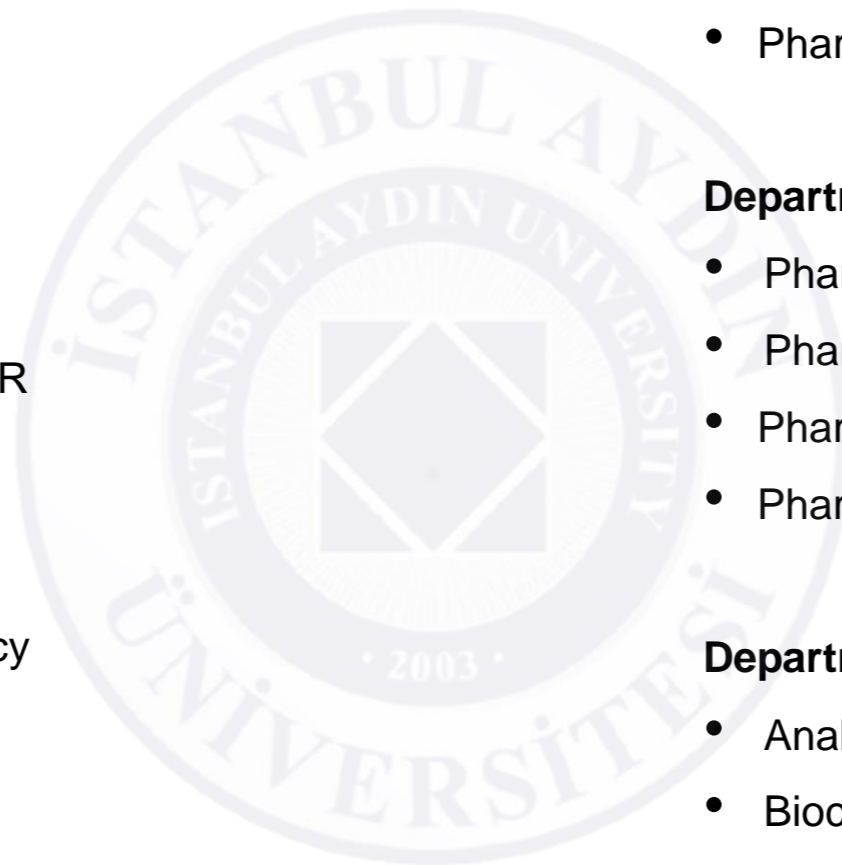
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# FACULTY OF PHARMACY

August

## Istanbul Aydın University Faculty of Pharmacy Meets Prospective Students After the 2025 YKS

Following the 2025 YKS results, Istanbul Aydın University Faculty of Pharmacy met prospective students at the Promotion and Preference Center. Prospective students from across Türkiye were provided with detailed information about the faculty's expert academic staff, modern laboratories, student clubs, and social activities. Their questions were answered, and comprehensive information was shared regarding the curriculum, internship opportunities, research projects, and career pathways. In addition, prospective students and their families joined a campus tour, where they had the chance to see the university's facilities and resources first-hand. This year, the English Pharmacy Program will admit its first students. The Faculty looks forward to welcoming new students in the 2025–2026 academic year.



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# FACULTY OF PHARMACY

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## The First Academic Council of Our Faculty Was Held

Following the completion of the academic year, Istanbul Aydın University Faculty of Pharmacy held its first Academic Council meeting on August 20, 2025, in classroom M-9701 to review the overall progress of our faculty. After a comprehensive presentation delivered by our Dean, Prof. Dr. A. Nurten Özdemir, which covered evaluations of the entire year, faculty members shared their views, suggestions, and expectations regarding the new term and future goals. The meeting concluded with these contributions and good wishes.





# FACULTY OF PHARMACY

August

Prof. Dr. Abdulhadi Baykal, faculty member of the Department of Analytical Chemistry, has authored a research article entitled “*Palladium-Doped Bimetallic Sulfide Spinel Nano-Electrocatalyst Grown on Nickel Foam for Efficient Green Hydrogen Production Validated by First Principal DFT Study*” which has been published in Renewable Energy, a Q1-indexed, internationally recognized journal in the field of Green & Sustainable Science & Technology .

## Journal Pre-proof

Palladium-Doped Bimetallic Sulfide Spinel Nano-Electrocatalyst Grown on Nickel Foam for Efficient Green Hydrogen Production Validated by First Principal DFT Study

Mubarak A. Adebunmi, Refah S. Alkhalidi, M.A. Gondal, A. Alsayoud, M.J.S Mohamed, Munirah A. Almessiere, A. Baykal



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# FACULTY OF PHARMACY

August

Asst. Prof. Dr. Cem ERKMEN and Asst. Prof. Dr. Zeynep TÜRK, faculty members of the Department of Analytical Chemistry, have authored a research article entitled *“The performance efficiency of Pt@Cu bimetallic nanosponges in the design of label-free electrochemical immuno- and aptasensors for determination of HER2”* which has been published in Microchemical Journal, a Q1-indexed, internationally recognized journal in the field of Analytical Chemistry.

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Contents lists available at ScienceDirect

Microchemical Journal

journal homepage: [www.elsevier.com/locate/microc](http://www.elsevier.com/locate/microc)

The performance efficiency of Pt@Cu bimetallic nanosponges in the design of label-free electrochemical immuno- and aptasensors for determination of HER2

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<sup>b</sup> Application and Research Center for Advanced Studies, Istanbul Aydın University, Istanbul 34295, Türkiye  
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ARTICLE INFO

Keywords:  
Screen-printed electrodes  
Pt@Cu nanosponges  
Immunosensor  
Aptasensor  
HER2 biomarker

ABSTRACT

Early cancer detection is a crucial step for survival, and the label-free and sensitive detection of human epidermal growth factor receptor 2 (HER2), a key biomarker, is still one of the important research areas in the diagnosis of breast cancer. Here, we reported the development of novel label-free immuno- and aptasensors for HER2 detection based on modified screen-printed electrodes (SPE) with the decoration of platinum and copper bimetallic-based nanosponges (Pt@Cu NSs). The surface of Pt@Cu NSs/SPE has been immobilized by HER2-specific monoclonal antibody (anti-HER2) and aptamer, separately. The analytical performances of both immuno- and aptasensors with their associated HER2 antigen were investigated using the electrochemical impedance spectroscopy (EIS) technique. Both sensors exhibited similar performance under optimal experimental conditions, with a nearly identical limit of detection (LOD) of 30.3 fg mL<sup>-1</sup> and 33.3 fg mL<sup>-1</sup> for immuno- and aptasensors, respectively, in the range of 0.1–10,000 pg mL<sup>-1</sup>. The immuno- and aptasensors' results were further verified by detecting spiked HER2 in commercial human serum samples, yielding satisfactory recovery results (aptasensor: 100.16–103.56 %; immunosensor: 103.88–106.40 %) with RSD values below 10 %. The immuno- and aptasensors corroborated good stability, reproducibility, and selectivity as well as were found to be selective toward HER2 in the presence of various interfering agents. Our current findings demonstrate the great potential of our developed immuno- and aptasensors for practical use by combining electrochemical approaches to obtain accurate disease detection with simultaneous use.



# FACULTY OF PHARMACY

August

Asst. Prof. Dr. Cem Erkmen, faculty member of the Department of Analytical Chemistry, has authored a research article entitled “*A review on keratin-based sensor platforms: Structural properties of keratin, their role in analytical sensing applications, and future perspectives*” which has been published in International Journal of Biological Macromolecules, a Q1-indexed, internationally recognized journal in the field of Analytical Chemistry.

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International Journal of Biological Macromolecules

journal homepage: [www.elsevier.com/locate/ijbiomac](http://www.elsevier.com/locate/ijbiomac)

Review

A review on keratin-based sensor platforms: Structural properties of keratin, their role in analytical sensing applications, and future perspectives

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ARTICLE INFO

Keywords:  
Analytical analysis  
Sensing  
Keratin materials  
Electrochemical sensor  
Optical sensor

ABSTRACT

Keratin, a fibrous structural protein abundant in biological materials, has recently garnered attention as a novel and environmentally friendly material for sensor platforms due to its diverse properties and biocompatibility. This review provides a comprehensive and up-to-date overview of keratin-based sensor platforms, emphasizing the structural features, such as its complex disulfide (-S-S) bonding network and ability to form nanofibrous matrices, that make keratin particularly suitable for analytical sensing applications. The sensing performance of keratin-based materials is critically evaluated, with a focus on their sensitivity and selectivity toward various analytes, including pharmaceutical compounds, proteins, and heavy metals. Particular attention is given to the mechanisms by which keratin interacts with analytes to produce measurable electrical, optical, or mechanical signals. Furthermore, the review discusses current limitations, including the need for improved mechanical stability and long-term durability, and outlines strategies for functional modification. The review also addresses fabrication techniques such as electrospinning and layer-by-layer assembly used to integrate keratin into sensor platforms. Additionally, the potential for incorporating keratin-based sensors into wearable and implantable devices is explored, with a focus on their applications in medical diagnostics, environmental monitoring, and food safety. Unlike previous reviews that primarily address keratin's general biomaterial applications, this review presents a focused and in-depth analysis of keratin's role specifically in sensor technology, showcasing the most recent advances, fabrication strategies, and practical implementations. The review uniquely bridges the gap between fundamental keratin chemistry and real-world sensor development, offering novel insights into how keratin's molecular versatility can be harnessed to design next-generation, eco-friendly, and biocompatible sensing platforms.



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August

On Friday, August 15, 2025, Prof. Dr. Sevgi KARAKUŞ, Vice Dean and faculty member of the Department of Pharmaceutical Chemistry, served as a committee member in the doctoral thesis defense of Pharm. Gözde ÇINAR, entitled *“Synthesis, Structural Characterization, and Investigation of Antiviral Activities of Indole-Derived Spirothiazolidinone Compounds”* held in the Pharmaceutical Chemistry program at the Institute of Health Sciences, Istanbul University, under the supervision of Assoc. Prof. Dr. Gökçe CİHAN-ÜSTÜNDAĞ.

