

First Name: Elahe
Last Name: Vatankhah
Date of Birth: August 23, 1980
Place of Birth: Kashan
Marital Status: Married
Nationality: Iranian

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Educational Background

- **High School Diploma in Experimental Sciences** (1994-1998)
Afaf High School and Rabi'i Pre-University
Graduation GPA: 19.46
- **BS Degree in Biology - Plant Sciences** (1998-2002)
Tarbiat Moallem University of Tehran
Graduation GPA: 18.15
- **M.S. Degree in Biology - Plant Physiology** (2002-2004)
University of Tehran
Graduation GPA: 18.75
- **Ph.D. Degree in Biology - Plant Physiology** (2004-2010)
University of Tehran
Theoretical Courses GPA: 19.05

Admission Ranks

BS Level:
Ranked as first-ranked student

MS Level:
Ranked as first-ranked student

PhD Level:
First-ranked student

Employment Records

Place of Service: Faculty of Sciences, University of Zanjan
Position Title: Assistant Professor

Research Activities

Conference Papers:

1. Presentation of paper entitled "Quantitative and Qualitative Study of Proteins and Activity of Peroxidase and Polyphenol Oxidase Enzymes During Fruit Ripening in Olive" as oral presentation at the 12th National Conference of Biology of Iran - Hamedan, Bu-Ali Sina University, September 1-3, 2004
2. Presentation of paper entitled "Study of Changes in Soluble Proteins and Some Enzymes During Flower Initiation Stage in Olive" as poster at the 12th National Conference of Biology - Hamedan: Bu-Ali Sina University, September 1-3, 2004
3. Presentation of paper entitled "Optimization of Culture Medium Conditions for Callus Production in Cultivated Saffron *Crocus sativus* L." as poster at the 2nd National Conference of Cellular and Molecular Biology - Kerman: International Center for Advanced Science and Technology and Environmental Sciences, February 2008
4. Presentation of paper entitled "Study of Soluble Proteins and Antioxidant Enzymes During Organogenesis of Cultivated Saffron *in Vitro*" at the 15th National Conference and 3rd International Conference of Biology - Tehran: University of Tehran, September 19-21, 2008
5. Presentation of paper entitled "Study of antioxidative system during *in vitro* growth in *Crocus sativus* L" at the 3rd International Saffron Conference in Greece, May 20-23, 2009 as poster
6. Presentation of paper entitled "Study of Sugars and Soluble Proteins of Cultivated Saffron in *In Vitro* and *In Vivo* Conditions" at the International Saffron Conference, Herbal Medicine of the Third Millennium, May 13-14, 2009 in Mashhad as poster
7. Presentation of paper entitled: Proteomic analysis of somatic embryogenesis in saffron (*Crocus sativus* L.) at the 3rd Iranian Proteomics Conference, May 26-27, 2009 as poster
8. Presentation of paper entitled "Study of Some Saturated Fatty Acids during *in Vitro* and *In Vivo* Growth in Cultivated Saffron (*Crocus sativus* L.)" at the 16th National Conference of Biology of Iran, September 14-16, 2010 as oral presentation
9. Presentation of paper entitled "Optimization of Culture Medium Conditions from Cormels of Cultivated Saffron (*Crocus sativus* L.) Through *In Vitro* Culture" as poster at the 3rd Agricultural Biotechnology Conference in Mashhad, September 4-6
10. Presentation of paper entitled "Study of Biochemical Aspects During *In Vitro* Organogenesis in Cultivated Saffron (*Crocus sativus* L.)" as poster at the 17th National Conference and 5th International Conference of Biology of Iran, Shahid Bahonar University of Kerman, September 4-6, 2012
11. Presentation of paper entitled "Relationship Between Mineral Nutrients and *In Vitro* Organogenesis in Cultivated Saffron (*Crocus sativus* L.)" as poster at the 17th National Conference and 5th International Conference of Biology of Iran, Shahid Bahonar University of Kerman, September 4-6, 2012

12. Presentation of paper entitled "Study of Salinity Stress on Seed Germination in *Hyoscyamus reticulatus* L. Species (a type of Henbane) in Zanjan" as poster at the 3rd National Conference of Plant Physiology of Iran, Isfahan University of Technology, May 7-9, 2014
13. Presentation of paper entitled "Study of the Effect of Climatic Conditions on Essential Oil Content and Yield in *Mentha aquatica* L. Species" as poster at the 18th National Congress and 6th International Congress of Biology of Iran, Kharazmi University, August 26-29, 2014
14. Presentation of paper entitled "Effect of Methyl Jasmonate Pretreatment on Growth and Physiological Responses of Peppermint (*Mentha piperita* L.) Under Salinity Stress" as poster at the 18th National Congress and 6th International Congress of Biology of Iran, Kharazmi University, August 26-29, 2014
15. Presentation of paper entitled "Effect of Methyl Jasmonate Pretreatment on Growth Responses of *Anchusa italica* Plant Under Salinity Stress" as poster at the 18th National Congress and 6th International Congress of Biology of Iran, Kharazmi University, August 26-29, 2014
16. Presentation of paper entitled "Study of the Effect of Salinity Stress on Growth Parameters and Total Phenol Content of *Hyoscyamus reticulatus* L. Plant (a type of Henbane) in Zanjan" as poster at the 2nd National Conference of New Biological Sciences and Technologies, Malayer University, January 29, 2015
17. Presentation of paper entitled "Effect of Salinity Stress on Proline Content of *Hyoscyamus reticulatus* L. Plant (a type of Henbane) from Solanaceae Family in Zanjan" as poster at the 2nd National Conference of New Biological Sciences and Technologies, Malayer University, January 29, 2015
18. Presentation of paper entitled "Ecophysiological Study on *Mentha aquatica* L. Plant from Lamiaceae Family with Emphasis on Total Phenolic Compounds" as oral presentation at the 2nd National Conference of New Biological Sciences and Technologies, Malayer University, January 29, 2015
19. Presentation of paper entitled "Effect of Foliar Application of Methyl Jasmonate on Soil Mineral Uptake and Proline Content of *Anchusa italica* L. Plant Under Salinity Stress" as oral presentation at the 2nd National Conference of New Biological Sciences and Technologies, Malayer University, January 29, 2015
20. Presentation of paper entitled "Biosystematic Study of Medicinal Plant *Ferula gummosa* from Apiaceae Family" as poster at the 2nd National Conference of New Biological Sciences and Technologies, Malayer University, January 29, 2015
21. Presentation of paper entitled "Effect of Anthracene on Germination, Growth Factors and Amylase Enzyme Activity in Alfalfa Plant" as poster at the 4th National Conference of Plant Physiology of Iran, Tarbiat Modares University, September 2-3, 2014
22. Presentation of paper entitled "Ecophysiological Study and Comparison of Physiological Traits of Two Medicinal Plant Species *T. parthenium* and *T. polycephalum*" as oral presentation at the 1st Scientific-Research Conference of Biology and Horticultural Sciences of Iran, August 13-14, 2015
23. Acceptance of paper entitled: "Molecular and Ecophysiological Study of Medicinal Plant *Ferula gummosa*" in the Quarterly Journal of Medicinal Plants Biotechnology, Volume 2, Issue 2, Pages 63-78, spring 2015.
24. Presentation of paper entitled "Effect of *Priformospora indica* Fungus on Growth Indices of Alfalfa Plant Under Drought Stress" as poster at the 19th National Congress and 7th International Congress of Biology of Iran, University of Tabriz, August 30 - September 1, 2016

25. Presentation of paper entitled "Effect of Methyl Jasmonate and Salinity Stress on Essential Oil Quantity and Quality in Peppermint Plant" as poster at the 19th National Congress and 7th International Congress of Biology of Iran, University of Tabriz, August 30 - September 1, 2016
26. Presentation of paper entitled "Study of Alkaloid Content of Henbane Plant Under Salinity Stress" as poster at the 19th National Congress and 7th International Congress of Biology of Iran, University of Tabriz, August 30 - September 1, 2016
27. Presentation of paper entitled "Anatomical Study of *Euphorbia macroclada* Species in Hamedan Province" as poster at the 2nd International Conference and 5th National Conference of Medicinal Plants and Sustainable Agriculture, September 1, 2016
28. Presentation of paper entitled "Effect of Methyl Jasmonate on Some Growth Parameters and Photosynthetic Pigments of Licorice Plant (*Glycyrrhiza glabra* L.) Under Different Salinity Levels" as poster at the 3rd National Conference of New Biological Sciences and Technologies, Malayer University, May 11, 2017
29. Presentation of paper entitled "Effect of *Piriformospora indica* Fungus on Some Growth Parameters and Iron and Zinc Concentration of Alfalfa Plant During Drought Stress" as poster at the 3rd National Conference of New Biological Sciences and Technologies, Malayer University, May 11, 2017
30. Presentation of paper entitled "Changes in Photosynthetic Pigments Content and Soluble Sugars in *Mentha aquatica* Plant in Different Habitats" as poster at the 3rd National Conference of New Biological Sciences and Technologies, Malayer University, May 11, 2017
31. Presentation of paper entitled "Comparison of Leaf Mineral Elements of *Euphorbia seguleriana* Species in Different Habitats of Hamedan Province" as poster at the 3rd National Conference of New Biological Sciences and Technologies, Malayer University, May 11, 2017
32. Presentation of paper entitled "Ecophysiological and Physiological Study of *Trichodesma incanum* Plant Species" as poster at the 3rd National Conference of New Biological Sciences and Technologies, Malayer University, May 11, 2017
33. Presentation of paper entitled "Effect of Mycorrhiza-like Fungus *Piriformospora indica* on Content of Some Mineral Elements of Alfalfa Plant (*Medicago sativa* L.) Under Water Deficit Stress" as poster at the 5th National Conference of Plant Physiology of Iran, University of Zanzan, August 30-31, 2017
34. Presentation of paper entitled "Effect of Endophytic Fungus *Piriformospora indica* on Some Biochemical Responses of Alfalfa Plant (*Medicago sativa* L.) Under Drought Stress" as poster at the 5th National Conference of Plant Physiology of Iran, University of Zanzan, August 30-31, 2017
35. Presentation of paper entitled "Optimization of Tissue Culture of Insulin Plant (*Costus pictus* D.Don)" as oral presentation at the 5th National Conference of Plant Physiology of Iran, University of Zanzan, August 30-31, 2017
36. Presentation of paper entitled "Effect of Arbuscular Mycorrhizal Symbiosis and Methyl Jasmonate on Photosynthetic Pigments Content in Alfalfa Plant Under Water Deficit Stress" as poster at the 20th National Congress and 8th International Congress of Biology of Iran, University of Maragheh, August 22-24, 2018.
37. Presentation of paper entitled "Study of Glycyrrhizin Content of Licorice Plant Under Salinity Stress" as poster at the 20th National Congress and 8th International Congress of Biology of Iran, University of Maragheh, August 22-24, 2018

38. Presentation of paper entitled "Effect of Arbuscular Mycorrhizal Fungus on Growth Parameters of Licorice Plant (*Glycyrrhiza glabra* L.) Under Lead Stress" as poster at the 16th Iranian Soil Science Congress, University of Zanjan, August 27-29, 2019
39. Presentation of paper entitled "Effect of Arbuscular Mycorrhizal Fungus on Growth Parameters of Licorice Plant (*Glycyrrhiza glabra* L.) Under Different Zinc Levels" as poster at the National Conference of Plant Physiology of Iran, Yazd University, October 23-24, 2019
40. Presentation of paper entitled "Effect of Different Lead Concentrations on Some Growth Parameters in Valerian Plant" as poster at the 6th National Conference of Plant Physiology of Iran, Yazd University, October 23-24, 2019
41. Presentation of paper entitled "Effect of Arbuscular Mycorrhizal Fungus on Some Antioxidative Responses of Valerian Plant (*Valeriana officinalis*) Under Water Deficit Stress" as poster at the 1st National Conference of Plant Antioxidants, University of Isfahan, January 6-7, 2021
42. Presentation of paper entitled "Study of the Effect of Arbuscular Mycorrhizal Fungus on Photosynthetic Pigments and Growth Parameters of *Valeriana officinalis* L. Under Water Deficit Stress" as poster at the 21st National Congress and 9th International Congress of Biology of Iran, Semnan University, February 16-19, 2021
43. Presentation of paper entitled "Effect of Arbuscular Mycorrhizal Fungus in Improving Growth Parameters of *Glycyrrhiza glabra* L. Under Drought Stress" as poster at the 21st National Congress and 9th International Congress of Biology of Iran, Semnan University, February 16-19, 2021
44. Presentation of paper entitled "Effect of Superabsorbent Polymer on Some Antioxidative Responses of Valerian Plant (*Valeriana officinalis* L.) Under Heavy Metal Lead Stress" as poster at the 7th National Conference of Plant Physiology of Iran, Gorgan University of Agricultural Sciences and Natural Resources, August 31 - September 1, 2021
45. Presentation of paper entitled "Study of the Effect of Arbuscular Mycorrhizal Fungus Symbiosis on Antioxidant System of Licorice Plant Under Water Deficit Stress" as poster at the National Conference of Medicinal Plants, Kerman Research Institute of Advanced Sciences and Technology and Environmental Sciences, March 7-8, 2022
46. Presentation of paper entitled "Study of the Effect of Methyl Jasmonate on Some Antioxidative Defense Responses of *Physalis peruviana* L. Plant Under Water Deficit Stress" as poster at the 22nd National Conference and 10th International Conference of Biology of Iran, Shahrekord University, August 30 - September 1, 2022
47. Presentation of paper entitled "Study of the Effect of Hydrogel on Chlorophyll Content and Some Growth Characteristics of *Valeriana officinalis* L. Under Lead Stress" as poster at the 22nd National Conference and 10th International Conference of Biology of Iran, Shahrekord University, August 30 - September 1, 2022
48. Presentation of paper entitled "Study of the Effect of Superabsorbent Polymer on Mineral Element Uptake in Medicinal Plant Valerian Under Lead Stress" as poster at the National Conference of Chemistry and Medicinal Plants, University of Sistan and Baluchestan, December 28-29, 2022
49. Presentation of paper entitled "Study of the Effect of Mineral Zeolite on Water Content and Mineral Elements of Licorice Plant (*Glycyrrhiza glabra* L.) Under Drought Stress" as poster at the International Conference of Medicinal Plants Biology, University of Qom, February 28 - March 2, 2023
50. Presentation of paper entitled "Effect of Drought Stress on Some Growth Characteristics of Two Selected Chickpea Genotypes (*Cicer arietinum* L.) at Seedling Stage in Hydroponic Conditions" as poster at the Conference of Applied Research on Food Security, Food Safety and Health, Mashhad Research Institute of Food Science and Industry, September 15, 2023

51. Presentation of paper entitled "Effect of Inoculation with *Trichoderma* Isolates on Morphological Indices of Licorice (*Glycyrrhiza glabra* L.) Under Water Deficit Conditions" as poster at the 8th National Conference of Plant Physiology of Iran, Kerman, January 29-30, 2024
52. Presentation of paper entitled "Effect of Arbuscular Mycorrhiza and *Trichoderma* Fungi on Some Morphological Characteristics of *Calendula officinalis* L. Plant Under Salinity Stress" as poster at the 23rd National Conference and International Conference of Biology of Iran, Kerman, September 9-11, 2024
53. Presentation of paper entitled "Study of Some Physiological Characteristics of *Stachys lavandulifolia* Plant in Two Regions of Zanjan Province" as poster at the 23rd National Conference and International Conference of Biology of Iran, Kerman, September 9-11, 2024
54. Presentation of paper entitled "Study of the Effect of *Trichoderma* Isolates on Chlorophyll Content and Nutrient Elements of Licorice (*Glycyrrhiza glabra* L.) Under Drought Stress" as poster at the 23rd National Conference and International Conference of Biology of Iran, Kerman, September 9-11, 2024
55. Presentation of paper entitled "Study of the Effect of Different Levels of Cadmium and Sodium Chloride on Growth of *Capparis spinosa* L. Plant" as poster at the National Conference of Soil Health, Human Health and Food Security, Tehran, February 19, 2025
56. Presentation of paper entitled "Study of the Effects of Salinity and Cadmium Interaction on Some Growth and Morphological Characteristics of Quinoa Plant (*Chenopodium quinoa* Wild.)" as poster at the 3rd Conference of Medicinal Plants, Entrepreneurship and Commercialization, Tabriz, September 16, 2025

Journal Articles:

1. Motamed, N., Ebrahimzadeh, H. and Vatankhah, E. (2007) Changes of soluble protein, peroxidase and polyphenol oxidase in leaves and buds of ripening olive. *Journal of Food Biochemistry*, 31: 703-713.
2. Vatankhah, E., Motamed, N., Ebrahimzadeh, H. (2007) Study of Changes in Leaf and Bud Proteins During Fruit Ripening Stages in Zard Olive Cultivar in Fertile Year. *Research and Construction in Agriculture and Horticulture* 74: 161-164.
3. Vatankhah, E., Niknam, V. and Ebrahimzadeh, H. (2010) Activity of antioxidant enzyme during *in vitro* organogenesis in *Crocus sativus*. *Biologia Plantarum*, 54: 509-514.
4. Sharifi, G., Ebrahimzadeh, H., Ghareyazie, B., Gharechahi, J. and Vatankhah, E. (2012) Identification of differentially accumulated proteins associated with embryogenic and non-embryogenic calli in saffron (*Crocus sativus* L.). *Proteome Science*, 10: 1-12.
5. Vatankhah, E., Niknam, V. and Ebrahimzadeh, H. (2013) Study of histological and biochemical aspects of *Crocus sativus* L. during *in vitro* root and shoot organogenesis. *Biologia Plantarum*. 58: 201-208.
6. Karamzadeh, L., Jafarian, V., Vatankhah, E., Amarlou, A. (2015) Molecular and Ecophysiological Study of Medicinal Plant *Ferula gummosa*. *Quarterly Journal of Medicinal Plants Biotechnology* 2(2): 63-78.
7. Vatankhah, E., Kalantari, B., Andelibi, B. (2016) Effect of Methyl Jasmonate on Some Physiological and Biochemical Responses of Peppermint (*Mentha piperita* L.) Under Salinity Stress. *Plant Process and Function* 5(17): 157-171.

8. Vatankhah, E., Kalantari, B., Andelibi, B. (2017) Effect of Methyl Jasmonate and Salinity Stress on Physiological and Phytochemical Characteristics of Peppermint (*Mentha piperita* L.). Iranian Journal of Medicinal and Aromatic Plants Research 33(3): 449-465.
9. Vafadar, M., Mohsenpour, M., Mighani, H., Vatankhah, E. (2017) Study of the Effect of Environmental Conditions on Content and Chemical Compounds of Essential Oil of *Mentha aquatica* L. from Different Habitats of Mazandaran Province. Journal of Plant Research 30(2): 432-444.
10. Akhbari, M., Tavakoli, S., Hosseini, S.M., Vatankhah, E., Hadjiakhoondi, A. and Vazirian, M. (2017) Variation in chemical components and biological activity of *Pterocarya fraxinifolia* Lam. Stems at different developmental stages. Research Journal of Pharmacognosy 4(3): 41-50.
11. Karamzadeh, L., Jafarian, V. and Vatankhah, E. (2018) Ecological and phytochemical attributes of endemic *Ferula gummosa* Boiss. at vegetative and generative stages. Turkish Journal of Biochemistry, 43: 393-402
12. Vafadar, M., Ghaderi Habib, Z., Vatankhah, E. (2018) Effect of Salinity Stress on Some Physiological and Biochemical Characteristics of Henbane Plant (*Hyoscyamus reticulatus* L.). Plant Process and Function, 7: 1-16.
13. Nazarian Sirzar, R., Vatankhah, E., Amanifar, S., Vafadar, M. (2018) Effect of Methyl Jasmonate on Some Physiological and Biochemical Responses of Licorice Plant (*Glycyrrhiza glabra* L.) Under Different Salinity Levels. Plant Process and Function, 7: 59-74.
14. Amanifar, S., Hajilou, Z., Vatankhah, E., Malekzadeh, E. (2019) Effect of Methyl Jasmonate Application on Symbiotic Efficiency of *Rhizophagus intraradices* in Alfalfa Plant Under Water Deficit Stress. Journal of Soil Management and Sustainable Production, 9: 23-43.
15. Amanifar, S., Vatankhah, E., Toghranegar, Z., Akbari Vahid, S. (2019) Effect of Mycorrhiza-like Fungus *Piriformospora indica* on Some Physiological and Biochemical Responses of Alfalfa Plant (*Medicago sativa* L.) Under Water Deficit Stress. Journal of Water and Soil Science, 29: 195-206.
16. Taheri, Z., Vatankhah, E. and Jafarian, V. (2020) Methyl jasmonate improves physiological and biochemical responses of *Anchusa italica* under salinity stress. South African Journal of Botany, 130: 375-382.
17. Jariteh, M., Vatankhah, E., Hosseini, A., Vafadar, M. (2020) Optimization of Tissue Culture and Phytochemical Study of Insulin Plant (*Costus pictus* D. Don). Iranian Journal of Plant Biology 43: 23-36.
18. Nazarian Sirzar, R., Vatankhah, E., Amanifar, S., Vafadar, M. (2020) Effect of Salinity Stress on Germination, Growth and Glycyrrhizic Acid Concentration of Licorice (*Glycyrrhiza glabra* L.). Iranian Journal of Seed Science and Research, 7(3): 295-309
19. Yeganeh, E., Vatankhah, E., Toghranegar, Z., Amanifar, S. (2022) Arbuscular Mycorrhiza Alters Metal Uptake and the Physio-biochemical Responses of *Glycyrrhiza glabra* in a Lead Contaminated Soil. Gesunde Pflanzen. <https://doi.org/10.1007/s10343-022-00752-w>
20. Hajilou, N., Vafadar, M., Toghranegar, Z., Vatankhah, E. (2023) Effect of Foliar Application of Methyl Jasmonate on Drought Stress Tolerance of *Physalis peruviana* L. Plant. Journal of Plant Process and Function. 12(53): 187-213
21. Naghdi, S., Toghranegar, Z., Vatankhah, E., Amanifar, S., Vafadar, M. (2023) Growth, Osmotic Regulation and Phosphorus Uptake of Valerian Plant Inoculated with Arbuscular Mycorrhizal Fungus under Drought Stress Conditions. Journal of Plant Process and Function. 12(54): 53-72.
22. Hemmati Tabar Lotfi Zanjani, M., Amanifar, S., Vatankhah, E., Malekzadeh, E. (2023) Effect of Inoculation with *Claroideoglomus etunicatum* Fungus on Nickel Phytoremediation and Uptake of

- Some Micronutrients by Maize Plant (*Zea mays* L.). Agricultural Engineering, Shahid Chamran University of Ahvaz. 159-177.
23. Mohammadi, S., Vatankhah, E., Amanifar, S., Toghranegar, Z. (2024) Effect of Mycorrhizal Symbiosis on Water Content and Antioxidant System of Licorice Plant (*Glycyrrhiza glabra* L.) Under Water Deficit Stress. Journal of Plant Research. 37(4): 486-497.
 24. Alihaji-Qamsari, M., Khoshshokhan-Mozaffar, M., Razavian, S. M. H., & Vatankhah, E. (2025). Foliar application of potassium nitrate and dihydrogen ammonium phosphate on essential oil composition and antioxidant activity in *Rosa damascena* mill. Journal of Plant Nutrition, 48(11), 1901–1916. <https://doi.org/10.1080/01904167.2025.2461277>
 25. Asgari-Ravandi, S., Khoshshokhan-Mozaffar, M., Seyyed Mohammad Hossein Razavian, S.M., Vatankhah, E. (2025). The impact of glutamic acid, storage conditions, and various solvents on the quantity and stability of chlorophyll in alfalfa. Food Chemistry, 485, 144358, <https://doi.org/10.1016/j.foodchem.2025.144358>.
 26. Mohammadi, S.M., Vafadar, M., Toghranegar, Z., Vatankhah, E. (2025) Evaluation of the Effect of Environmental Conditions on Morphological, Physiological and Phytochemical Characteristics in Populations of *Stachys lavandulifolia* Vahl. in Zanzan Province. Quarterly Journal of Ecophytochemistry of Medicinal Plants, 13(1), 111-134.
 27. Fazli, Z., Toghranegar, Z., Vatankhah, E., Amanifar, S., Hemmati, R. (2025) Trichoderma Fungi: Boosting Growth and Nutritional Resilience in Licorice (*Glycyrrhiza glabra* L.) Under Drought Stress. Journal of Crop Health 77, 186. <https://doi.org/10.1007/s10343-025-01249-y>
 28. Ghorbani, F., Toghranegar, Z., Vessal, S.R., Vatankhah, E., Vafadar, M. (2026) Genotype-Dependent Morphophysiological and Biochemical Responses of Chickpea (*Cicer arietinum* L.) to Drought Stress. Russian Journal of Plant Physiology, 73:249-266.

Book Authorship

Saffron Volume 2, University of Tehran Press

Master's Thesis:

Thesis Title: Study of Protein and Amino Acid Changes during Growth and Ripening of Olive Fruit

Supervisors: Dr. Hassan Ebrahimzadeh and Dr. Nasrin Motamed

Doctoral Dissertation:

Dissertation Title: Study of Developmental, Physiological and Biochemical Aspects of Cultivated Saffron (*Crocus sativus* L.) in Tissue and Cell Culture

Supervisors: Dr. Hassan Ebrahimzadeh (Professor, University of Tehran) and Dr. Vahid Niknam (Professor, University of Tehran)

Advisors: Dr. Mehrdad Bahmanesh (Professor, Tarbiat Modares University) and Dr. Mozaffar Sharifi (Professor, Tarbiat Modares University)

Supervision of Master's Theses in Plant Physiology with Titles:

- Effect of Methyl Jasmonate and Salinity Stress on Some Physiological and Biochemical Responses of *Anchusa italica*
- Effect of Salinity Stress on Some Physiological and Biochemical Responses of Peppermint
- Study of Some Physiological and Biochemical Aspects of Henbane Plant (*Hyoscyamus* L.) from Solanaceae Family in Zanzan During Salinity Stress
- Ecophysiological and Biochemical Study of *Ferula gummosa* Plant from Umbelliferae Family at Two Vegetative and Reproductive Stages
- Effect of *Piriformospora indica* Fungus on Some Anatomical, Physiological and Biochemical Responses of Alfalfa Plant (*Medicago sativa* L.) Under Drought Stress
- Effect of Salinity Stress and Methyl Jasmonate on Some Anatomical, Physiological and Biochemical Responses of Licorice Plant (*Glycyrrhiza glabra* L.)
- Optimization of Tissue Culture and Phytochemical Study of Insulin Plant (*Costus pictus* D.Don)
- Effect of Arbuscular Mycorrhizal Fungus on Physiological and Biochemical Characteristics of Licorice Plant (*Glycyrrhiza glabra* L.) Under Heavy Metal Lead Stress
- Effect of Arbuscular Mycorrhizal Fungus on Physiological and Biochemical Characteristics of Licorice Plant (*Glycyrrhiza glabra* L.) Under Water Deficit Stress
- Effect of Arbuscular Mycorrhizal Fungus on Physiological and Biochemical Characteristics of Valerian Plant (*Valeriana officinalis* L.) Under Water Deficit Stress
- Effect of Zeolite on Physiological and Biochemical Characteristics of Licorice Plant Under Drought Stress
- Effect of Hydrogel on Physiological and Biochemical Characteristics of Valerian Plant (*Valeriana officinalis* L.) Under Heavy Metal Lead Stress
- Study of Growth and Nickel Uptake in Maize Plant Inoculated with Arbuscular Mycorrhizal Fungus in Nickel-Contaminated Soil
- Study and Comparison of Some Physiological and Biochemical Indices of *Portulaca oleracea* L. Plant in Different Regions of Gilan Province and Anti-Cancer Effect of Its Methanolic Extract
- Study of the Effect of *Trichoderma* Isolates on Some Physiological and Biochemical Characteristics of Licorice Plant Under Drought Stress
- Effect of Arbuscular Mycorrhiza and *Trichoderma* Fungi on Some Physiological and Biochemical Characteristics of *Calendula officinalis* L. Plant Under Salinity Stress
- Study of Growth Responses, Enzyme Activities and Antioxidant Metabolites of Lemon Balm (*Melissa officinalis*) Under Reduced Atmospheric Pressure

Advisor of Master's Theses in Plant Physiology with Titles:

- Study of Some Biosystematic, Ecophysiological and Biochemical Traits of Two Species *Trichodesma incanum* and *Heliotropium noeanum* from Boraginaceae Family in Hamedan Province
- Ecophysiological Study on *Mentha aquatica* Plant from Lamiaceae Family in Mazandaran Province
- Study of Some Biosystematic, Ecophysiological and Biochemical Traits of Two Species *Tanacetum parthenium* and *Tanacetum polycephalum* (Asteraceae) in Hamedan Province

- Study of Some Biosystematic, Ecophysiological, Biochemical and Microbiological Traits of *Euphorbia macroclada* (Euphorbiaceae) Species in Hamedan Province
- Effect of Anthracene on Germination and Some Developmental and Physiological Characteristics of Alfalfa Plant (*Medicago sativa* L.) in Hydroponic Environment
- Effect of Foliar Application of Methyl Jasmonate on Mycorrhizal Symbiotic Efficiency in Alfalfa Plant Under Water Deficit Stress
- Effect of Methyl Jasmonate on Some Physiological and Biochemical Responses of *Physalis* Plant Under Water Deficit Stress
- Effect of Drought Stress on Morphological and Physiological Characteristics of Two Chickpea Genotypes (*Cicer arietinum* L.) at Seedling Stage
- Ecophysiological Study of Medicinal Plant *Stachys lavandulifolia* Vahl. in Different Regions of Zanjan Province
- Study of Some Growth and Physiological Characteristics of Quinoa Plant (*Chenopodium quinoa* willd.) Under Different Levels of Cadmium and Sodium Chloride

Teaching Records:

- Teaching Plant Metabolism and Advanced Plant Growth and Development courses at Master's level in Plant Physiology in the second semester of 2011-2012 at University of Malayer
- Teaching Plant Metabolism, Uptake and Transport in Plants, Advanced Plant Cytology and Anatomy, Plant Developmental Biology, Halophytes Physiology and Plant Biochemistry at Master's level in Plant Physiology and Plant Morphogenesis and Organogenesis, Plant Ecology, Practical Ecology, Plant Physiology 1, Principals of Plant Physiology, Plant Developmental Biology, Plant Professional English Text, Medicinal Plants, Principals of Plant Ecophysiology, Plant Development 1 and 2 at Bachelor's level in Biology in the first and second semesters from 2012 to present at University of Zanjan

Administrative Activities:

- Establishment of research laboratory in Faculty of Sciences, University of Zanjan for Master's students
- Establishment of herbarium and tissue culture room (in progress)

Familiarity with Techniques:

- One-dimensional electrophoresis by SDS-PAGE and PAGE method
- Chromatography (TLC and GLC)
- Study of Enzyme Activity through Spectrophotometry
- Tissue, Cell and Protoplast Culture
- Study of Plant Secondary Metabolites
- RNA Extraction
- RT-PCR

Other Activities:

Familiarity with Windows, Excel, PowerPoint and Photoshop

Familiarity with SAS and SPSS statistical programs

Familiarity with ClustalW and GeneRunner programs