Curriculum Vitae

Keyvan Asefpour Vakilian



Assistant Professor
Head of the Laboratory of Sensors & Biosensors
Department of Biosystems Engineering,
Gorgan University of Agricultural Sciences and Natural Resources (GUASNR)
Member of ASABE, ACS, IEEE, and ISAMEM
Research interests: Postharvest technology, Portable biosensors, Smart agriculture

PERSONAL INFORMATION

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ACADEMIC BACKGROUND

2013-2018	Degree obtained: Ph.D. in Biosystems Engineering Department of Agrotechnology, University of Tehran, Iran Title of dissertation: "Design, development and performance evaluation of an intelligent biosensor for the measurement of nitrate ion in greenhouse crops".
2010-2012	Degree obtained: M.Sc. in Agricultural Engineering Department of Agrotechnology, University of Tehran, Iran Title of thesis: "Design, development and performance evaluation of a robot to measure the image textural features in greenhouse cucumber".
2006-2010	Degree obtained: B.Sc. in Agricultural Engineering Faculty of Agriculture, Tabriz University, Tabriz, Iran. Title of project: "Applications of condition monitoring in agricultural engineering".

AWARDS

2025	Governor's Award for Excellence in Scientific Research, Golestan Province
2023-2025	Listed among the World's Top 2% Researchers for three consecutive years, issued by Stanford/Elsevier
2022	Outstanding Entrepreneur, GUASNR
2022	Faculty Member of the Year with the Most Scientific Growth, GUASNR
2018	Outstanding National Ph.D. Graduate, selected by Iran's National Elites Foundation (INEF)
2018	Outstanding Ph.D. Dissertation, University of Tehran
2017	Outstanding Ph.D. Student, University of Tehran
2015	Outstanding Student, selected in Research Festival of University of Tehran
2009	Top-Ranked Group Leader, Electrical vehicle project (ARAS Team)", Tabriz University

INTERNATIONAL RESEARCH PROJECTS

2023-present	Design and construction of a portable biosensor to detect biotic and abiotic stresses of plants Funding organization: ENVIROTIP Co.	Amount of funding: 38,000 EUR
2020-2024	IoT and portable biosensors for environmental pollution monitoring in the Black Sea catchment Funding organization: Hulla & Co. Human Dynamics K.G, European Union	Amount of funding: 60,000 EUR

RESEARCH PROJECTS FUNDED BY THE INDUSTRY

2024-2026	Design and construction of a smart enzymatic biosensor for detecting arsenic contamination
2023-2024	Early detection of environmental stress in cucumber plants using miRNA biosensors
2021-2022	Investigating methods of constructing smart sensors for measuring nitrite in drinking water and canned products
2020-2021	Feasibility of using nanomaterials in improving the performance of electrochemical biosensors

RESEARCH PROJECTS FUNDED BY THE GOVERNMENT

2026-present	Simulation of dynamics of headspace gases in active apple packaging using advanced mathematics and validation with gas chromatography (GC)
2026-present	Prediction of polyphenol and volatile organic compound concentrations in tea leaves using microRNA data and machine learning algorithms
2025-present	Developing biosensors for early detection of citrus fruit diseases over storage period to reduce waste and achieve sustainable food security
2025-2026	Early detection of fungal contamination of apple fruit during cold storage using microRNA data and machine learning
2025-2026	Spectral signature investigation and early detection of fungal contamination in pomegranate fruit using hyperspectral imaging and artificial intelligence
2024-present	Design and production of an electrochemical nanobiosensor based on SPE coated with gold-chitosan nanoparticles and carbon nanotubes for histamine measurement in tuna fish
2024-2026	The effect of chitosan-based edible coatings on the concentration of microRNAs in apple fruit during storage
2023-2024	A biosensor for detection of heavy metal concentration in the environment

2023-2024	Performance evaluation of machine learning to determine the storage quality of apple using miRNA biosensor data
2022-2025	Using microRNA biosensors to detect nutrient stress in plants
2021-2023	Smart multiplex biosensor for simultaneous measurement of microRNA concentrations in plant tissues
2021-2022	A smart portable biosensor for accurate and fast detection of water pollution
2020-2022	Performance of machine learning in improving the specific and selective response of Au-NP biosensors
2018-2019	Performance evaluation of a smart voltammetric biosensor in the monitoring nitrate contamination in water
2016-2018	Prediction of the effect of using chemical fertilizers (potassium chloride, urea and ammonium phosphate) on soil infiltration resistance

EXECUTIVE ACTIVITY

2023 - present	Member of Golestan Province's Elite Think Tank on Sustainable Development (GPETTSD)
2021 - present	Entrepreneurial consultant of the Faculty of Water and Soil Engineering, GUASNR
2022 - present	Member of the International Relations Workgroup, GUASNR

ACADEMIC TEACHING EXPERIENCE

2023	Teaching the short-term course "Digital Agriculture: Prospects and Challenges" at Tuscia University, Italy, under the title of Erasmus+ exchange program
2017 - present	Teaching courses at University of Tehran and GUASNR including: Biosensors for food quality assessment (Ph.D.) Advanced modelling methods (Ph.D.) Image processing and its applications (Ph.D.) Introduction to machine vision (M.Sc.) Measurement and control systems (B.Sc.) Introduction to electronics (B.Sc.) Hydraulic and pneumatic systems (B.Sc.)

SUPERVISING PHD AND MSC STUDENTS

PhD Dissertations

2023-present	Managing Phalaenopsis orchid growth and development using light spectrum and machine learning

MSc Theses

2024-2025	Design, fabrication and evaluation of a smart histamine biosensor using electrochemical and machine learning methods to assess the quality of meat products
2023-2024	Optimizing machine learning methods for intelligent biosensors to assess the postharvest quality of products
2022-2023	Construction of a fruit edible coating device and evaluation of its performance on preserving the morphological, physiological and biochemical characteristics of citrus fruits during the storage period
2022-2024	Design, fabrication and evaluation of a semi-industrial carrot peeling machine

ADVISING PHD AND MSC STUDENTS

PhD Dissertations

2024-present	Improving the efficiency of resource consumption in the production of basil plant (*Ocimum basilicum* L.) in the plant factory system under various light spectrums
2024-present	Study of the factors involved in the occurrence of hypoxia stress in the hydroponic cultivation system in basil and lettuce
2022-2025	Investigation of the effect of three species of Trichoderma spp on *Alternaria solani* and *Helicoverpa armigera* in tomato plant with the help of biochemical evaluations and miRNA concentration measurement
2021-2026	Ecophysiological evaluation of some native endophytic fungi of Golestan province and their parasitic behavior on spot blotch disease and optimization of growth increase in barley plant
2021-2025	Modeling and optimization of Phalaenopsis orchid in vitro growth and development using machine learning
2020-2023	Intelligent diagnosis of common tomato plant diseases using color and hyperspectral image processing
2020-2022	Design and construction of a smart electrochemical biosensor based on gold nanoparticles to determine arsenite
2018-2020	Design and construction of a variable flow sprayer robot based on the volume of the plant mass

MSc Theses

2024-2025	Design, construction and evaluation of an intelligent device for Iranian rice variety identification based on machine vision and deep neural networks
2021-2023	Investigating the effect of mechanical damage and storage period on the morphology, physiology and miRNA of strawberry
2022-2023	Design and construction of autonomous mobile robot for agricultural applications
2021-2022	Determining the postharvest quality of tomatoes using miRNA concentrations and machine learning
2018-2020	Development of an intelligent system to determine the exact time of calcium fertilization in tomatoes using image processing
2016-2018	A farm protection robot tracking system based on image processing
2016-2018	Designing, manufacturing, and optimization of date harvesting robot
2016-2018	Design and construction of a prototype of a greenhouse crop harvesting robot
2014-2015	Design and construction of the farm quadrotor robot control system
2014-2015	Design, construction and evaluation of the farm quadrotor robot
2013-2014	Design, construction and evaluation of a robot for estimation of kiwi fruit yield

PATENTS

2025	Portable intelligent biosensor for heavy metals	Patent pending
2022	Date palm harvesting robot equipped with product estimation system	Patent number: 107357
2016	Rolling ball viscometer equipped with image processing and temperature controller	Patent number: 88368

2012	Intelligent robot for determining texture characteristics of plant leaf images	Patent number: 76309

REVIEWS FOR GRANT PROPOSALS AND PEER-REVIEWED JOURNALS

2025-present Review of funding applications for UK Research and Innovation (UKRI)
2024-present Review of grant applications for Iranian National Science Foundation (INSF)

More than 400 review records for various journals verified at Publons/WoS database including:

Computers and Electronics in Agriculture, Publisher: Elsevier
Journal of Food Engineering, Publisher: Elsevier
Journal of Cleaner Production, Publisher: Elsevier
Intelligent Service Robotics, Publisher: Springer
Applied Artificial Intelligence, Publisher: Taylor & Francis
International Journal of Electronics, Publisher: Taylor & Francis
Scientific Reports, Publisher: Nature
IEEE Access, Publisher: IEEE
Journal of Hazardous Materials, Publisher: Elsevier
Journal of Food Process Engineering, Publisher: Wiley
Plant Cell Reports, Publisher: Springer
Scientia Iranica, Publisher: Sharif University of Technology
Waste Management & Research, Publisher: SAGE
Frontiers in Plant Science

RESEARCH INTERESTS

Design and development of smart sensors and biosensors for food industry
Machine learning in electrochemical and optical biosensors
Intelligent sensing devices for Internet of Things
Machine vision and image processing for postharvest technology
miRNA biosensors for plant biotic and abiotic stress studies
Using nanoparticles in enzyme and miRNA sensors

PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. Mahdavi Z., Dianati Daylami S., **Asefpour Vakilian K.**, Vahdati K. 2026. Artificial neural network-based optimization of chitosan and 24-epibrassinolide for enhancing Phalaenopsis plantlet growth in vitro. Plant Cell, Tissue and Organ Culture (Springer), 165: 60.

2. Derakhshan N., Rahnama K., **Asefpour Vakilian K.** 2026. Plant growth promoting and biocontrol potential of endophytic strains of *Cladosporium* spp., under pathogen stress of *Bipolaris sorokiniana* in barley. Biological Control (Elsevier), 106059.

3. Sharifi M., Forge T., Hannam K., Kuchta S., Neilsen D., **Asefpour Vakilian K.**, Yasari E. 2026. Multi-year effects of irrigation method and organic amendments on soil moisture dynamics, tree growth and productivity in sweet cherry under a standardized nutrient input. Scientia Horticulturae (Elsevier), 358, 114715.

4. Massah J., **Asefpour Vakilian K.**, Sami S., Jazayeri I. 2026. Design, development, and performance evaluation of a GPS and machine vision-based navigation system for an intelligent field guard robot. Iran Agricultural Research (Shiraz University), 45(1), 113-126.

5. Dolatabadi H., Soleimanipour A., **Asefpour Vakilian K.** 2026. Effects of drying method, post-drying delay, and tempering on milling quality and color retention of paddy rice at various moisture contents: A systematic review. Journal of Cereal Science (Elsevier), 127: 104358.

6. Samadi S.M., **Asefpour Vakilian K.**, Javidan S.M. 2025. The importance of microRNA molecular analysis in the field of postharvest biology and technology. Biosystems Engineering and Renewable Energies (GUASNR), 1(2): 150-156.

7. Samadi S.M., **Asefpour Vakilian K.**, Javidan S.M. 2025. A review of the most important microRNAs involved in fruit postharvest properties. Food Chemistry Advances (Elsevier), 9: 101168.

8. **Asefpour Vakilian K.**, Moreau M. 2025. An optimized machine learning-based unit for smart arsenic electrochemical biosensors. Biosystems Engineering and Renewable Energies (GUASNR), 1: 127-132.

9. Mousavi S.M., **Asefpour Vakilian K.**, Soleimanipour A. 2025. A review of the most important microRNAs involved in fruit postharvest properties. LWT - Food Science and Technology (Elsevier), 238: 118849.

10. Soltani Nezhad F., Rahnama K., **Asefpour Vakilian K.**, Yazdanian M., Afshari A. 2025. Early detection and prognosis of tomato early blight disease caused by pathogen *Alternaria alternata* using visible and hyperspectral image analysis. Iranian Journal of Biosystem Engineering (University of Tehran), 56: 100-117.

11. Mahdavi Z., Dianati Daylami S., **Asefpour Vakilian K.**, Vahdati K. 2025. Machine learning-based macronutrients optimization enhances nitrogen uptake and growth in Phalaenopsis plantlets. Plant Cell, Tissue and Organ Culture (Springer), 162: 46.

12. Ma G., Zuo C., Liu X., Javidan S.M., Zhang Z., Ampatzidis Y., **Asefpour Vakilian K.**, Banakar A., Rahnama K. 2025. A tomato leaf fungal disease image dataset and a metaheuristic-based framework for optimizing machine learning classification. Smart Agricultural Technology (Elsevier), 12: 101568.

13. Li Z., **Asefpour Vakilian K.** 2025. Detecting the type and severity of mineral nutrient deficiency in rice plants based on an intelligent microRNA biosensing platform. Sensors (MDPI), 25: 5189.

14. Mahdavi Z., Dianati Daylami S., **Asefpour Vakilian K.**, Vahdati K. 2025. Revolutionizing in vitro cultivation: machine learning-based optimization of nutrients for superior morphology and biochemistry of *Phalaenopsis* orchids. Plant Cell, Tissue and Organ Culture (Springer), 161: 33.

15. **Asefpour Vakilian K.** 2025. A smart multiplexed microRNA biosensor based on FRET for the prediction of mechanical damage and storage period of strawberry fruits. Plant Molecular Biology (Springer), 115: 37.

16. Sharbati M., **Asefpour Vakilian K.**, Azadbakht M. 2025. What do microRNA concentrations tell us about the mechanical damage and storage period of strawberry fruits? Food Chemistry: Molecular Sciences (Elsevier), 10: 100250.

17. Samadi S.M., **Asefpour Vakilian K.**, Javidan S.M. 2025. Combining miRNA concentrations and optimized machine-learning techniques: An effort for the tomato storage quality assessment in the agriculture 4.0 framework. Journal of Agriculture and Food Research (Elsevier), 19: 101605.

18. Javidan S.M., Ampatzidis Y., Banakar A., **Asefpour Vakilian K.**, Rahnama K. 2025. An intelligent group learning framework for detecting common tomato diseases using simple and weighted majority voting with deep learning models. AgriEngineering (MDPI), 7: 31.

19. Soltani Nezhad F., Rahnama K., Javidan S.M., **Asefpour Vakilian K.** 2024. Application of microscopic image processing and artificial intelligence detecting and classifying the spores of three novel species of Trichoderma. Discover Applied Sciences (Springer), 6: 669.

20. Sharifi M., Wolk W., **Asefpour Vakilian K.**, Xu H., Slamka S., Fong K. 2024. Integrating soil, leaf, fruitlet, and fruit nutrients, along with fruit quality, to predict post-storage quality of Staccato sweet cherries. Horticulturae (MDPI), 10: 1230.

21. Dayeh N., **Asefpour Vakilian K.**, Azadbakht M. 2024. A fruit edible coating machine to protect the morphological, physiological, and biochemical properties of citrus fruits. Food and Bioproducts Processing (Elsevier), 148: 428-435.

22. Javidan S.M., Ampatzidis Y., Banakar A., **Asefpour Vakilian K.**, Rahnama K. 2024. Tomato fungal disease diagnosis using few-shot learning based on deep feature extraction and cosine similarity. AgriEngineering (MDPI), 6: 4233-4247.

23. Javidan S.M., Banakar A., **Asefpour Vakilian K.**, Ampatzidis Y., Rahnama K. 2024. Early detection and spectral signature identification of tomato fungal diseases by RGB and hyperspectral image analysis and machine learning. Heliyon (Elsevier), 10: e38017.

24. **Asefpour Vakilian K.** 2024. Detecting abiotic stresses in rice plants using a smart optical biosensor based on gold nanoparticles, Iranian Journal of Biosystem Engineering (University of Tehran), 55: 51-69.

25. Javidan S.M., Banakar A., **Asefpour Vakilian, K.**, Ampatzidis Y., Rahnama K. 2024. Diagnosing the spores of tomato fungal diseases using microscopic image processing and machine learning. Multimedia Tools and Applications (Springer), 83:67283-67301.

26. Javidan S.M., Banakar A., Rahnama K., **Asefpour Vakilian K.**, Ampatzidis Y. 2024. Feature engineering to identify plant diseases using image processing and artificial intelligence: a comprehensive review. Smart Agricultural Technology (Elsevier), 8: 100480.

27. Javidan S.M., Banakar A., **Asefpour Vakilian K.**, Ampatzidis Y. 2024. Tomato leaf diseases classification using image processing and weighted ensemble learning. Agronomy Journal (Wiley), 116: 1029-1049.

28. **Asefpour Vakilian K.** 2023. An intelligent electrochemical biosensor based on optimized machine learning methods for measuring nitrate pollution in water. Agricultural Mechanization and Systems Research (AREEO), 24: 91-106.

29. Mohammadi P., **Asefpour Vakilian K.** 2023. Machine learning provides specific detection of salt and drought stresses in cucumber based on miRNA characteristics. Plant Methods (Springer), 19: 123.

30. Mohammadi P., Massah J., **Asefpour Vakilian K.** 2023. Robotic date fruit harvesting using machine vision and a 5-DOF manipulator. Journal of Field Robotics (Wiley), 40: 1408-1423.

31. Hashemi Shabankareh S., Asghari A., Azadbakht M., **Asefpour Vakilian K.** 2023. Physical and physiological characteristics, as well as miRNA concentrations, are affected by the storage time of tomatoes. Food Chemistry (Elsevier), 429: 136792.

32. Sarlaki E., Kianmehr M.H., Ghorbani M., Kermani A.M., **Asefpour Vakilian K.**, Angelidaki I., Wang Y., Gupta V. K., Pan J., Tabatabaei M., Aghbashlo M. 2023. Highly humified nitrogen-functionalized lignite activated by urea pretreatment and ozone plasma oxidation. Chemical Engineering Journal (Elsevier), 456: 140978.

33. Javidan S. M., Banakar A., **Asefpour Vakilian K.**, Ampatzidis Y. 2023. Diagnosis of grape leaf diseases using automatic K-means clustering and machine learning. Smart Agricultural Technology (Elsevier), 3: 100081.

34. Tabibi Z., Massah J., **Asefpour Vakilian K.** 2022. A biosensor for the sensitive and specific measurement of arsenite using gold nanoparticles. Measurement (Elsevier), 187: 110281.

35. Massah J., Nomanfar P., Dehghani-Soufi M., **Asefpour Vakilian K.** 2022. Electrical properties measurement: A nondestructive method to determine the quality of bread doughs during fermentation. Journal of Cereal Science (Elsevier), 107: 103530.

36. Ghorbani M., Li Q., Kianmehr M.H., Arabhosseini A., Sarlaki E., **Asefpour Vakilian K.**, Varjani S., Wang Y., Wei D., et al. 2022. Highly digestible nitrogen-enriched straw upgraded by ozone-urea pretreatment: digestibility metrics and energy-economic analysis. Bioresource Technology (Elsevier), 360: 127576.

37. Mortazavizadeh F., Fatahi A., **Asefpour Vakilian K.**, Pagliari P.H., Cerdà A., Mirzaei M., Zhang X., Adnan Ikram R.M. 2022. Effects of ash derived from livestock manure and two other treatments on soil moisture content and water infiltration rate. Irrigation and Drainage (Wiley). 71: 1024-1033.

38. Massah J., **Asefpour Vakilian K.**, Shabanian M., Shariatmadari S. M. 2021. Design, development, and performance evaluation of a robot for yield estimation of kiwifruit. Computers and Electronics in Agriculture (Elsevier), 185: 106132.

39. Aboonajmi M., Ganjdoost M., Mirsaeedghazi H., **Asefpour Vakilian K.** 2021. Effect of power ultrasound treatment on the shelf life of edible mushroom. Journal of Food Research (University of Tabriz), 32: 139-152.

40. Hejazipoor H., Massah J., Soryani M., **Asefpour Vakilian K.**, Chegini G. 2021. An intelligent spraying robot based on plant bulk volume. Computers and Electronics in Agriculture (Elsevier), 180: 105859.

41. Sarlaki E., Kermani A.M., Kianmehr M.H., **Asefpour Vakilian K.**, Hosseinzadeh-Bandbafha H., Ma N.L., Aghbashlo M., Tabatabaei M., Lam S.S. 2021. Improving sustainability and mitigating environmental impacts of agro-biowaste compost fertilizer by pelletizing-drying. Environmental Pollution (Elsevier), 285: 117412.

42. Esmaili M., Aliniaeifard S., Mashal M., **Asefpour Vakilian K.**, Ghorbanzadeh P., Azadegan B., Seif M., Didaran F. 2021. Assessment of adaptive neuro-fuzzy inference system (ANFIS) to predict production and water productivity of lettuce in response to different light intensities and CO_2 concentrations. Agricultural Water Management (Elsevier), 258: 107201.

43. Sarlaki E., Sharif Paghaleh A., Kianmehr M.H., **Asefpour Vakilian K.** 2021. Valorization of lignite wastes into humic acids: Process optimization, energy efficiency and structural features analysis. Renewable Energy (Elsevier), 163: 105-122.

44. Ganjdoost M., Aboonajmi M., Mirsaeedghazi H., **Asefpour Vakilian K.** 2021. Effects of power ultrasound treatment on the shelf life of button mushrooms: Digital image processing and microbial counting can reveal the effects. Food Science & Nutrition (Wiley), 9: 3538-3548.

45. Hejazipoor H., Massah J., **Asefpour Vakilian K.**, Soryani M., Chegini G. 2021. Design, manufacture and evaluation of automatic spraying mechanism in order to increase productivity. Agricultural Engineering (Scientific Journal of Agriculture (Shahid Chamran University), 44: 1-19.

46. Sharifi M., Messiga A.J., **Asefpour Vakilian K.**, Stopford E., Hutchinson T. 2020. Spatial distribution of soil phosphorous fractions following 1-year farrowing sows in an outdoor hog-rearing farm in Eastern Canada. Environmental Monitoring and Assessment (Springer), 192: 322.

47. **Asefpour Vakilian K.** 2020. Machine learning improves our knowledge about miRNA functions towards plant abiotic stresses. Scientific Reports (Springer-Nature), 10: 3041.

48. **Asefpour Vakilian K.** 2020. Determination of nitrogen deficiency-related microRNAs in plants using fluorescence quenching of graphene oxide nanosheets. Molecular and Cellular Probes (Elsevier), 52: 101576.

49. Sarlaki E., Sharif Paghaleh A., Kianmehr M.H., **Asefpour Vakilian K.** 2020. Chemical, spectral and morphological characterization of humic acids extracted and membrane purified from lignite. Chemistry & Chemical Technology (Lviv Polytechnic University), 14: 353-361.

50. Massah J., Hassanpour F., Hassanpour Z., **Asefpour Vakilian K.** 2020. Experimental investigation of bionic soil-engaging blades for soil adhesion reduction by simulating *Armadillidium vulgare* body surface. INMATEH-Agricultural Engineering (INMA), 60: 99-106.

51. Massah J., **Asefpour Vakilian K.** 2019. An intelligent portable biosensor for fast and accurate nitrate determination using cyclic voltammetry. Biosystems Engineering (Elsevier), 177: 49-58.

52. **Asefpour Vakilian K.** 2019. Gold nanoparticles-based biosensor can detect drought stress in tomato by ultrasensitive and specific determination of miRNAs. Plant Physiology and Biochemistry (Elsevier), 145: 195-204.

53. Sarlaki E., Sharif Paghale A., Kianmehr M.H., **Asefpour Vakilian K.** 2019. Extraction and purification of humic acids from lignite wastes using alkaline treatment and membrane ultrafiltration. Journal of Cleaner Production (Elsevier), 235: 712-723.

54. Ghorbani M., Aboonajmi M., **Asefpour Vakilian K.** 2019. The machine vision technology in precision agriculture: A comprehensive review on principles and applications. Soft Computing Journal (University of Kashan), 9: 92-113.

55. Amanabadi S., Vazirinia M., Vereecken H., **Asefpour Vakilian K.**, Mohammadi M.H. 2019. Comparative study of statistical, numerical and machine learning-based pedotransfer functions of water retention curve with particle size distribution data. Eurasian Soil Science (Springer), 52: 1555-1571.

56. Massah J., **Asefpour Vakilian K.**, Torktaz S. 2019. Supervised machine learning algorithms can predict penetration resistance in mineral-fertilized soils. Communications in Soil Science and Plant Analysis (Taylor & Francis), 50: 2169-2177.

57. Sarlaki E., Sharif Paghaleh A., Kianmehr M.H., Shakiba N., **Asefpour Vakilian K.**, Mirsaeedghazi, H. 2019. Post-treatment of lignite-derived humate alkaline extracts using membrane-based technology for high-purity humic acid production. Journal of Environmental Science and Technology (Islamic Azad University), 15147.

58. **Asefpour Vakilian K.**, Massah J. 2018. A portable nitrate biosensing device using electrochemistry and spectroscopy. IEEE Sensors Journal (IEEE), 18: 3080-3089.

59. **Asefpour Vakilian K.**, Massah J. 2018. A fuzzy-based decision making software for enzymatic electrochemical nitrate biosensors. Chemometrics and Intelligent Laboratory Systems (Elsevier), 177: 55-63.

60. **Asefpour Vakilian K.**, Massah J. 2017. A farmer-assistant robot for nitrogen fertilizing management of greenhouse crops. Computers and Electronics in Agriculture (Elsevier), 139: 153-163.

61. **Asefpour Vakilian K.** 2017. Using networks in plant disease diagnosis. CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources (CAB International), 12: 047.

62. **Asefpour Vakilian K.**, Massah J. 2016. An apple grading system according to European fruit quality standards using Gabor filter and artificial neural networks. Scientific Study and Research: Chemistry and Chemical Engineering, Biotechnology, Food Industry (Bacau University), 17: 75-85.

63. Yazdani N., Osanloo B., Lotfi M., **Asefpour Vakilian K.** 2016. Application of image processing for investigating the effect of nanozeolite and nanosponge on flesh firmness of cold stored cantaloupe. International Journal of Horticultural Science and Technology (University of Tehran), 4: 127-133.

64. Razzaghi E., Massah J., **Asefpour Vakilian K.** 2015. Mechanical analysis of a robotic date harvesting manipulator. Russian Agricultural Sciences (Springer), 41: 80-85.

65. Hashemi A., **Asefpour Vakilian K.**, Khazaei J., Massah J. 2014. An artificial neural network modeling for force control system of a robotic pruning machine. Journal of Information and Organizational Sciences (Faculty of Organization and Informatics), 38: 35-41.

66. **Asefpour Vakilian K.**, Abounajmi M., Massah J. 2014. A statistical approach to classify agricultural satellite images using textural features extraction. Journal of Engineering Studies and Research (Bacau University), 20: 17-22.

67. Jafari M., Sabzevari A., **Asefpour Vakilian K.** 2014. Effects of planting methods on yield and morphological traits of three chickpea cultivars in rain fed conditions. Russian Agricultural Sciences (Springer), 40: 339-343.

68. **Asefpour Vakilian K.**, Massah J. 2013. An artificial neural network approach to identify fungal diseases of cucumber (Cucumis *sativus* L.) plants using digital image processing. Archives of Phytopathology and Plant Protection (Taylor & Francis), 46: 1580-1588.

69. **Asefpour Vakilian K.**, Massah J. 2013. Performance evaluation of a machine vision system for insect pests identification of field crops using artificial neural networks. Archives of Phytopathology and Plant Protection (Taylor & Francis), 46: 1262-1269.

70. Massah J., **Asefpour Vakilian K.** 2013. Statistical modelling of error measurement for diaphragm gas meters at different ambient temperatures. Acta Technica Corviniensis (University Politehnica Timisoara), 6: 97-100.

71. **Asefpour Vakilian K.**, Massah J. 2012. Design, development and performance evaluation of a robot to early detection of nitrogen deficiency in greenhouse cucumber (*Cucumis sativus*) with machine vision. International Journal of Agriculture: Research and Review (ECISI), 2: 448-454.

72. **Asefpour Vakilian A.**, Asefpour Vakilian K. 2012. A new satellite image segmentation enhancement technique for weak image boundaries. International Journal of Engineering (University Politehnica Timisoara), 10: 239-243.

73. **Asefpour Vakilian K.**, Massah J. 2012. Performance evaluation of CCD and CMOS cameras in image textural features extraction. Acta Technica Corviniensis (University Politehnica Timisoara), 5: 61-64.

74. **Asefpour Vakilian K.**, Massah J. 2012. Non-linear growth modeling of greenhouse crops with image textural features analysis. International Research Journal of applied and Basic Science (Science Explore), 3: 197-202.

PRESENTATIONS AT NATIONAL AND INTERNATIONAL CONFERENCES

1. **Asefpour Vakilian K.**, Moreau M. 2025. A fuzzy inference system-based decision-making unit for arsenic electrochemical biosensors, 11th IEEE-International Conference on Signal Processing and Intelligent Systems, December 23-24, 2025, Mazandaran, Iran.

2. Derakhshan N., **Asefpour Vakilian K.** 2025. Sparse representation-based plant disease detection using leaf image processing, 11th IEEE-International Conference on Signal Processing and Intelligent Systems, December 23-24, 2025, Mazandaran, Iran.

3. Mousavi S.M., **Asefpour Vakilian K.**, Soleimanipour A. 2025. A review of methods for measuring histamine in food products, 17th National Congress on Mechanics of Biosystems Engineering and Agricultural Mechanization, October 22-24, 2025, Rasht, Iran.

4. **Asefpour Vakilian K.** 2025. Monitoring changes in the concentration of orange microRNAs during storage using an optical biosensor based on Förster resonance energy transfer, 17th National Congress on Mechanics of Biosystems Engineering and Agricultural Mechanization, October 22-24, 2025, Rasht, Iran.

5. Derakhshan N., **Asefpour Vakilian K.** 2025. Detecting some fungal diseases of apple fruit using image processing and machine learning optimized by metaheuristic algorithms, 17th National Congress on Mechanics of Biosystems Engineering and Agricultural Mechanization, October 22-24, 2025, Rasht, Iran.

6. Samadi S.M., **Asefpour Vakilian K.,** Javidan S.M. 2025. Predicting the shelf life of agricultural products using microRNA data and artificial intelligence methods, 13th National Conference on Environment, Energy and Sustainable Natural Resources, September 6, 2025, Tehran, Iran.

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