## Personal Information

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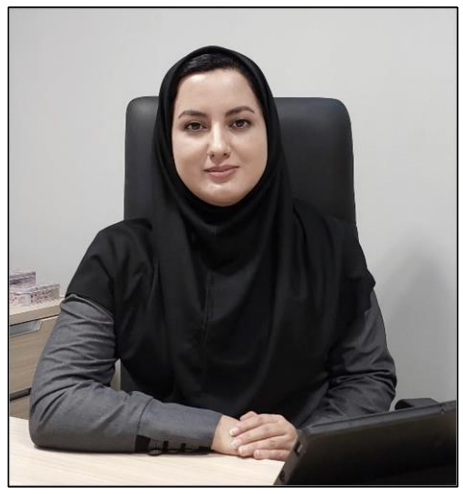


## Position

- **Assistant Professor**

Department of Nanotechnology, Agricultural Biotechnology Research Institute of Iran, 2018-Present

- **Manager of Research Affairs**

Agricultural Biotechnology Research Institute of Iran, 2025-Present

- **Director of International Scientific Cooperation Office**

Agricultural Biotechnology Research Institute of Iran, 2022-2025

## Affiliation

Department of Nanotechnology, Agricultural Biotechnology Research Institute of Iran (ABRII), Agricultural Research, Education, and Extension Organization (AREEO), Karaj, Iran

## Education

- **Post doctorate**

Sharif University of Technology, Tehran-Iran, 2017-2018
Thesis: “Design of ratiometric fluorescent nanoprobes for naked-eye detection”

- **Post doctorate**

Tehran University of Medical Sciences, Tehran-Iran, 2016-2017
Thesis: “Design and fabrication of nanostructured substrates for the detection of biomolecules”

- **PhD in Analytical Chemistry**

Sharif University of Technology, Tehran-Iran, 2012-2016
Thesis: “Colorimetric sensor array design for classification and detection of nanoparticles and biomolecules”

- **Sabbatical leave**

Bionanoplasmonics laboratory, Professor Luis M. Liz-Marzan, CIC biomaGUNE, Spain, 2016
Thesis: “Recognition of biologically relevant glycans by surface-enhanced Raman spectroscopy”

- **MS in Analytical Chemistry**

Sharif University of Technology, Tehran-Iran, 2010-2012
Thesis: “Determination of protein absorption profile at the surface of biocompatible superparamagnetic iron oxide nanoparticles using gel electrophoresis”

- **BS in Applied Chemistry**

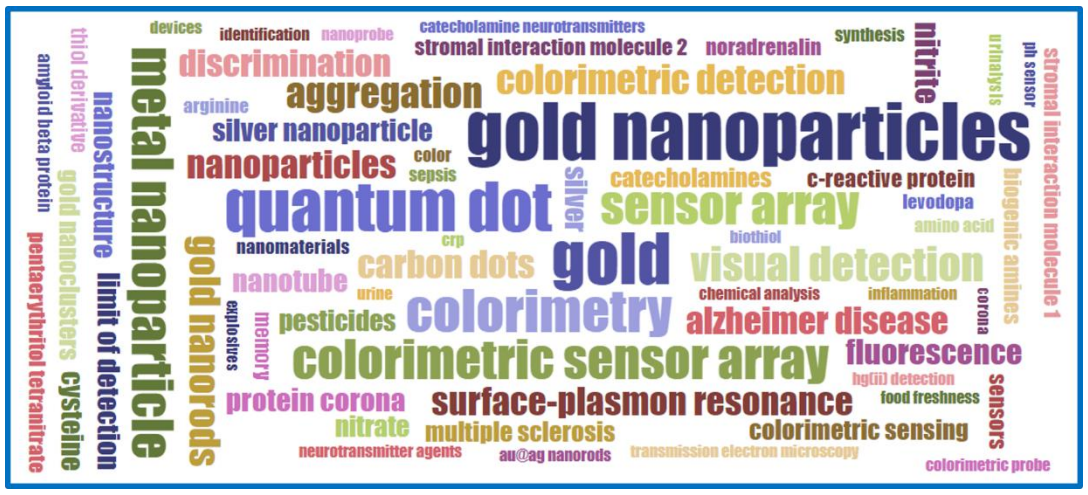
University of Kharazmi, Karaj-Iran, 2006-2010

## Honor, Awards, and Scholarships

- Distinguished Young Faculty Member Award, Agricultural Biotechnology Research Institute of Iran, 2025
- Influential Woman Award in the field of science, research, and technology, Alborz Province, 2024
- Kazemi Ashtiani Award, Iran's National Elites Foundation, 2022
- Research and Innovation Award, Agricultural Biotechnology Research Institute of Iran, 2022
- Post-doctorate grant, Iran National Science Foundation, 2018
- Post-doctorate grant, Iran Science Elites Federation, 2017
- Distinguished Research Student Award, Sharif University of Technology, 2016
- Education (Shahid Vezvaei) Award, Iran's National Elites Foundation, 2015
- Scholarship Award, Ministry of Science, Research and Technology (Iran), 2015
- Education (Shahid Vezvaei) Award, Iran's National Elites Foundation, 2014
- First rank student among BS chemistry students, 2007-2010

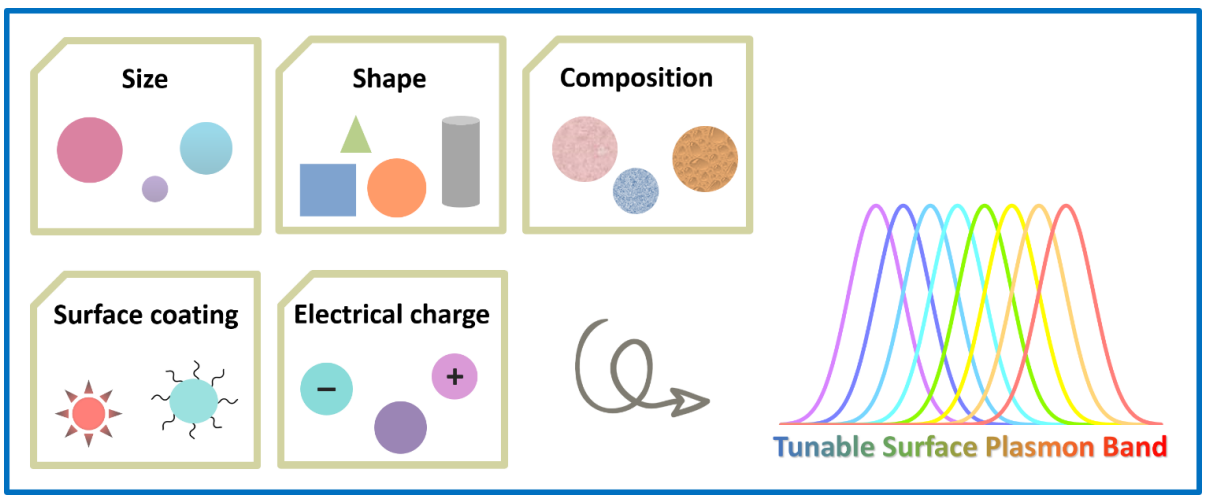
## Research Area

- Design of optical nanosensors for agricultural, environmental, and medical applications
- Nanochemistry and its application in the agricultural sector



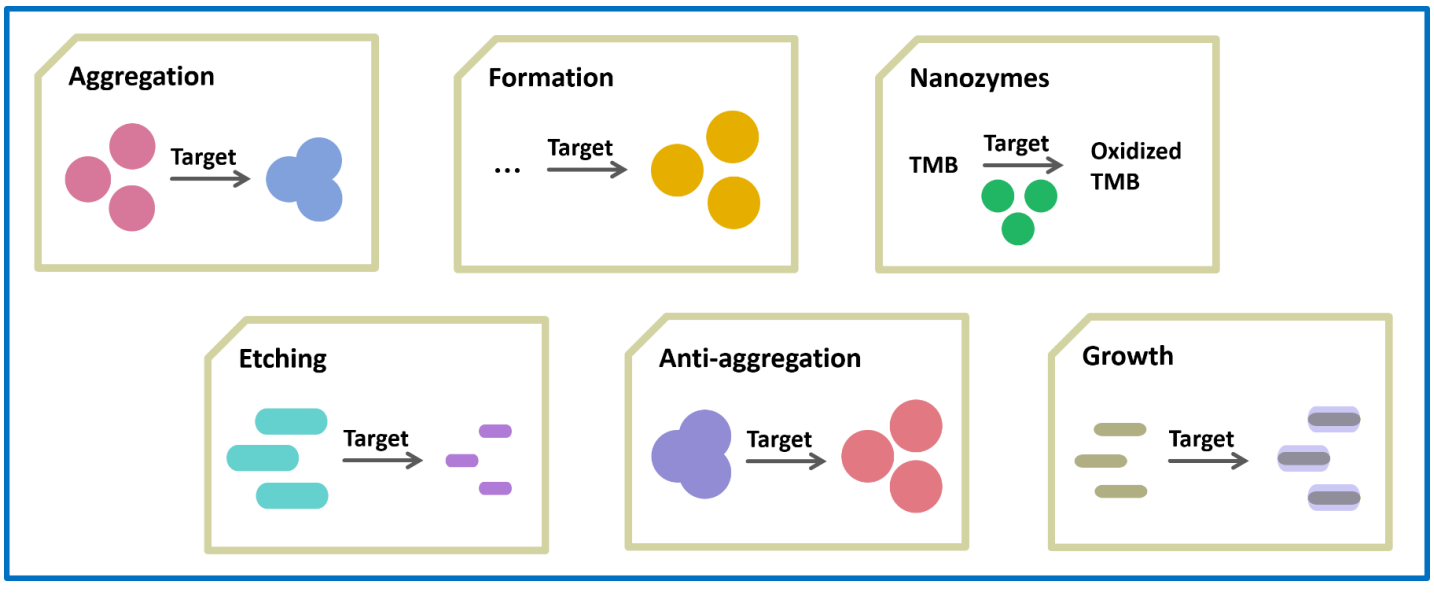

**Plasmonic Nanoparticles**

The surface plasmon resonance (SPR) of plasmonic nanoparticles arises from the interaction between incident light and free electrons in the NPs' conduction band, which drives free electrons to oscillate collectively. SPR depends on the physicochemical properties of plasmonic nanoparticles including size, shape, composition, surface coating, and electrical charge of nanoparticles. These physicochemical properties determine the potential application of plasmonic nanoparticles in different fields (Green Plasmonic Nanoparticles, In Encyclopedia of Green Materials, Springer, 2022).



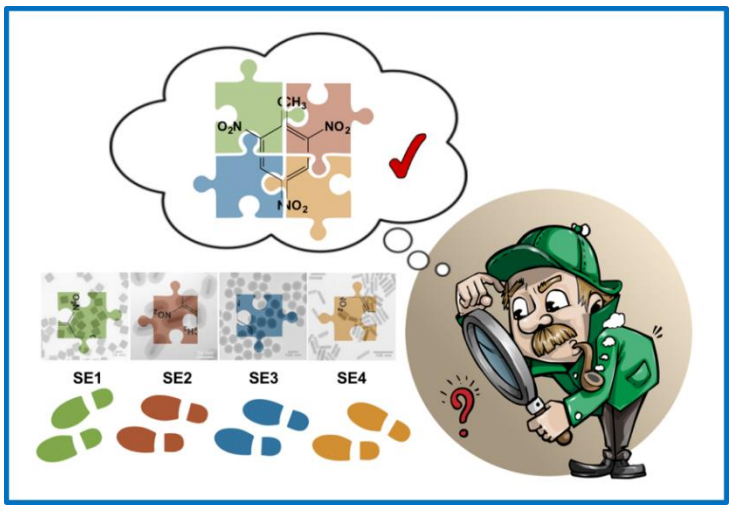

**Plasmonic Nanosensors**

Colorimetric sensors rely on changes in the optical properties of nanoparticles due to their aggregation, formation, enzyme-like activity, etching, anti-aggregation, and growth. As a result of these mechanisms, a redshift/blueshift/increase/decrease occurs in the SPR band of nanoparticles and consequently visible color change of the sensor (Analytica Chimica Acta, 1238, 2023, 340640).



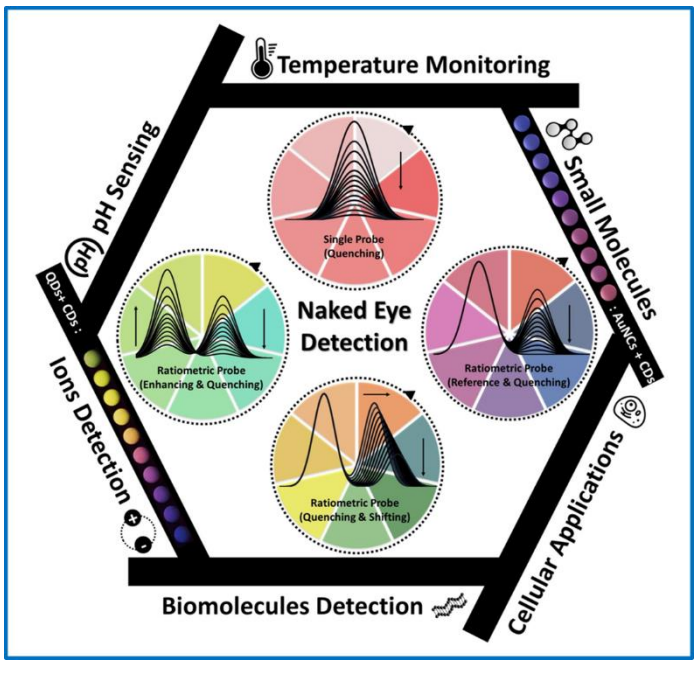

**Nanoparticle-Based Optical Sensor Arrays**

Moving from specific individual lock-and-key sensors towards cross-reactive sensor arrays enables the recognition of groups of target species. This differential sensing has been inspired from nature's use of arrays of receptors in the senses of taste and smell. Each receptor has a semi-selective response to a particular analyte and the specificity of the sensor is accomplished by pattern-based recognition in which distinct response patterns are attained for each analyte. Developing a sensor array seems like employing a detective whom gathers clues from several evidences to reveal the truth (Nanoscale, 9, 2017, 16546).




**Ratiometric Fluorescent Nanoprobes**

Signal generation mechanisms for naked-eye detection of analytes are becoming popular in various sensing fields. Among various naked-eye detection approaches being explored for quantitative measurements, ratiometric fluorescence sensing has received particular attention as a potential technique to overcome the limitations of intensity-based probes. This technique relies on changes in the intensity of two or more emission bands in the presence of the analyte, resulting in effective internal referencing and vivid color changes (Analytica Chimica Acta, 1079, 2019, 30-58).



## Publications

### Books/ Book Chapters

- F. Ghasemi, G. Salehi Jouzani, A. Naseri, Bioextraction of metals, In Modern Biotechnology in Environment and Natural Resources, Vice Presidency for Science, Technology and Knowledge-Based Economy, pp. 385-406, 2025.
- F. Ghasemi, G. Salehi Jouzani, Bioplastics, In Modern Biotechnology in Environment and Natural Resources, Vice Presidency for Science, Technology and Knowledge-Based Economy, pp. 305-354, 2025.
- F. Ghasemi, G. Salehi Jouzani, Biosensors, In Modern Biotechnology in Environment and Natural Resources, Vice Presidency for Science, Technology and Knowledge-Based Economy, pp. 233-302, 2025.
- F. Ghasemi, S. Abbasi-Moayed, Z. Jafar-Nezhad Ivrigh, M. R. Hormozi-Nezhad, Array-based sensing using gold and silver nanoparticles. In Gold and Silver Nanoparticles: Synthesis and Applications, pp. 165-204. Elsevier, 2023.
- F. Ghasemi, A. Naseri, M. Sepahvand, Green Plasmonic Nanoparticles. In Encyclopedia of Green Materials. Springer, 2022.
- N. Fahimi-Kashani, F. Ghasemi, A. Bigdeli, S. Abbasi-Moayed, M. R. Hormozi-Nezhad, Nanostructure-based optical sensor arrays: principles and applications. In Sensing and Biosensing with Optically Active Nanomaterials, pp. 523-565. Elsevier, 2022.
- A. Naseri, F. Ghasemi, Green Photocatalysts as Sustainable Materials for Removing Wastewater Pollutants. In Encyclopedia of Green Materials. Springer, 2022.

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### Patents

- F. Ghasemi, E. Ghorbanian, H. Alizadeh, Visual and rapid ammonia kit based on gold-silver core-shell nanorods, Organization for Registration of Deeds and Property, Iran, Patent number: 111672, 2024.
- F. Ghasemi, M. Sepahvand, H. Mir Seyed Hosseini, Colorimetric Kit Based on Gold Nanoparticles for Qualitative and Quantitative Detection of Nitrite Ion, Organization for Registration of Deeds and Property, Iran, Patent number: 105997, 2021.

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### Review Articles

- A. Ghasemalipour, F. Ghasemi, Gold and silver nanoparticles: Green synthesis, characterization and applications in biotechnology, Journal of Biosafety, 16 (2023) 31-62.
- F. Ghasemi, N. Fahimi-Kashani, A. Bigdeli, A. H. Alshatterie, et al., Paper-based optical nanosensors- A review, Analytica Chimica Acta, 1238 (2023) 340640. Feature Article.
- M. Sepahvand, F. Ghasemi, H. Mir Seyed Hosseini, Plasmonic nanoparticles for colorimetric detection of nitrite and nitrate, Review article, Food and Chemical Toxicology, 149 (2021) 112025.
- A. Bigdeli, F. Ghasemi, *et al.*, Optical nanoprobes for chiral discrimination, Critical Review, Analyst, 145 (2020) 6416-6434.
- A. Bigdeli, F. Ghasemi, *et al.*, Ratiometric fluorescent nanoprobes for visual detection: design principles and recent advances- A review, Analytica Chimica Acta, 1079 (2019) 30-58.
- A. Bigdeli, F. Ghasemi, et al., Nanoparticle-based optical sensor arrays, Review article, Nanoscale, 9 (2017) 16546-16563.

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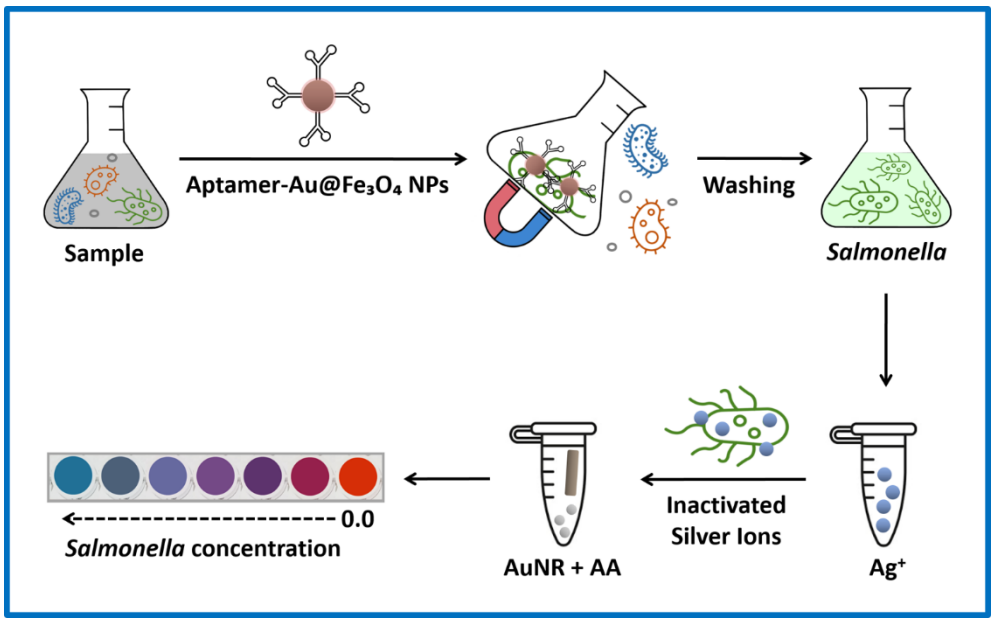
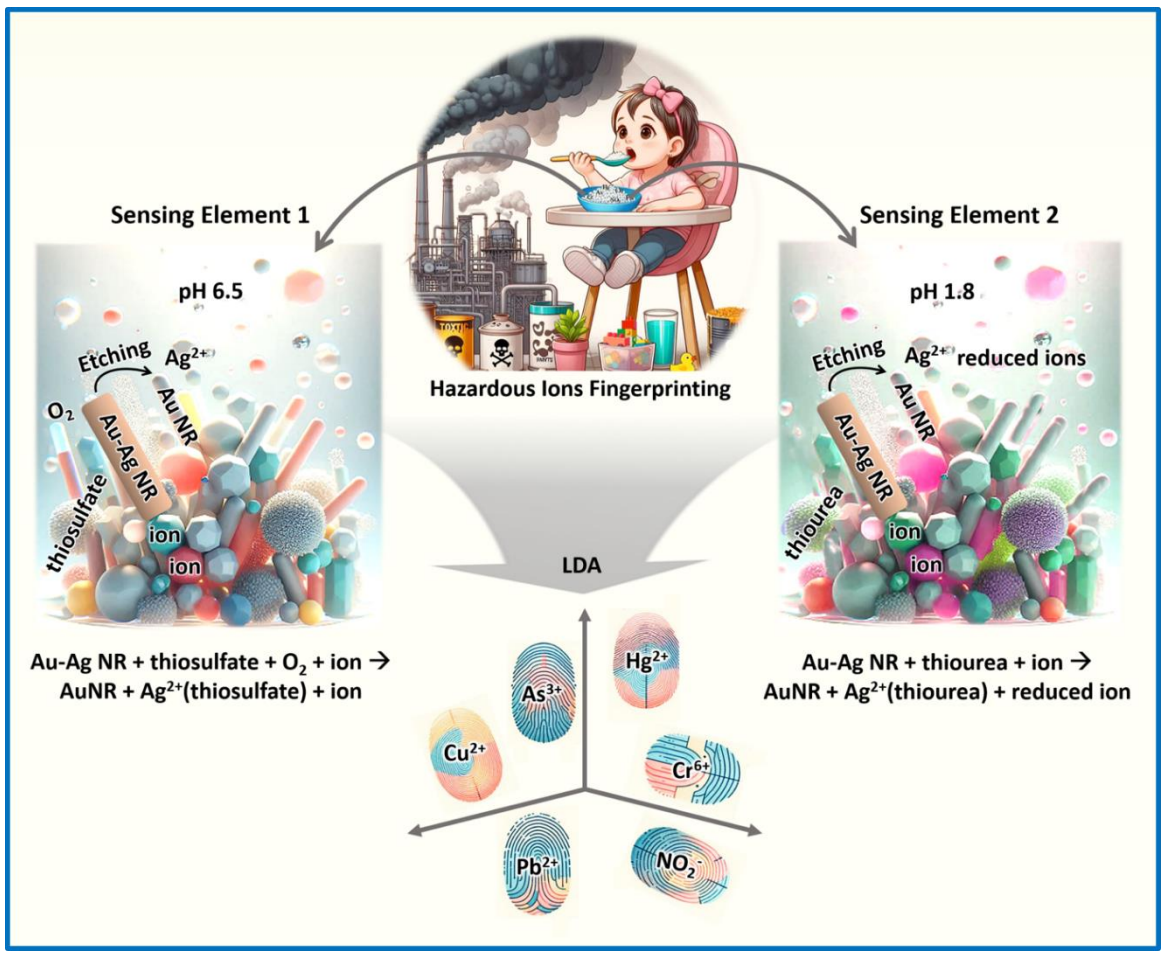
## Research Papers

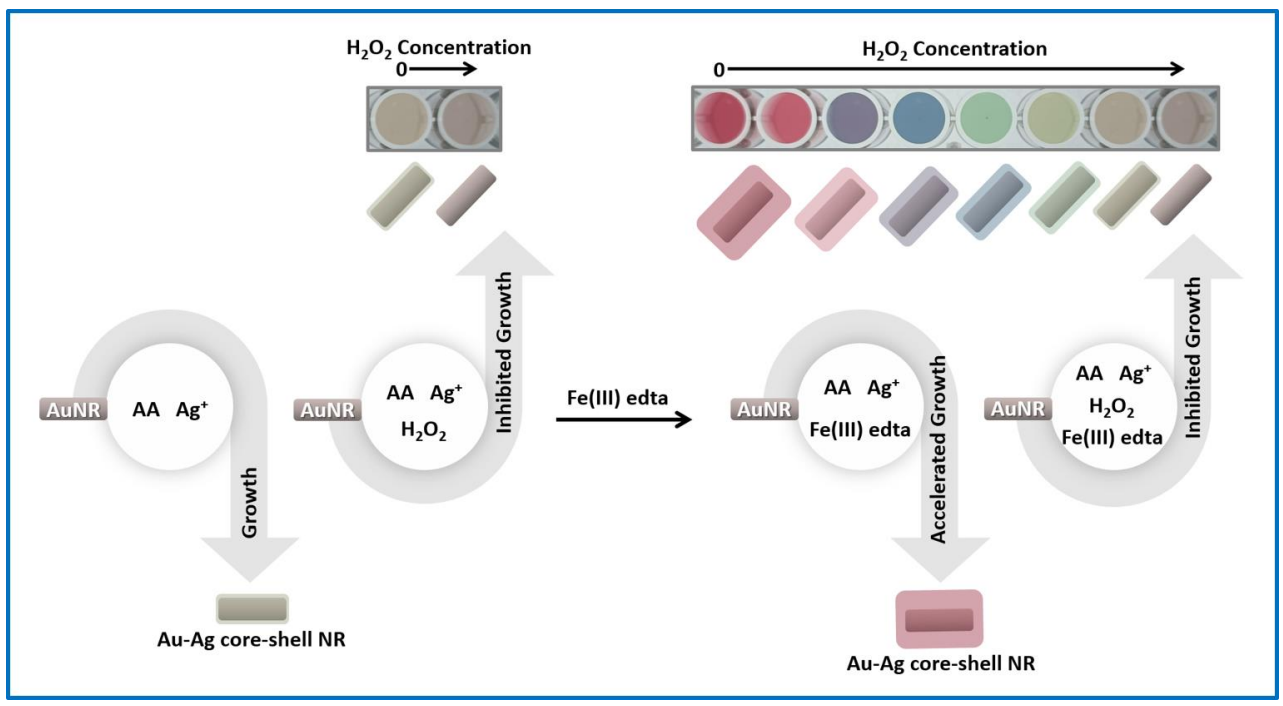
- S. Soleimani, A. H. Q. Selakjan, F. Ghasemi*, et al., Exploiting Silver Ions' Antimicrobial Properties for Colorimetric Detection of Salmonella via Suppressed Formation of Au@Ag Nanorods, Scientific Reports, 15 (2025) 39237.



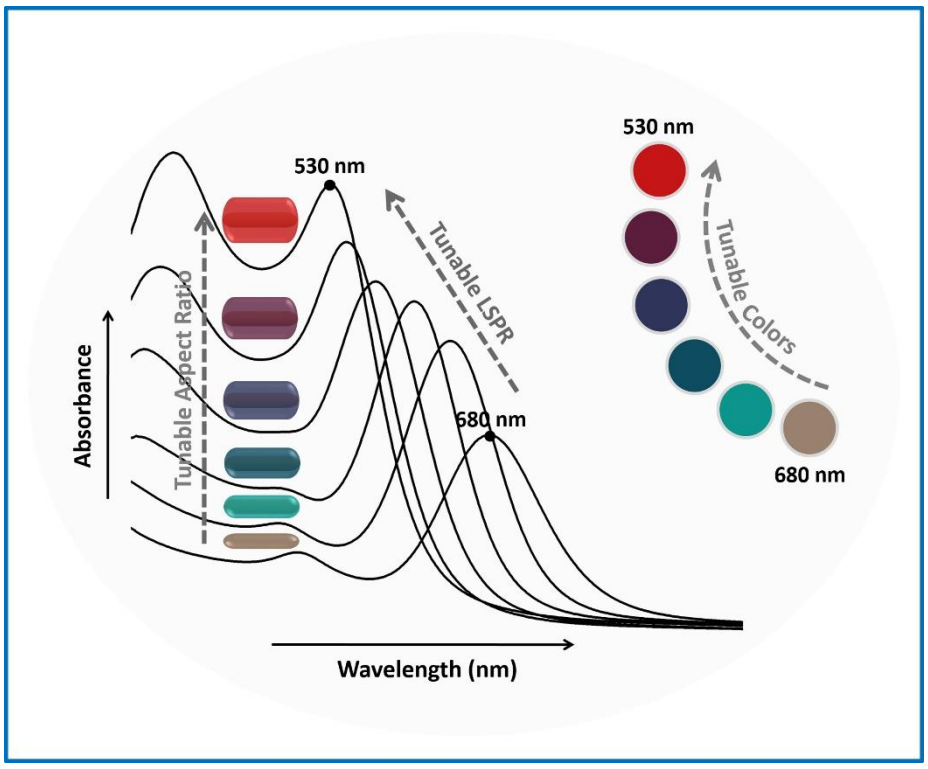

- M. Shirzad, M. Anbarestani, F. Ghasemi, Ion-mediated etching of Au-Ag core-shell nanorods for LSPR-based discrimination of hazardous ions, Analytica Chimica Acta, 1357 (2025) 344066.



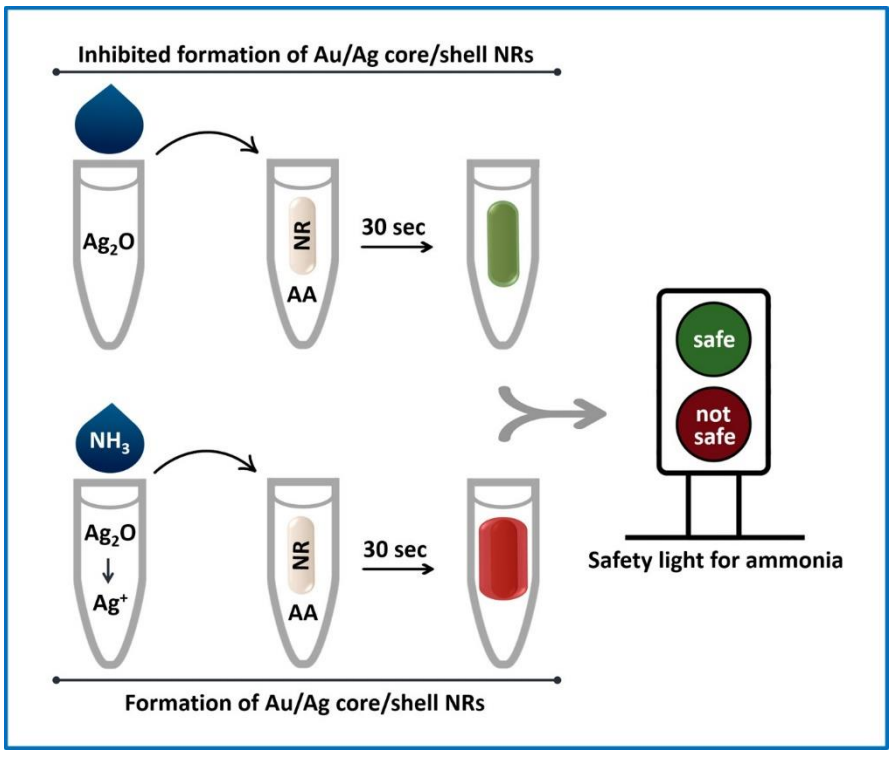

- M. Hemmati, A. H. Q. Selakjan, F. Ghasemi, Iron(III) edta-accelerated growth of gold/silver core/shell nanoparticles for wide-range colorimetric detection of hydrogen peroxide, Scientific Reports, 15 (2025) 4050.



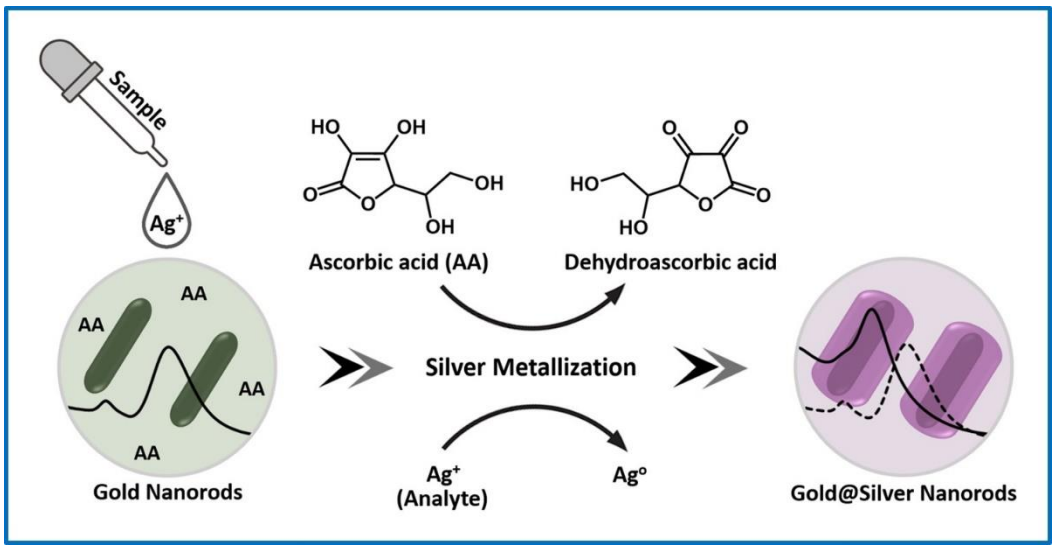
- N. Miryousefi, M. Varmazyad, F. Ghasemi, Synthesis of Au@Ag core-shell nanorods with tunable optical properties, Nanotechnology, 35 (2024) 395605.



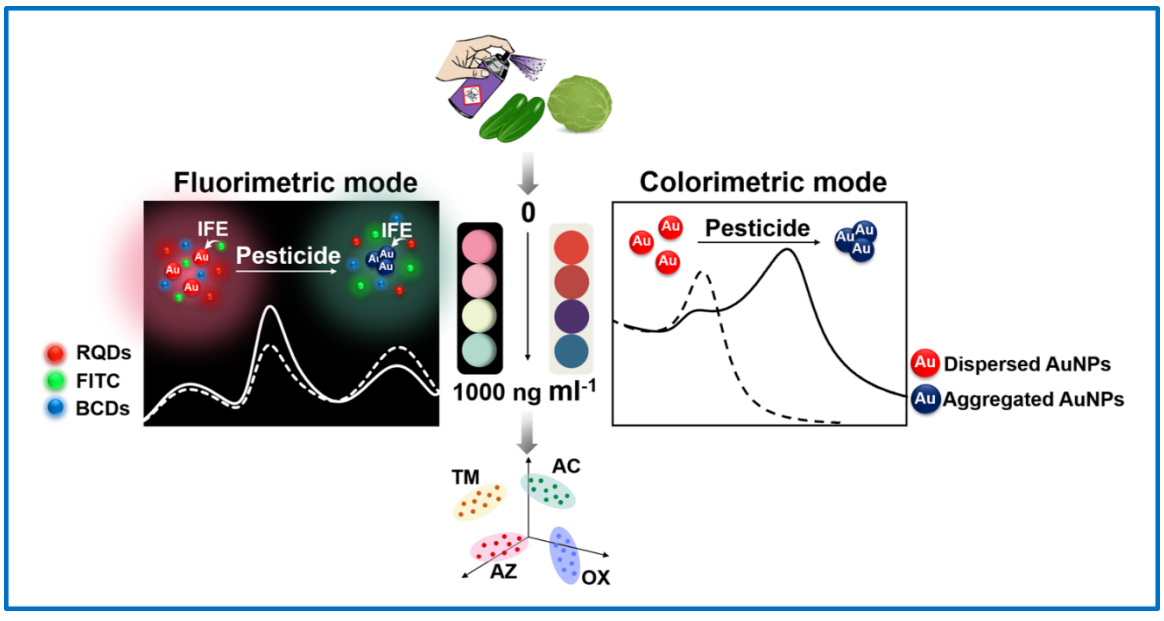

- E. Ghorbanian, F. Ghasemi, K. Rezaei Tavabe, H. R. Alizadeh Sabet, Formation of plasmonic core/shell nanorods through ammonia-mediated dissolution of silver(i)oxide for ammonia monitoring, Nanoscale Advances, 6 (2024) 3229-3238.



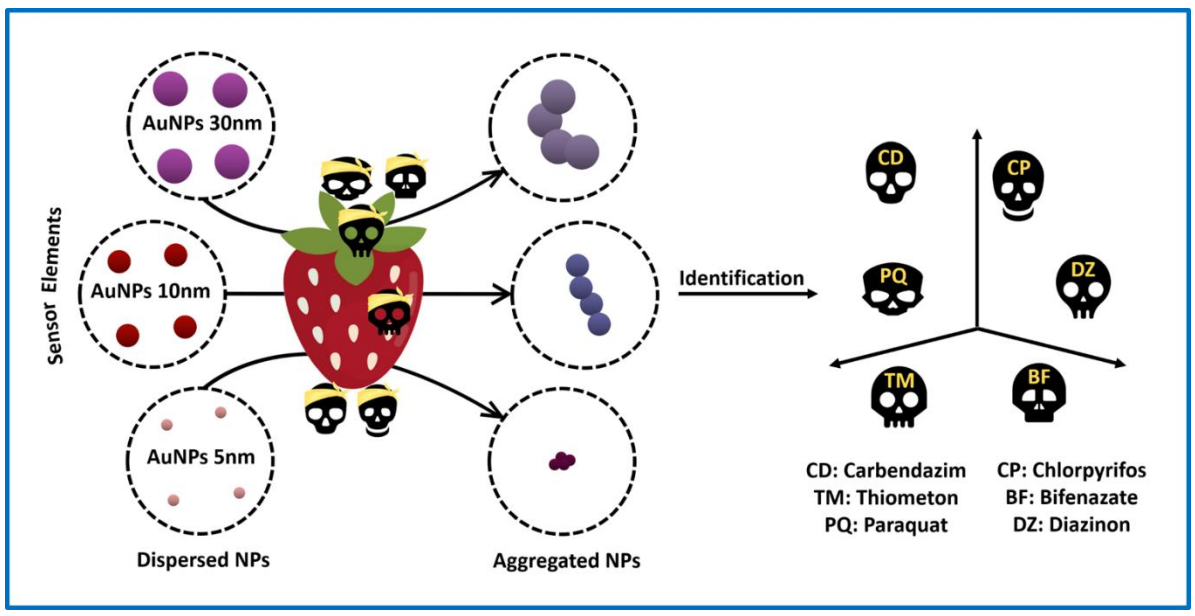

- M. Sepahvand, F. Ghasemi, Colorimetric silver ion detection based on silver metallization of gold nanorods, ChemistrySelect, 9 (2024) e202400080.



- M. Koushkestani, F. Ghasemi, M. R. Hormozi-Nezhad, Ratiometric dual-mode optical sensor array for the identification and differentiation of pesticides in vegetables with mixed plasmonic and fluorescent nanostructures, ACS Applied Nano Materials, 7 (2024) 2764-2774.

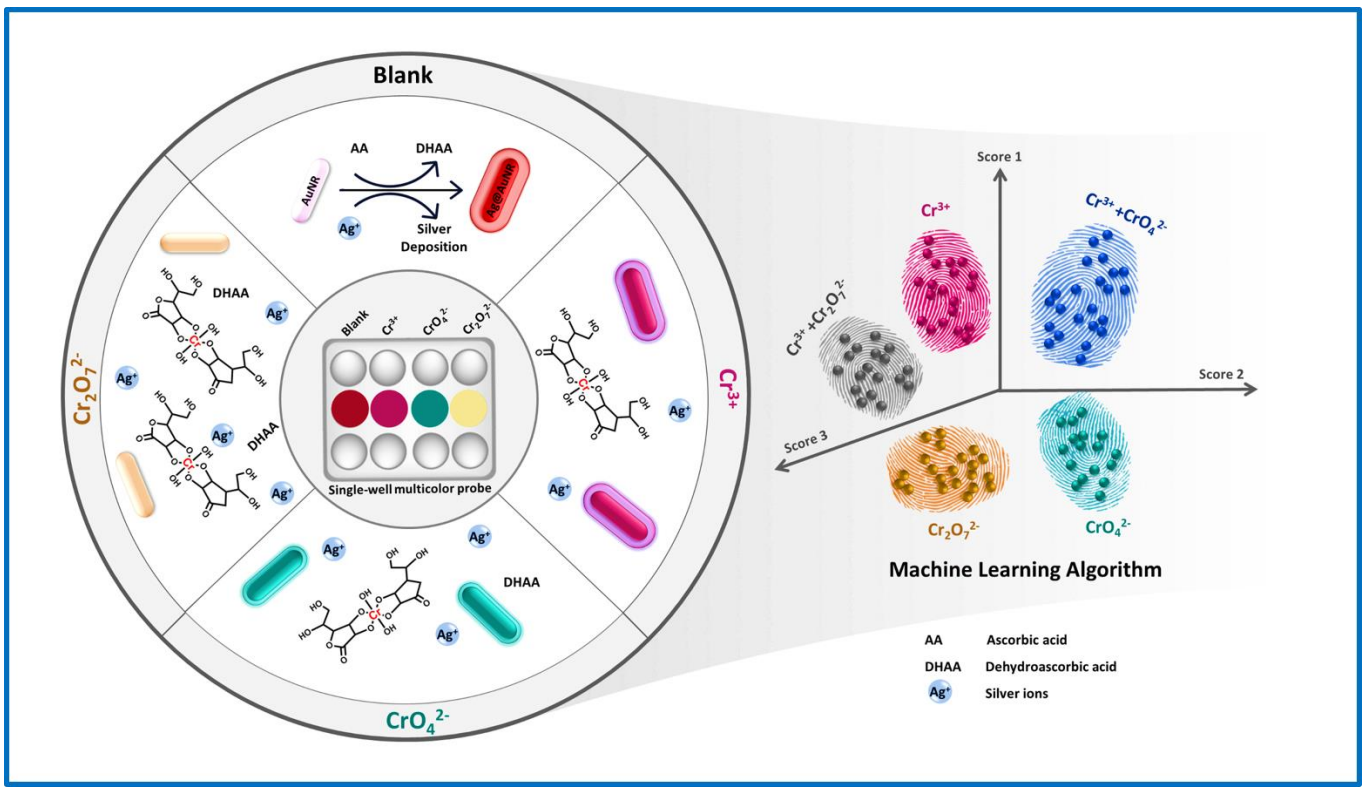



- M. Abdali, F. Ghasemi, H. Mir Seyed Hosseini, V. Mahdavi, Different sized gold nanoparticles for array-based sensing of pesticides and its application for strawberry monitoring, Talanta, 267 (2024) 125121.




- M. Sepahvand, H. Mir Seyed Hosseini, F. Ghasemi, Nitrate concentration measurement in cress plant using a colorimetric sensor based on gold nanoparticles, Iranian Journal of Soil and Water Research, 54 (2023) 1147-1157.

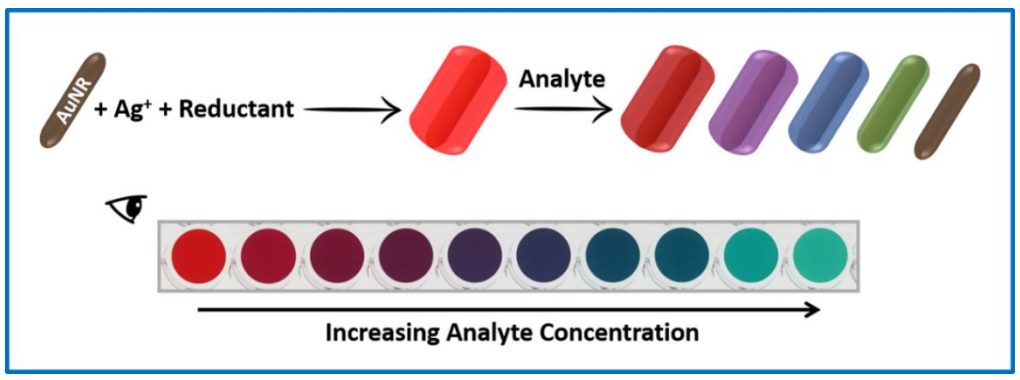
- A. Orouji, F. Ghasemi, M. R. Hormozi-Nezhad, Machine learning-assisted colorimetric assay based on Au@Ag nanorods for chromium speciation, Analytical Chemistry, 95 (2023) 10110-10118.



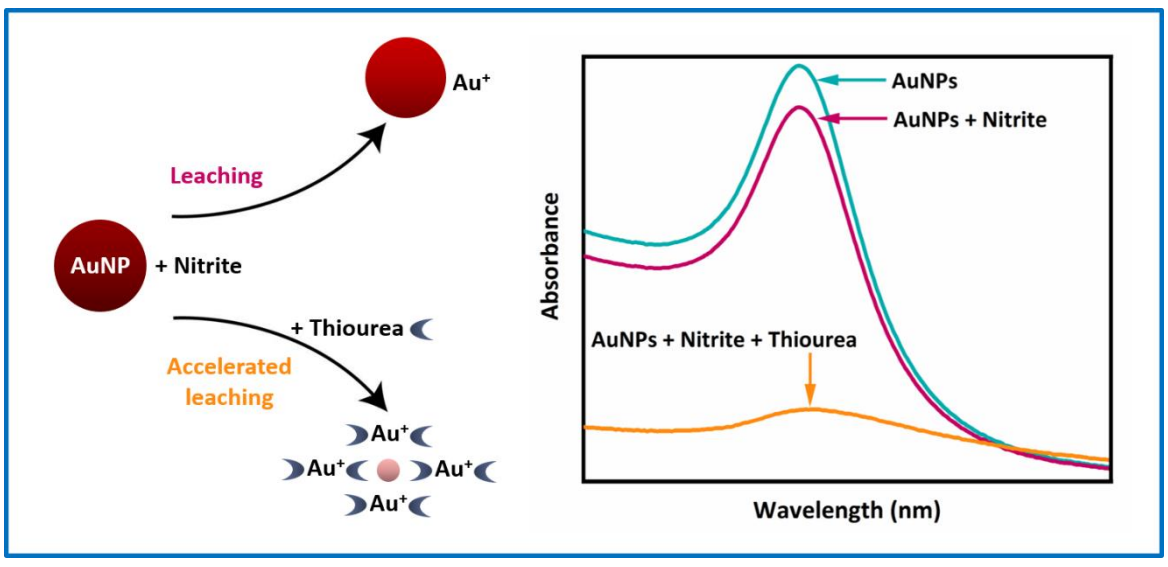
- A. Keshavarz, H. Golmohammadi, T. Naghdi, F. Ghasemi, M. Kiaie, Design and manufacture of an optical sensor based on a smartphone and chlorophyll stabilized in nanocellulose paper for fluorometric detection of methyl parathion, Green Chemistry and Sustainable Technologies, 12 (2023) 44-54 (In Persian).

- S. Hoseinniya, A. H. Rezayan, F. Ghasemi, M. Malekmohamadi, et al., Fabrication and evaluation of optical nanobiosensor based on localized surface plasmon resonance (LSPR) of gold nanorod for detection of CRP, Analytica Chimica Acta, 1237 (2023) 340580.

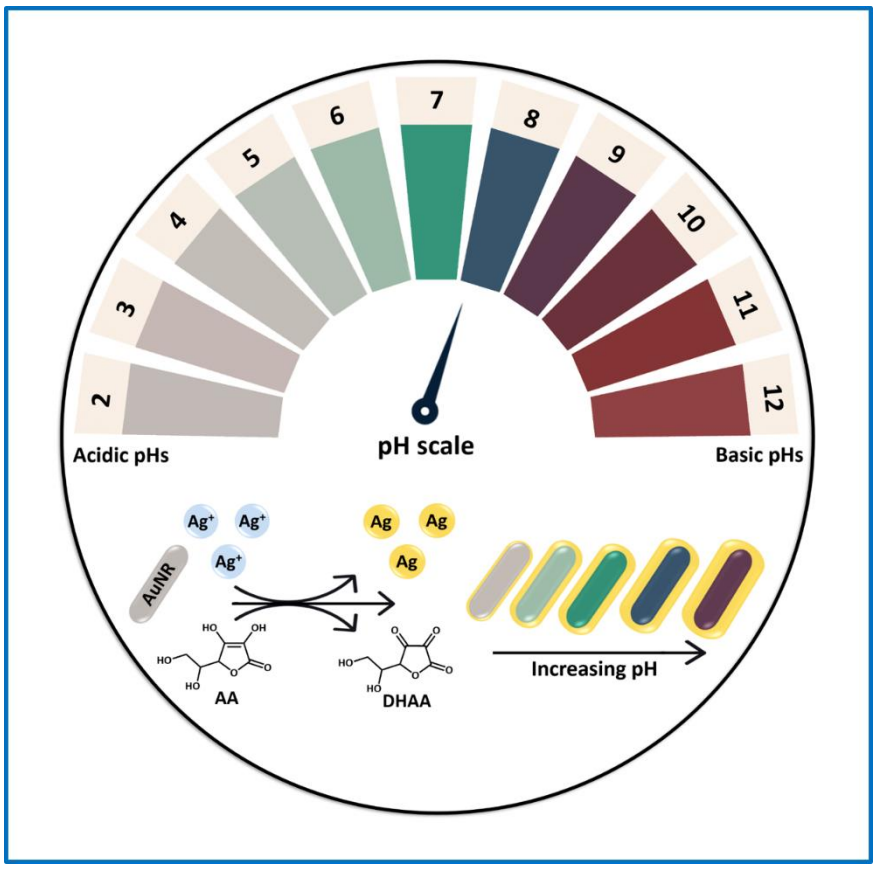
- A. Naseri, F. Ghasemi, Analyte-restrained silver coating of gold nanostructures: An efficient strategy to advance multicolorimetric probes, Nanotechnology, 33 (2022) 075501.



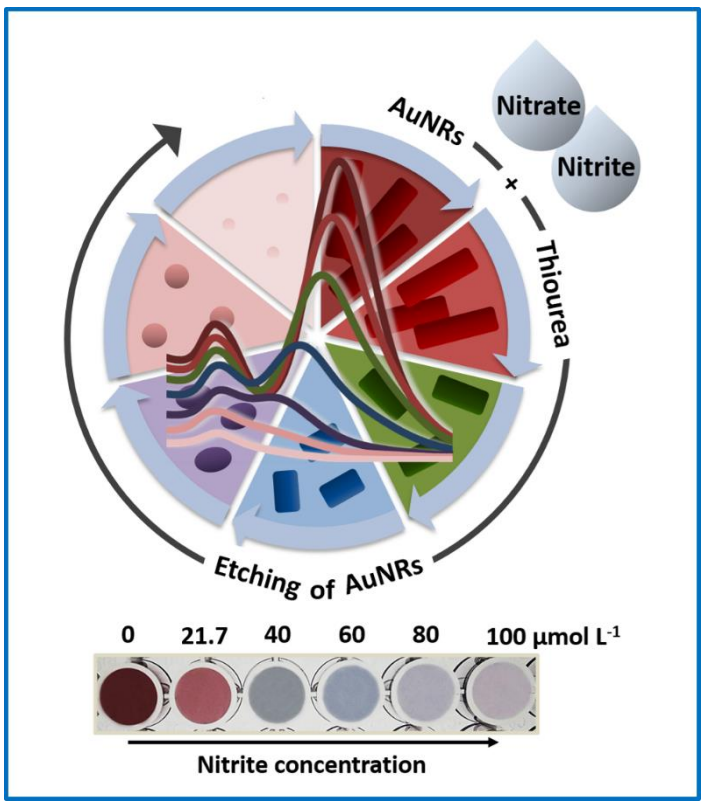

- M. Sepahvand, F. Ghasemi, H. Mir Seyed Hosseini, Accelerated leaching of unmodified gold nanoparticles for environmental and biological monitoring of nitrite and nitrate, ChemistrySelect, 7 (2022) e202103094.



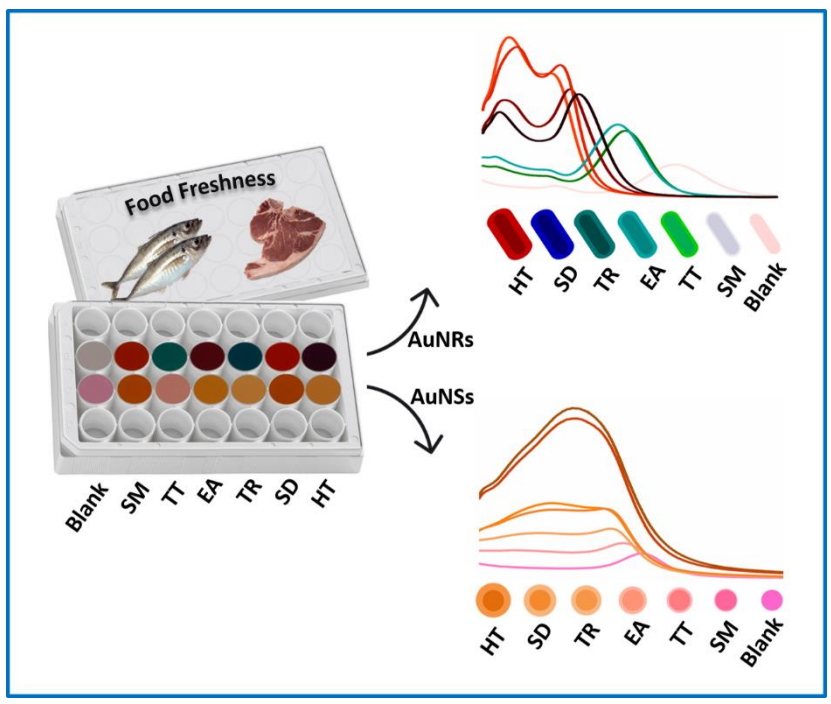

- A. Orouji, S. Abbasi-Moayed, F. Ghasemi, M. R. Hormozi-Nezhad, A wide-range pH indicator based on colorimetric patterns of gold@silver nanorods, Sensors and Actuators B: Chemical, 358 (2022) 131479.



- M. Sepahvand, F. Ghasemi, H. Mir Seyed Hosseini, Thiol-mediated etching of gold nanorods as a neoteric strategy for room-temperature and multicolor detection of nitrite and nitrate, Analytical Methods, 13 (2021) 4370-4378. Hot article 2021




- A. Orouji, F. Ghasemi, A. Bigdeli, M. R. Hormozi-Nezhad, Providing multicolor plasmonic patterns with Au@Ag core-shell nanostructures for visual discrimination of biogenic amines, ACS Applied Materials & Interfaces, 13 (2021) 20865-20874.

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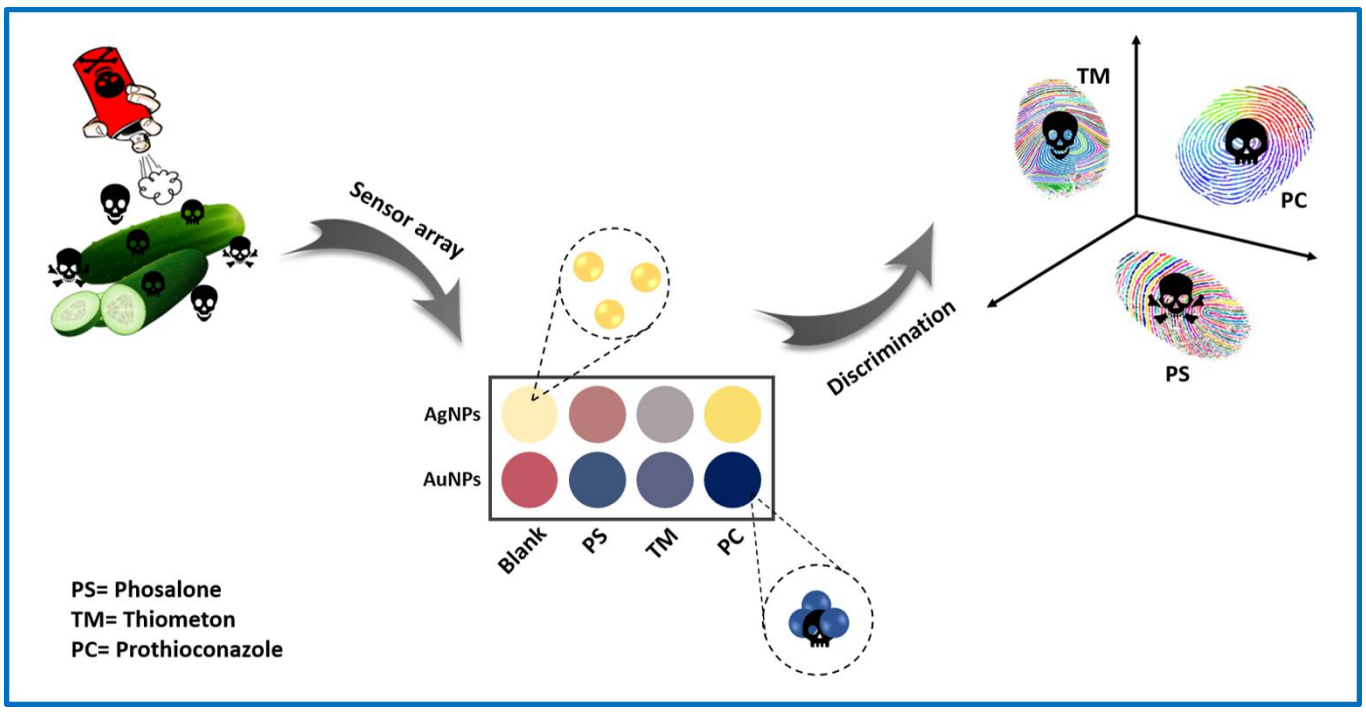
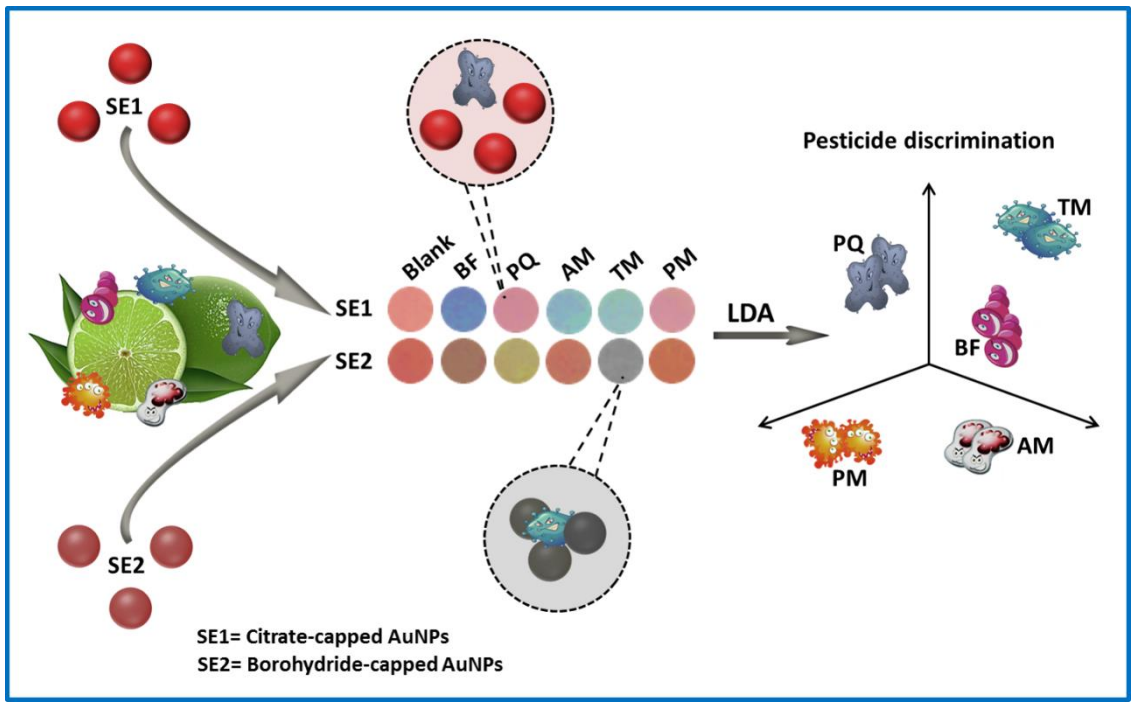
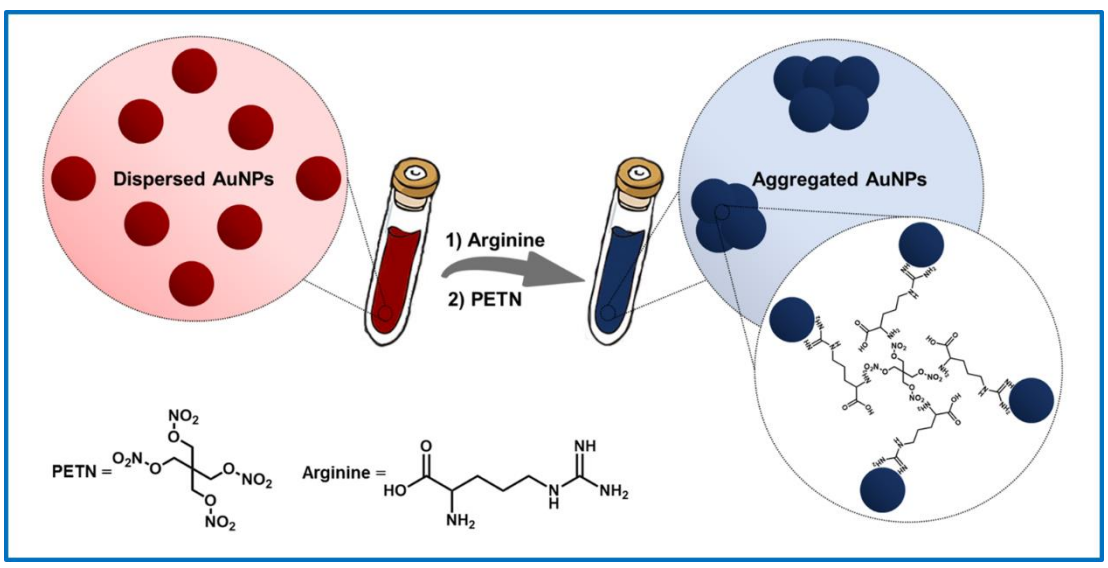


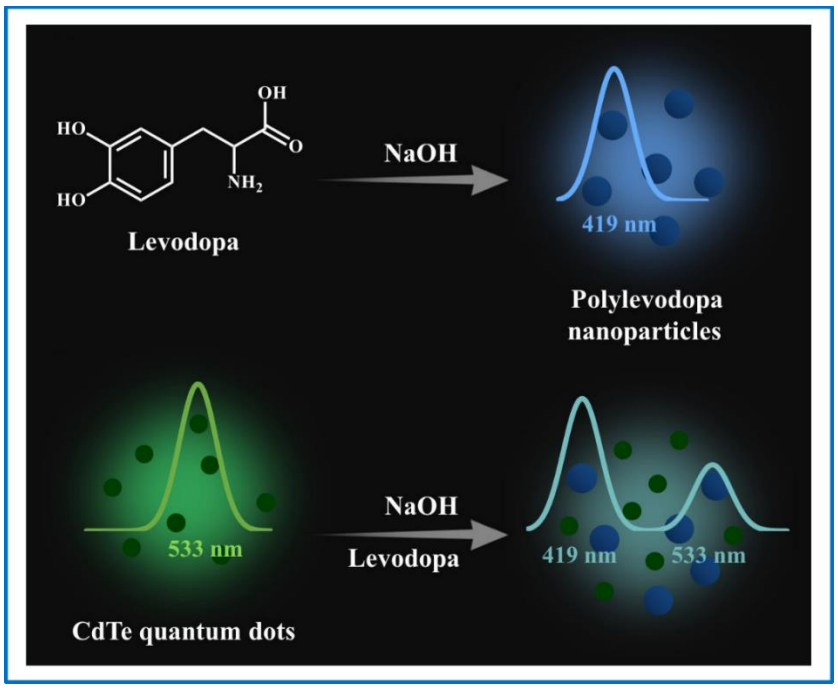
- M. R. Mirghafouri, S. Abbasi-Moayed, F. Ghasemi, M. R. Hormozi-Nezhad, Nanoplasmonic sensor array for detection and discrimination of pesticide residues in citrus fruits, Analytical Methods, 12 (2020) 5877-5884.




- Z. Taefi, F. Ghasemi, and M. R. Hormozi-Nezhad, Selective colorimetric detection of pentaerythritol tetranitrate (PETN) using arginine-mediated aggregation of gold nanoparticles, Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, 228 (2020) 117803.




- A. Moslehipour, A. Bigdeli, F. Ghasemi, and M. R. Hormozi-Nezhad, Design of a ratiometric fluorescence nanoprobe to detect plasma levels of levodopa, Microchemical Journal, 148 (2019) 591-596.




- M. R. Sepand, M. Ghavami, S. Zanganeh, S. Stacks, F. Ghasemi, et al., Impact of plasma concentration of transferrin on targeting capacity of nanoparticles, Nanoscale, 12 (2020) 4935-4944.

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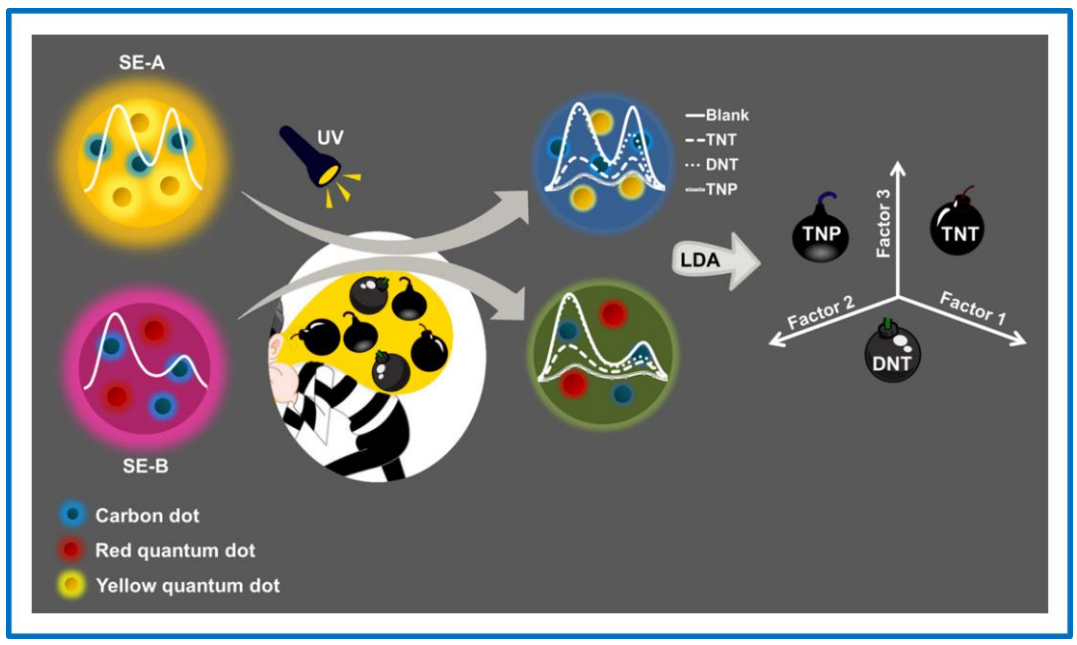


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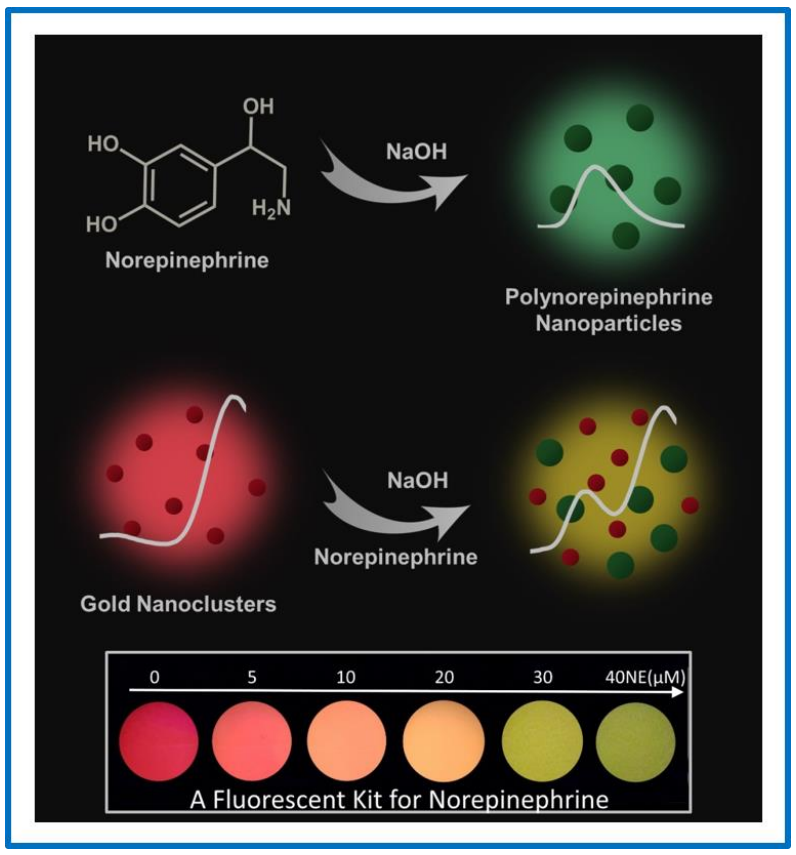


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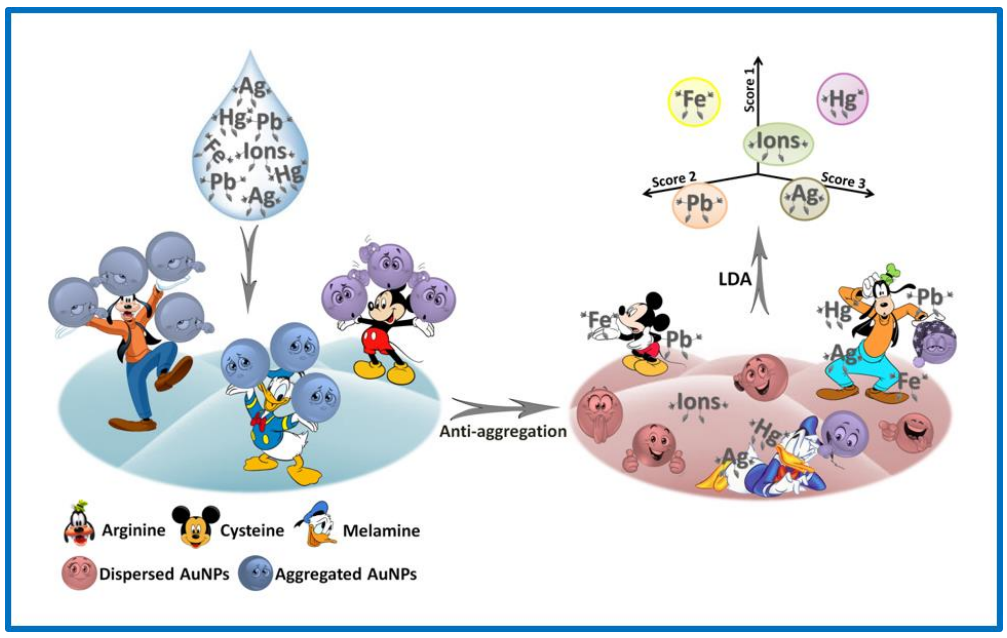

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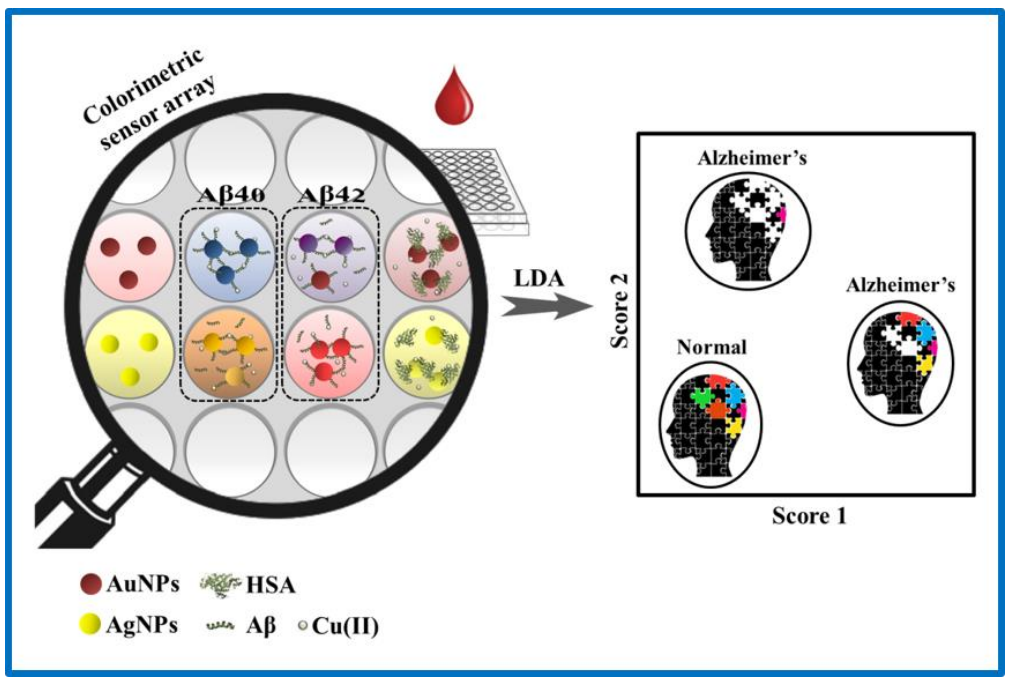


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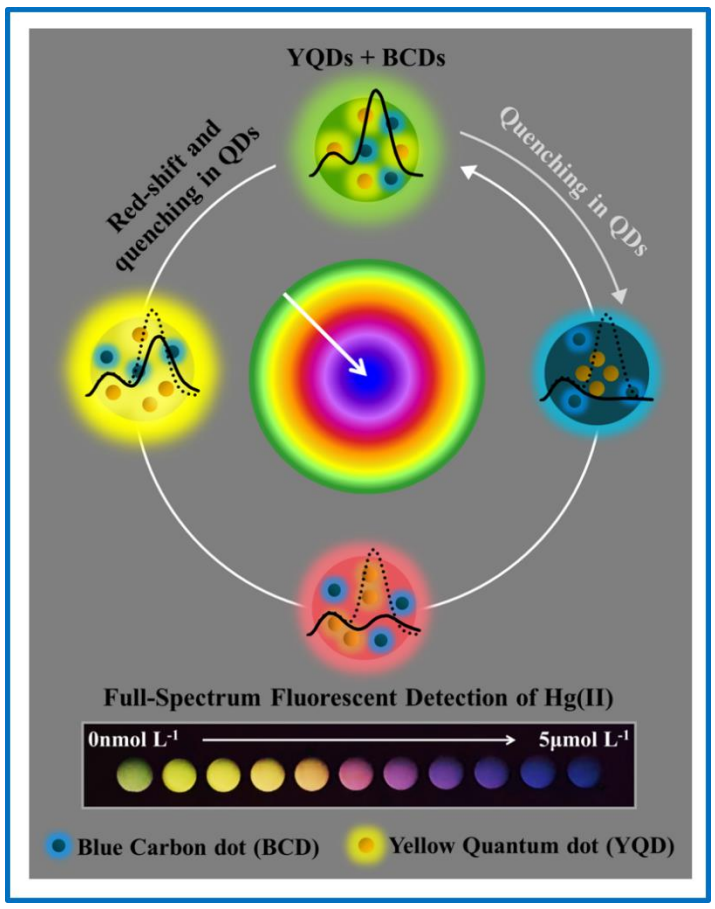


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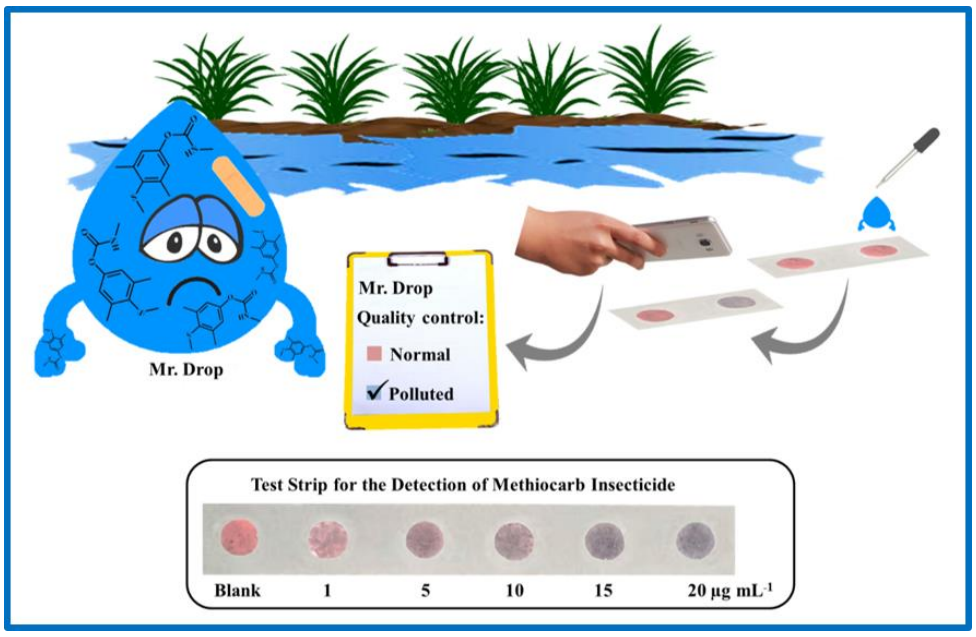


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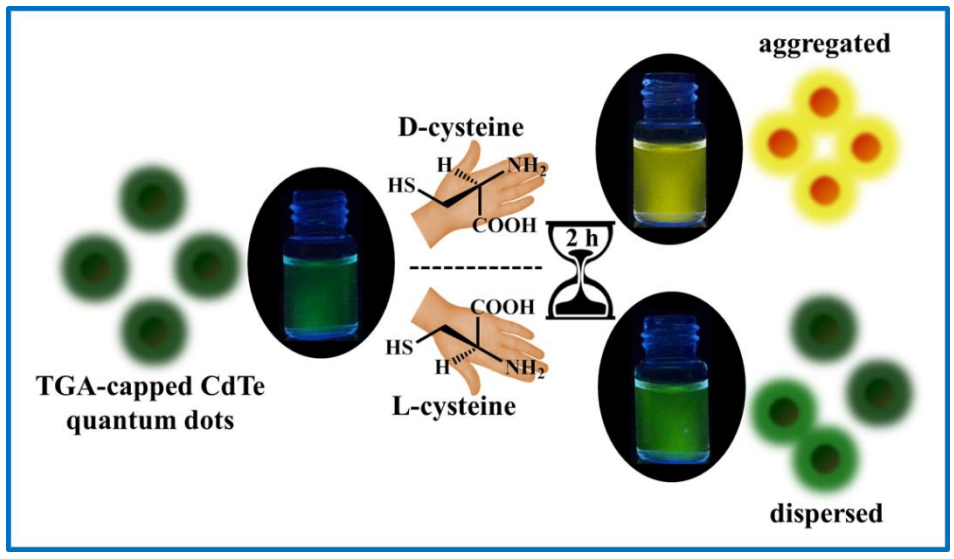


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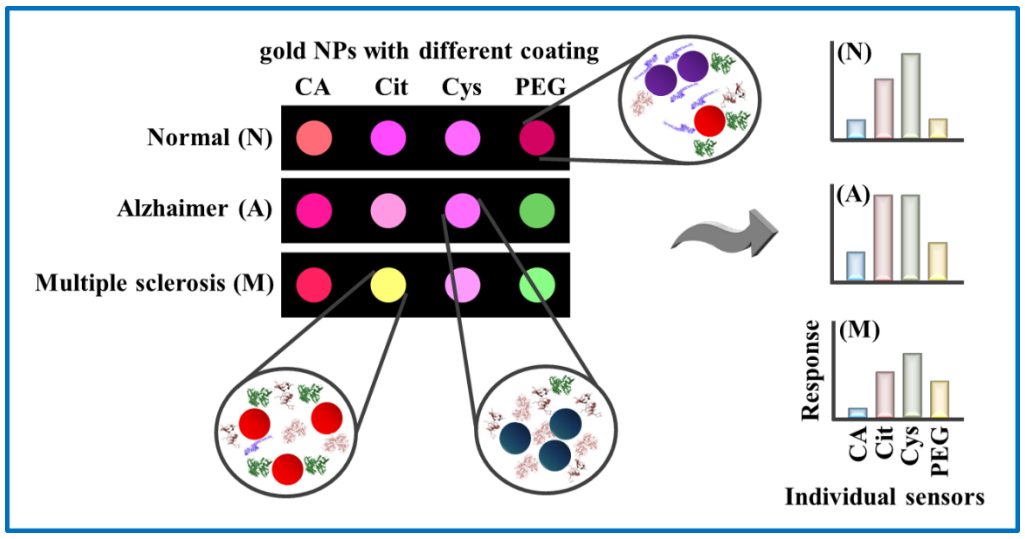


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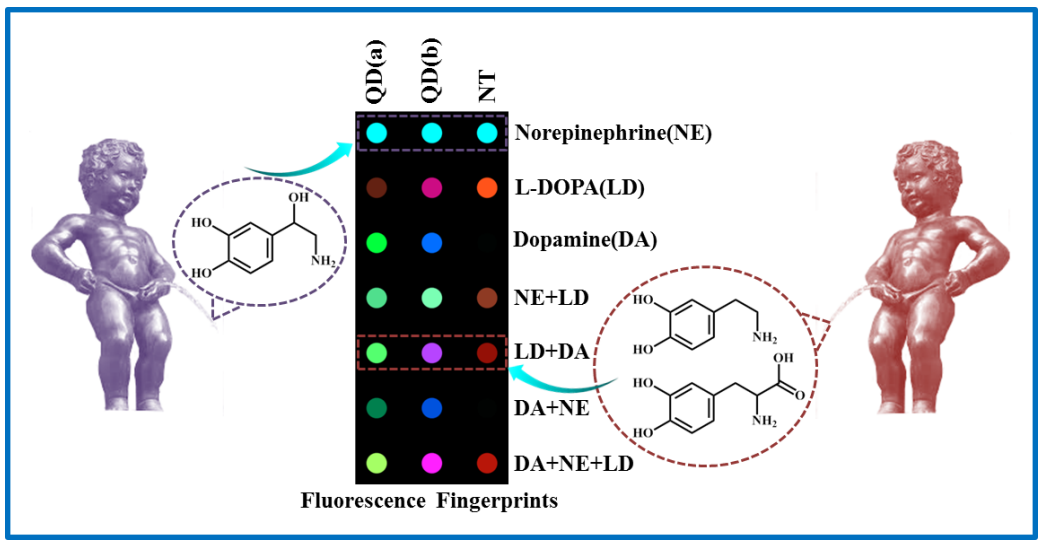

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- S. Behzadi, F. Ghasemi, et al., Determination of nanoparticles using UV-Vis spectra, Nanoscale, 7 (2015) 5134-5139.

## Conferences

- A ratiometric dual-mode optical sensor array for identification and differentiation of pesticides in vegetables with mixed plasmonic and fluorescent nanostructures, M. Koushkestani, F. Ghasemi, M. R. Hormozi-Nezhad, The 28$^{th}$ Iranian Seminar of Analytical Chemistry, 2025.

- Agricultural artificial intelligence event, F. Ghasemi, 2024.

- Colorimetric assay for chromium speciation using Au@Ag nanorods with machine learning assistance, A. Orouji, F. Ghasemi, M. R. Hormozi-Nezhad. The 6$^{th}$ National Congress and Workshops on Nanoscience and Nanotechnology (NCWNN6), 2024.

- Nanoplasmonic sensor arrays, F. Ghasemi. The 4$^{th}$ Digital Congress on Nanobiotechnology and Bioengineering (4$^{th}$ CDNB), 2023.

- Gold nanorod-based colorimetric sensor for quantitative and qualitative detection of ferric ion in tilapia fishponds, E. Ghorbanian Gazafroudi, F. Ghasemi, K. Rezaei Tavabe. The 6$^{th}$ International Congress of Developing Agriculture, Natural Resources, Environment and Tourism of Iran, 2022.

- Monitoring of chlorpyrifos pesticide in water and soil samples using developed colorimetric sensor based on Gold Nanoparticles, M. Abdali, F. Ghasemi, H. Mir Seyed Hosseini. The 8$^{th}$ Scientific and Research Conference on the Development and Promotion of Agricultural Sciences and Natural Resources of Iran, 2022.

- Nanolitmus paper: A wide range colorimetric pH sensor based on formation of gold@silver nanorods, A. Orouji, S. Abbasi-Moayed, F. Ghasemi, M. R. Hormozi-Nezhad. The 27$^{th}$ Iranian Seminar of Analytical Chemistry, 2022.

- Nanoplasmonic sensor arrays: Principles and applications, F. Ghasemi. The 21$^{st}$ International Conference on Nanotechnology, Switerzland, 2022.

- F. Ghasemi, Royal Society of Chemistry-Tokyo International Conference 2021 (RSC-TIC2021): Spectroscopic imaging and sensing, 2021.

- Multicolorimetric probe based on gold nanorods for nitrite and nitrate detection, Forough Ghasemi, Iran-Philippines International Virtual Symposium on Agricultural Nanotechnology, 2021.

- Design of colorimetric sensor based on plasmonic nanoparticles for detection and measurement of nitrate in soil solution, M. Sepahvand, F. Ghasemi, H. Mir Seyed Hosseini. The 17$^{th}$ Iranian Soil Science Congress and 4$^{th}$ National Conference on Farm Water Management, 2021.
- F. Ghasemi. The 1$^{st}$ Chemometrics Symposium of Iranian Chemical Society, University of Tabriz, 2020.

- Design of a fluorometric sensor array for visual detection and discrimination of nitroaromatic explosives, F. Ghasemi, M. R. Hormozi-Nezhad. The 8$^{th}$ International Conference on Nanoscience and Nanotechnology, 2020.

- Development of a colorimetric probe based on gold nanorods for visual detection of spermidine, A. Orouji, F. Ghasemi, M. R. Hormozi-Nezhad. The 8$^{th}$ International Conference on Nanoscience and Nanotechnology, 2020.

- Detection and identification of paraquat and bifenazate pesticides in citrus using gold nanoparticle-based colorimetric sensor array, M. Mirghafouri, S. Abbasi-Moayed, F. Ghasemi, M. R. Hormozi-Nezhad. The 8$^{th}$ International Conference on Nanoscience and Nanotechnology, 2020.

- Silver nanoparticles-based optoelectronic tongue for detection and classification of asinphosmethyl and thiometon pesticides, M. Koushkestani, S. Abbasi-Moayed, F. Ghasemi, M. R. Hormozi-Nezhad. The 8th International Conference on Nanoscience and Nanotechnology, 2020.

- Visual detection of pentaerythritol tetranitrate (PETN) in aqueous solution based on aggregation of gold nanoparticles, Z. Taefi, F. Ghasemi, and M. R. Hormozi-Nezhad. The 26th Iranian Chemical Society Seminar of Analytical Chemistry, 2019.

- Nanoparticle-based optical sensors for naked-eye detection, Symposium of Biosensors and Nanobiosensors, F. Ghasemi. The 1st BIONA, Shahid Beheshti Student Scientific Association of Biotechnology, and Sharif Student Scientific Association of Nanoscience and Nanotechnology, 2019.

- Colorimetric sensor array based on plasmonic nanoparticles, M. R. Hormozi-Nezhad, and F. Ghasemi. The 7th International Conference on Nanoscience and Nanotechnology, 2018.

- F. Ghasemi, USERN Spring Conference, Tehran University of Medical Science, 2018.

- An optoelectronic tongue for simultaneous detection of β-Amyloid40 and β-Amyloid42, F. Ghasemi, M. R. Hormozi-Nezhad, and M. Mahmoudi. The 25th Iranian Chemical Society Seminar of Analytical Chemistry, 2018.

- Gold nanoparticle-based sensor array for detection and classification of metal ions, F. Najafzadeh, F. Ghasemi, and M. R. Hormozi-Nezhad. The 7th International Conference on Nanostructures, 2018.

- Design of fluorescent ratiometric probe for detection of Hg(II) ions, F. Ghasemi, M. R. Hormozi-Nezhad, and M. Mahmoudi. The 7th International Conference on Nanostructures, 2018.

- Visual enantioselective recognition of aminoacids based on unmodified CdTe quantum dots, F. Ghasemi, M. R. Hormozi-Nezhad, and M. Mahmoudi. The 24th Iranian Chemical Society Seminar of Analytical Chemistry, 2017.

- Label-free colorimetric detection of methiocarb insecticid based on aggregation of gold nanoparticles, A. A. Mohammadi, F. Ghasemi, and M. R. Hormozi-Nezhad. The 19th Iranian Chemistry Congress, 2017.

- Array-based sensing of catecholamine neurotransmitters using optical property of alkali-oxidized catecholamines, F. Ghasemi, M. R. Hormozi-Nezhad, and M. Mahmoudi. The 23th Iranian Seminar of Analytical Chemistry, 2016.

- Array-based detection of glutathione and glutathione disulfide in human serum plasma, F. Ghasemi, M. R. Hormozi-Nezhad, and M. Mahmoudi. The 6th International Conference on Nanostructures, 2016.

- Detection and classification of gold nanoparticles with different size and shape using a simple colorimetric sensor array, F. Ghasemi, M. R. Hormozi-Nezhad, S. Mirsadeghi, and M. Mahmoudi. The 21th Iranian Analytical Chemistry Conference, 2015.

- Determination of protein adsorption profile at the surface of magnetic nanoparticles using gel electrophoresis, F. Ghasemi, M. R. Hormozi-Nezhad, and M. Mahmoudi. The 19th Iranian Seminar of Analytical Chemistry, 2013.

- Large-scale synthesis of narrow-sized magnetite nanorods, F. Ghasemi, M. R. Hormozi-Nezhad, and M. Mahmoudi. The 14th Iranian Inorganic Chemistry Conference, 2012.

## Oral presentations, Invited talks and Plenary lectures

- Nanosensors and their application in the detection of pesticides and pathogens, Collaborative meetings on the application of nanopesticides, Iranian Research Institute of Plant Protection, 2024.

- Nanosensors in agriculture, The workshop on nanomonitoring and nanoremediation in agriculture and natural resources, Imam Khomeini Higher Education Center, 2023.

- Nanoplasmonic sensor arrays, The 4th Digital Congress on Nanobiotechnology and Bioengineering (4th CDNB), 2023.

- Optical Nano(Bio)Sensors, The workshop on sensors and biosensors: Introduction, design principles and application in agriculture, Agricultural Biotechnology Research Institute of Iran, 2023.

- Nanoplasmonic sensor arrays: Principles and applications, The 21st International Conference on Nanotechnology, Switerzland, 2022.

- Colorimetric sensor based on oxidation of gold nanoparticles for nitrite and nitrate detection, Scientific lectures, Agricultural Biotechnology Research Institute of Iran, 2021.

- Multicolorimetric probe based on gold nanorods for nitrite and nitrate detection, Iran-Philippines International Virtual Symposium on Agricultural Nanotechnology, 2021.

- Sensors and citizens' health/hygiene, Agricultural Biotechnology Research Institute of Iran, The Fajr decade, 2021.

- Colorimetric nanosensors: Principles and applications in agriculture, Agricultural Biotechnology Research Institute of Iran, Research week, 2020.

- Nanoparticle-Based Optical Sensors: Principles & Applications in Agriculture, Agricultural Biotechnology Course, National School of Biotechnology and Agricultural Biotechnology Research Institute of Iran, 2020.

- Introduction to nano(bio) sensors in agriculture, Theoretical and practical workshop on nano(bio) sensors in agriculture, Agricultural Biotechnology Research Institute of Iran, 2020.

- Nanoparticle-based optical sensors for naked-eye detection, The workshop on Nanotechnology in Agriculture: Nano(bio)pesticides, Nanofertilizers and Nanosensors, Agricultural Biotechnology Research Institute of Iran, 2019.

- Nanoparticle-based optical sensors for naked-eye detection, Symposium of Biosensors and Nanobiosensors, The 1st BIONA, Shahid Beheshti Student Scientific Association of Biotechnology, and Sharif Student Scientific Association of Nanoscience and Nanotechnology, 2019.

- An optoelectronic tongue for simultaneous detection of β-Amyloid40 and β-Amyloid42, The 25th Iranian Seminar of Analytical Chemistry, 2018.

- Design of fluorescent ratiometric probe for detection of Hg(II) ions, The 7th International Conference on Nanostructures, 2018.

- Array-based sensing of catecholamine neurotransmitters using optical property of alkali-oxidized catecholamines, The 23th Iranian Seminar of Analytical Chemistry, 2016.

- Principles and application of UV-Vis spectroscopy in nanomaterials analysis, The 8th Nanotechnology Festival and Exhibition, 2015.

- Introduction and applications of upconversion nanoparticles, Sharif University of Technology, 2015.

- Introduction and applications of Janus nanoparticles, Sharif University of Technology, 2012.

## Activities

- Member of the organizing committee of the Innovation Event and Exhibition for Livestock, Poultry, and Aquatic Animals (Innofarm), Agricultural Biotechnology Research Institute of Iran, 2025.

- Holding a one-month training course for Venezuelan researchers, Agricultural Biotechnology Research Institute of Iran, 2025.

- Member of the organizing committee of the third New Agricultural Technologies Event, Agricultural Biotechnology Research Institute of Iran, 2025.
- Holding a one-month training course for Venezuelan researchers, Agricultural Biotechnology Research Institute of Iran, 2024.

- Member of the organizing committee of the 2nd Expert Group Meeting on ECO Agricultural Biotechnology Network, Agricultural Biotechnology Research Institute of Iran, 2023.

- Member of the organizing committee of the Workshop on Genetically Modified Organisms (GMOs) Biosafety and Regulation, Agricultural Biotechnology Research Institute of Iran, 2023.

- Holding a one-month training course for Uzbek researchers, Agricultural Biotechnology Research Institute of Iran, 2023.

- Member of the organizing committee of the second New Agricultural Technologies Event, Agricultural Biotechnology Research Institute of Iran and Biotechnology Development Council, 2023.

- Holding the workshop on sensors and biosensors: Introduction, design principles and application in agriculture, Agricultural Biotechnology Research Institute of Iran, 2023.

- Member of the organizing committee of the first New Agricultural Technologies Event, Agricultural Biotechnology Research Institute of Iran and Biotechnology Development Council, 2022.

- Member of the Nanotechnology in Smart Agriculture Committee, Alborz province, 2022-Present.

- Member of the organizing committee of the Iran-Philippines International Virtual Symposium on Agricultural Nanotechnology, 2021.

- Referee and assessor of the Biotechnological Ideas Competition, University of Kharazmi, 2021.

- Member of the Public Relations Committee, Agricultural Biotechnology Research Institute of Iran, 2020.

- Executive chair of the Agricultural Biotechnology Course, National School of Biotechnology and Agricultural Biotechnology Research Institute of Iran, 2020.

- Member of the organizing committee of the workshop on Introduction to Nano (biosensors) in Agriculture, Agricultural Biotechnology Research Institute of Iran, 2020.

- Member of jury committee and referee of the 3rd International & 11th National Biotechnology Congress of Islamic Republic of Iran, 2019.

- Referee of the Festival of Top Agricultural Ideas, Agricultural Research, Education, and Extension Organization (AREEO), 2019.

- Member of the organizing committee of the workshop on Nanotechnology in Agriculture: Nano(bio)pesticides, Nanofertilizers and Nanosensors, Agricultural Biotechnology Research Institute of Iran, 2019.

- Member of the organizing committee of the 7th International Conference on Nanostructures (ICNS7), Sharif University of Technology, 2018.

- Member of the organizing committee of the 23th Iranian Seminar of Analytical Chemistry, Sharif University of Technology, 2016.

- Reviewer for international journals including: Sensors and Actuators B: Chemical, Journal of Materials Science, RSC Advances, Analytical Chemistry, ACS Sustainable Chemistry & Engineering, Analytica Chimica Acta, Biosensors and Bioelectronics, Journal of Hazardous Materials, ACS Nano, Nanoscale, ACS Sensors, ACS Applied Materials and Interfaces, Microchemical Journal, Journal of Photochemistry and Photobiology A: Chemistry, Journal of Pharmaceutical and Biomedical Analysis, Plasmonics, IEEE Sensors Journal, Talanta, ACS Applied Nano Materials, Small, Chemical Engineering Journal, ACS Omega, Analytical Chemistry Letters, Frontiers in Bioengineering and Biotechnology, Chemical Communications, Applied Food Research, Microchimica Acta, Scientia Iranica, Journal of Materials Science, Journal of Biosafety, Scientific Reports, Iranian journal of Genetics and Plant Breeding, and Advanced Science

## Supervision and Advising of PhD and MS Thesis

- Zahra Hatami, MS student of Tehran University, Thesis title: Carbon-based Nanoparticles Synthesized from Agricultural Waste in Mitigating the Effects of Drought Stress on the Efficiency of Plant Growth-Promoting Bacteria in Maize, 2026
- Paria Allahverdi, MS student of Tehran University, Thesis title: Design of a colorimetric nanosensor for detection of *Pseudomonas tolaasii*, the causative agent of brown blotch disease in edible mushroom, 2025.
- Seyyed Hossein Hashemi Najafabadi, MS student of Kharazmi University, Thesis title: Aflatoxin M1 tracking using aptamer probe engineering based on genetic algorithm and colorimetric assessment using gold nanoparticles, 2024.
- Sobhan Soleimani, MS student of University of Kharazmi, Thesis title: Design of a colorimetric sensor based on synthesis of Au@Ag core-shell nanoparticles for Salmonella bacteria detection, 2023.
- Marjan Koushkestani, PhD student of Sharif University of Technology, Thesis title: Developing multi-channel sensor arrays for detection and discrimination of important biological compounds and environmental pollutants, 2022.
- Elaheh Ghorbanian, MS student of Tehran University, Thesis title: Designing of a colorimetric nanosensor based on plasmonic nanoparticles for detection and quantification of ammonia concentration in aquatics recycle aquaculture system (RAS), 2021.
- Masoumeh Abdali, MS student of Tehran University, Thesis title: Design of a colorimetric sensor array to monitor pesticide residues in strawberry fruit, culture medium and drainage water during the cultivation process, 2021.
- Afsaneh Orouji, PhD student of Sharif University of Technology, Thesis title: Design of Optical Sensor Arrays Based on Plasmonic Nanostructures for Food Quality Control, 2021.
- Sam Hosseinniya, MS student of Tehran University, Thesis title: Fabrication and evaluation of optical nanobiosensor based on localized surface plasmon resonance (LSPR) gold nanorod for detection of CRP biomarker in sepsis, 2020.
- Marzieh Sepahvand, PhD student of Tehran University, Thesis title: Development of a colorimetric method based on gold nanoparticles in measurement of nitrite and nitrate in aqueous environments and soil solution, 2020.
- Marjan Koushkestani, MS student of Sharif University of Technology, Thesis title: Design of a colorimetric sensor array based on aggregation of plasmonic nanoparticles for detection and discrimination of phosalone, thiometon and prothioconazole pesticides, 2020.
- M. Reza Mirghafouri, MS student of Sharif University of Technology, Thesis title: Design of a colorimetric sensor array based on aggregation of gold nanoparticles for identification and discrimination of pesticides, 2020.
- Zahra Taefi, MS student of Sharif University of Technology, Thesis title: Selective colorimetric detection of pentaerythritol tetranitrate (PETN) using arginine-mediated aggregation of gold nanoparticles, 2019.
- Fatemeh Najafzadeh, MS student of Sharif University of Technology, Thesis title: Design of an optoelectronic tongue based on anti-aggregation of gold nanoparticles for detection and classification of heavy metal ions, 2018.
- Aliakbar Mohammadi, MS student of Sharif University of Technology, Thesis title: Label-free colorimetric detection of methiocarb insecticid based on aggregation of gold nanoparticles, 2017.

## Languages

- Persian (mother tongue)
- English