MOHAMMAD HADI MASOOMI

ACADEMIC CURRICULUM VITAE

CURRENT POSITION

Research Laboratory Specialist Comprehensive Research Laboratory, Isfahan University of Medical Sciences, Isfahan, Iran
Research Specialist Biosensor Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

Laboratory Mentor Comprehensive Research Laboratory, Isfahan University of Medical Sciences, Isfahan, Iran

EDUCATIONAL BACKGROUND

M.Sc. in Genetics Gonbad-e Kavus University, Golestan, Iran *[2021–January 2024 | Admitted through the gifted-talent]*

B.Sc. in Biology Gonbad-e Kavus University, Golestan, Iran *[2017–2021 | GPA: 18.35/20]*

RESEARCH INTERESTS

Molecular biology; biosensors and point-of-care diagnostics; nanomedicine and drug-delivery systems; nanoparticle-based antimicrobial strategies; antimicrobial resistance; bacterial quorum sensing and biofilm biology; extracellular vesicles/exosomes and microRNA analysis.

EDUCATION AND RESEARCH PROJECTS

M.Sc. Thesis Investigation of changes in the expression of quorum-sensing and biofilm-associated genes in multidrug-resistant Acinetobacter baumannii in response to plant essential oils. *[Exact English title and botanical species names should be checked against the thesis record.]*

Submitted manuscript Design and Fabrication of a Self-Powered Millifluidic Immunosensor Device Driven by Triboelectricity for the Point-of-Care (PoC) Detection of Bladder Cancer. *[Submitted; journal and submission date to be added.]*

Manuscript in preparation Smartphone-Based Immunosensor for NMP-22 Detection. *[In preparation.]*

Manuscript in preparation Design of an Antibacterial Nanosystem Based on Polydopamine, Iron Nanoparticles, and Doxycycline for Biofilm Inhibition and Quorum Sensing Modulation in Antibiotic-Resistant Acinetobacter baumannii. *[In preparation.]*

PUBLICATIONS

1. Anti-biofilm activity of essential oils from Salvia abrotanoides leaves and flowers against extensively drug-resistant and multidrug-resistant Acinetobacter baumannii.

2. Salvia abrotanoides leaves and flowers essential oils inhibit the quorum-sensing system of extensively drug-resistant (XDR) Acinetobacter baumannii.

3. ZnO@Carvacrol nanoparticles effectively suppress biofilm and quorum-sensing mechanisms in MDR Acinetobacter baumannii.

4. Enhanced antibacterial and anti-quorum-sensing activity of coumarin via functionalization with Fe_3O_4 nanoparticles against multidrug-resistant Acinetobacter baumannii.

5. Evaluation of allelopathic stress of St. John's wort (Hypericum perforatum) on the germination, physiological, and biochemical characteristics of green pea (Pisum sativum), the benchmark plant sensitive to allelochemicals.

CONFERENCE CONTRIBUTIONS

1. Investigation and Identification of the Role of LncRNAs Associated with ALS. *[The 4th International Congress on Biomedicine; presentation type/date to be confirmed.]*

2. Investigation of Chemical Composition of Achillea wilhelmsii C. Koch. *[3rd International Conference on Agricultural Sciences, Medicinal Plants and Traditional Medicine; presentation type/date to be confirmed.]*

TECHNICAL SKILLS

Molecular biology DNA/RNA extraction; PCR and qPCR; primer design; Sanger sequencing; gene-expression analysis.

Nanotechnology and characterization Nanoparticle/nanosystem preparation; DLS; zeta potential; FTIR; AFM; EDX/EDS; SEM/TEM; interpretation of XRD and related characterization data.

Microbiology Antibiogram; MIC, MBC, MBIC and MBEC assays; antimicrobial resistance and bacterial biofilm assays; quorum-sensing studies.

Extracellular vesicles Human exosome extraction and microRNA measurement/analysis; specific isolation and quantification platforms to be added.

Biosensor development Electrode surface functionalization; immunosensor development; triboelectric/self-powered microfluidic or millifluidic sensing concepts; 3D printing and print optimization.

Software Origin; GraphPad Prism; SolidWorks.

RESEARCH LEADERSHIP AND TRAINING

Project leadership Planning and coordination of research projects; experimental design and troubleshooting; guidance of research team members and students.

Student supervision Mentoring and technical guidance for MSc and PhD research projects; served as an advisor to an MSc thesis.

Workshops Conducted workshops and practical training in specialized research techniques.

HONORS AND AWARDS

Outstanding Student Selected as an outstanding student during Research Week.

National Elites Foundation Laureate.

CONTACT DETAILS

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