هوشنگ نصرتی

دانشیار

دانشکده: علوم طبیعی

سوابق اجرایی

II) RESEARCH & ACADEMIC POSITIONS

- Associate Professor in Plant Science (2013-) Department of Plant, Cell & Molecular Biology, University of Tabriz, Tabriz, East Azerbaijan, Iran
- Assistant Professor in Plant Science (2006-2013): Department of Plant Science, University of Tabriz, Tabriz, East Azerbaijan, Iran
- Lecturer in Systematic Botany (1995 -2002): Department of Plant Science, University of Tabriz, Tabriz, East Azerbaijan, Iran
- Research Fellow in Floristics & Phytosociology (1993-1995): Research Centre for Agricultural and Natural Resources, Tabriz, East-Azerbaijan, Iran

جوایز و تقدیر نامه ها

مسئولیت های علمی و دانشگاهی

II) RESEARCH & ACADEMIC POSITIONS

- Associate Professor in Plant Science (2013-) Department of Plant, Cell & Molecular Biology, University of Tabriz, Tabriz, East Azerbaijan, Iran
- Assistant Professor in Plant Science (2006-2013): Department of Plant Science, University of Tabriz, Tabriz, East Azerbaijan, Iran
- Lecturer in Systematic Botany (1995 -2002): Department of Plant Science, University of Tabriz, Tabriz, East Azerbaijan, Iran
- Research Fellow in Floristics & Phytosociology (1993-1995): Research Centre for Agricultural and Natural Resources, Tabriz, East-Azerbaijan, Iran

VII) ADIMINSTATIVE RESPONSIBILITY

- (Head of Department (2008- 2012

  Department of Plant Science, University of Tabriz, Tabriz, Iran

- (Director of Educational and Student Affairs (2000-2002

  Faculty of Natural Science, University of Tabriz, Tabriz, Iran

- (Curator of Educational Herbarium (since 2007

  Department of Plant Sciences, Faculty of Natural Sciences, University of Tabriz, Tabriz, Iran

A) Supervising the herbarium specimens, Completing the collections by preparing new specimens through sampling and scientific identification/nomenclature of plant taxa based on standard classification of The Plant List and APGIII (subsequently mounting, labeling and depositing of .(the specimens

B) Educational activities & services: a) teaching specimen preparing for students of biological sciences, b) teaching systematic botany and identification of plant genera/families growing in Azerbaijan Provinces, c) Engaging actively with visitors of the Herbaria from different sectors including schools (pre-schools, primary, middle and high schools) by providing our visitors with .botanical sciences and herbaria skills

VIII) INTERNAL RESPONSIBILITIES

1. Member of a Committee evaluating the promotion of academic members for different universities i.e., University of Tabriz, Azerbaijan Shahid Madani University, Islamic Azad University-Tabriz Branch (My responsibility is to assess the teaching and research activities/experiences of the academic (members in Plant Sciences
2. Member of Postgraduate Council of Department of Plant Science, University of Tabriz, Tabriz, Iran. Since 2007 (duties: dealing with different affairs including hiring new academic members, updating (courses, assessment the proposals of research projects and postgraduate's thesis
3. Member of Educational and Executive Council of Faculty of Natural Sciences, University of Tabriz, .Tabriz, Iran 2008-2012
4. Member of Examination/selection Committee for PhD degree in Plant Science, since 2009, University of Tabriz, Tabriz, Iran (My responsibility is to assess the PhD candidates' educational and research background and experiences related to various subjects including systematic botany, ecology, molecular phylogeny, reproductive biology and English proficiency through interview and (also evaluating their CV

   PhD students are mostly accepted in the country through annual comprehensive nationwide) entrance examination procedure (50% grade) followed by interview by Members of examination .((committee (50% grade

5. Member of Examination Committee for MSc and PhD entry, Ministry of Science, Research and Technology, Tehran, Iran, 2011- 2018; 2023 (My responsibility is preparing examination for several .(subjects including plant ecology, systematic botany and plant molecular phylogeny
6. Member of Examination Committee for Student Olympiad Contest in Biological Sciences held annually nationwide for BSc students, Ministry of Science, Research and Technology, Tehran, Iran, 2011- 2018; 2023 (My responsibility includes providing examination question in plant ecology, .(systematic botany and plant molecular phylogeny and marking the answers
7. Referee of external research projects proposal
8. Internal examiner of PhD thesis

موضوعات تدریس تخصصی

سابقه تدریس و تحقیقات علمی

EXPERIENCES IV) TEACHING

I teach the following courses on the Systematic Botany and Plant Molecular Phylogeny, Ecology and Phytogeography and Pollination Biology in the classroom, lab and field, parallel to my research interest and :activities

:BSc and MSc levels): cover the following subjects) Systematic Botany & Molecular Phylogeny (1

(aStudying the major groups of non-vascular and vascular plants with especial focus on Angiosperms; Identification of members of different plant families from major plant groups including Ferns, Gymnosperms and Angiosperms (e.g., Gramineae, Brassicaceae) using dichotomous keys (Flora Iranica, Rechinger, 1964, in Latin and Flora of Turkey, Davis, 1965, in English); Recognizing characters (qualitative and quantitative) and character status in members of some angiosperms families (e.g., Gramineae, Fabaceae, Brassicaceae), and preparing table of characters status, subsequently constructing the hierarchical clustering dendrogram, and .discussing the relationship among members on the dendrogram

Describing and discussing the phylogenetic concepts by giving examples including: phylogenetic (b trees (tree's branches, nodes, leaves and root); monophyletic and non-monophyletic (poly- and para-phyletic) groups, the fully resolved and unresolved (Polytomy) trees, rooted and unrooted trees, ingroup and outgroup, Consensus trees, the resampling method (e.g., Bootstrapping), Constructing phylogenetic trees (distance- and informative site-based methods), character evolution; Constructing the phylogenetic trees using homologous DNA sequences obtained from .online websites such as NCBI using software such as MEGA

:Plant Ecology and Phytogeography (2

The following concepts and methods are delivered: sampling by relev :a) Vegetation analysis (quadrat) and transect, recording vegetation qualitative and qualitative data (species richness, abundance, cover) and environmental data (edaphic e.g., soil EC, pH; topographic e.g., attitude, slope, aspects) for each relev; classification of plots based on the vegetation data using ordination analysis (e.g., Principal Coordinate Analysis) for recognition of *Associations*; Assessing relationship among vegetation data (species and relev) and environmental factors using ordination methods (e.g., Canonical Corresponding Analysis) to infer causative relationship between them; **Geographic Information Systems** (QGIS): concepts such as vectors, layers, plugins are explained with examples; analyzing of vegetation of a given area is discussed using Satellite Imagery through calculating vegetation indices (e.g., Normalized Difference Vegetation Index), Creating vegetation map using DIVA-GIS, Clipping raster layer by mask layer e.g., bioclimatic .variables; creating vegetation map

Concepts and methods in ecological phylogeny are discussed including: :b) Ecological phylogeny species pool, local communities, forces shaping/driving the biological communities (interspecific competition, environmental filtering), phylogenetic clustering and overdispersion, phylogenetic diversity indices of communities, assessing relationship of these indices with environmental .components, species abundance and species richness using R software

SDM): Downloading bioclimate variables (WorldClim) and species) c) Species Distribution Models occurrence records (from GBIF), building SDM models, projecting the current and future species' distribution sites maps and range shifts under climate warming using bioclimatic/occurrence data, estimating the most effective bioclimate variables on species distribution, relative importance of .bioclimate variables in distribution using R software

The following principals, concepts and technical methods are discussed: :Pollination Biology (3 Measuring pollen variability, pollinator and pollination's types failure; self-incompatibility (SI): definition and molecular mechanisms, its importance in agricultural & wild plants); apomixis: definition and molecular mechanisms, SI importance in agricultural & wild plant populations, importance of pollinators in reproductive success of wild and cultivated plant species concepts, generalist and specialist pollinators, pollinators/flowers typifications (insects/flowers types: allotropus/allophylous, hemitropous/hemiphylous, eutropus/euphylous), pollinators/flowers typification and conservation management, increasers/decreasers plant families based on pollination .typification

فعالیت های علمی و اجرایی

III) RESEARCH INTEREST & ACTIVITIES

My research activities and skills cover diverse areas including Systematic Botany & Floristics; Plant Molecular Phylogeny & Taxonomy; Populations' Genetics; Ecological Phylogeny; Species Distribution :(QGIS) Modelling; Vegetation Analysis using both relev sampling and Geographic Information Systems

Systematic Botany and Floristic Studies: monitoring the floristic composition and changes in area (1 exposed to intensive anthropogenic activities (e.g., urbanization, industrialization, plant collecting, (habitat fragmentation

taxonomic revision of taxonomically complex and controversial taxa using :Plant Molecular Phylogeny (2 DNA sequencing (i.e., ITS and *mat*K) as DNA barcoding

assessing the populations' genetic variations of plant species using :Populations' genetic structure (3 molecular markers e.g., ISSRs and the impact of life history traits and anthropogenic activities on the variations

hybridization, polyploidy, apomixis): a) studying the formation and frequency of) Evolutionary biology (4 polyploid formation among natural diploid populations, and relationship between environmental stresses e.g., salinity and polyploid formation; studying the occurrence of interspecific hybridization among species with weak reproductive isolation; studying the occurrence of apomixis in plants

Due to wide distribution of saline :Impact of environmental stresses e.g., salinity on gene expression (5 soil across our region, and wide cultivation of salinity-tolerant cultivars e.g., alfalfa and wildly distributed plant species e.g., *Salsola* in the region, I am studying genes responsible for salinity tolerant in these species

Vegetation analysis: I carry out vegetation studies through two methods: a) studying relationship (6 between vegetation (e.g., species richness, abundance, coverage percent) and environmental factors (e.g., edaphic & topographic) using relev sampling technique by ordination analyses; b) using satellite imagery in QGIS through calculating vegetation indices such as 'Vegetation Normalized 'Difference Index

I study forces and processes shaping and driving biological communities from :Ecological phylogeny (7 phylogenetic point of view by constructing the phylogenetic tree for the species pool and subsequently, by calculating communities' phylogenetic diversity indices in R software to test the importance of interspecific competition and environmental filtering (phylogenetic clustering or .overdispersion), and stochastic processes

Species Distribution Models: I investigate the distribution range shifts of plant species at local **(8** (Azerbaijan regions) and larger scales (e.g., Middle East) in the present and future under climate change using occurrence records and bioclimatic variables through script of codes in R software. The occurrence records are either downloaded from Global Biodiversity Information Facility (GBIF) or .recorded from local flora and field visit

V) PUBLICATIONS

A) Journals (ISI-indexed)

Distribution range shifts of *Periploca aphylla* (Apocynaceae) under climate change based .Nosrati H [on Species Distribution Models. [Under review

,Nosrati HMirtajadini S-M, Jahanshahi M. (2023) Phylogenetic structure of plant community, and its relationship with environmental components. doi: https://doi.org/10.21203/rs.3.rs-3196057/v1

Shojaee-Mokhtari F, Mohajel-Kazemi E, **Nosrati H,** Kolahi M, Haghi M. (2023) Evaluation of phytochemicals and the role of oxidative stress pathways during fruit development in strawberries (*Fragaria* × *ananassa*). Turkish Journal of Botany. 47. doi:/bot-2304-17

Heydari R, kolahi M, Mohajel-Kazemi E, **Nosrati H,** Movafeghi A. (2023) The role of nano-chelated iron on anatomical and biochemical characteristics and concentration of mineral nutrients in lettuce https://doi.org/10.21203/rs.3.rs-2504052/v1 .(Lactuca sativa L.) under cadmium toxicity

,Nosrati HAkbarian H. (2022) Impact of habitat fragmentation on genetic structure of *Capparis spinosa* populations revealed by ISSR markers. Environmental and Experimental Biology, 20 (4): .219-224

,Nosrat HAbdollahpour N. (2022) Preliminary studies on the impact of environmental stresses on polyploid formation in plants: case study in *Aeluropus littoralis* (Poaceae). Analele Universit□□ii .din Oradea, Fascicula Biologie, 29 (2): 186-191

Doktorzadeh MA, Movafeghi A, **Nosrati H**, Salehi-Lisar SY, Feizi M. (2018) Biochemical and molecular study of glycinebetaine synthesis in *Salsola aucheri* under salt stress. Journal of BioScience .and Biotechnology, 7(1): 39-45

,Nosrati HMirtajeddini S, Jahanshani M, Razban-Haghighi A. (2017) Phytosociological study of Rabor .region, Kerman, Iran. Agriculture and Forestry, 63 (2): 49-58

Dadashian-Reyhan A, **Nosrati H**, Razban-Haghighi A. (2017) Karyotype study of three populations of the species, *Silybum marianum*. New Cellular and Molecular Biotechnology Journal, 7(27): 63- .68

,Nosrati HHosseinpourFaizi MA, Bagheri M, Razban-Haghighi A. (2016) ISSR variations of four populations of *Glycyrrhiza glabra* (Fabaceae). Biological Diversity and Conservation, 9(2): .24-29

,Nosrati HHosseinpourFaizi MA, Farzaneh Latifian, Razban-Haghighi A. (2016) Ecogeographcial variations of ISSRs among populations of *Onobrychis viciifolia* (Sainfoin, Fabaceae). Analele .Universit□□ii din Oradea, Fascicula Biologie, 23(2): 62-66

,Nosrati HPrice AH, Gerstberger P, Wilcock CC. (2015) Characterization of an allotriploid strawberry *Fragaria × bifera* Duchesne (Rosaceae) from Europe. Natura Sloveniae, 17(1): 5-15

,Nosrati HHosseinpourFaizi MA, Razban-Haghighi A, Seyed-Tarrah S. (2015) Impact of life history on genetic variation in *Trifolium* (Fabaceae) estimated by ISSR. Environmental and Experimental .Biology, 13: 83–88

,Nosrati HNoramideh M, Razban-Haghighi A, Nikniazi M. (2015) Relationship between geographical distribution range and levels of genetic variations in *Astragalus* (Fabaceae). Analele .Universit□□ii din Oradea, Fascicula Biologie, 22(2): 76-80

,Nosrati HWilcock CC. (2015) Quantification of total postzygotic reproductive isolation and relative importance of barriers in strawberries. Journal of Agrobiology, 30(2):117–125. DOI:

.10.2478/agro-2013-0012

Amjad L, **Nosrati H,** Zaare F, Dehghan G, HosseinpourFaizi MA, Salehi S-Y (2015). A novel betaine aldehyde dehydrogenase gene from *Medicago sativa* and its expression under salinity. .Agriculture and Forestry, 61(3): 119-133

Relationship between ploidy level and genome size in strawberries. Plant (2015) .Nosrati H Biosystems, 149(6): 1036-1041. https://doi.org/10.1080/11263504.2014.941036

,Nosrati HMovafeghi A, HosseinpourFaizi MA, Saffar S, Razban-Haghighi A. (2014) Systematic applicability of ISSR markers at intra-familial level, case study in Asteraceae. Analele .Universit□□ii din Oradea - Fascicula *Biologie,* 21(1): 14-18

Does paternal sterility impact on progeny germination and survivorship, case study (2014) .Nosrati H .in strawberries. Acta agriculturae Slovenica, 103(2): 291 – 297

Phylogenetic relationship among species of *Fragaria* based on RAPDs. Agriculture (2014) .Nosrati H .& Forestry, 1: 191-201

Ebrahimigajoti T, **Nosrati H**, RazbanHaghighi A, Khanbabai M (2013) Studying biodiversity of plant associations in sutan-Chay Basin in Arasbaran, Northwest of Iran. Agriculture and Forestry, .59(1): 85-98

HosseinpourFaizi MA, Khorasani M, Razban-Haghighi A, Nikniazi M (2012) Sex ratio and ,Nosrati H genetic diversity in the dioecious *Pistacia atlantica* (Anacardiaceae). Journal of J Agrobiology, 29(1): 41–46, DOI:10.2478/v10146-012-0006-2

Dehghan G, Amjad L, **Nosrati H.** 2013. Enzymatic and non-enzymatic antioxidant responses of alfalfa .leaves and roots under different salinity levels. Acta Biologica Hungarica 64(2): 207-217

Hosseinpourfeizi MA, Mazinani M, Razban-Haghighi A. (2012) Effect of population size on ,Nosrat H genetic variation levels in *Capparis spinosa* (Capparaceae) detected by RAPDs. EurAsian Journal of BioSciences 6: 70-75.; DOI:10.5053/ejobios.2012.6.0.8

Hosseinpourfeizi MA, Nikniazi M, Razban-Haghighi A. (2012) Genetic variation among ,Nosrat H different accessions of *Lathyrus sativus* (Fabaceae) revealed by RAPDs. *Botanica Serbica***,** 36: .41-47

Hosseinpourfeizi MA, Seyed-Tarrah S, Razban-Haghighi A. (2012) Population genetic ,Nosrat H variation in Sainfoin (Fabaceae) revealed by RAPD markers. Analele Universit□□ii din Oradea .Fascicula *Biologie*.19: 11-16

Price AH, Gerstberger P, Wilcock CC. (2011) Identification of a natural allopentaploid hybrid ,Nosrat H .*Fragaria* (Rosaceae), new to Europe. New Journal of Botan*y*. 1: 88-92

Price AH, Wilcock CC. (2011) Relationship between genetic distances and postzygotic ,Nosrati H reproductive isolation in diploid *Fragaria* (Rosaceae). Biological Journal of the Linnean Society, .104: 510–526

Hajiboland R, Razban-Haghighi A, Nikniazi M. (2011) A comparative assessment of fruit ,Nosrati H formation in some orchid species from the south of the Caucasus. Turkish Journal of Botany. .35b 553-560

Hosseinpourfeizi MA, Seyed-Tarrah S, Razban-Haghighi A. (2011) A study of the ,Nosrati H relationship between eco-geographical factors and genetic similarity in different populations of .*Onobrychis viciifolia* using RAPDs. *Plant Biology*. 3: 85-96

Price AH, Wilcock CC. (2010) No evidence of apomixis in matroclinal progeny from ,Nosrati H experimental crosses in the genus *Fragaria* (strawberry) based on RAPDs. *Euphytica*. 171: .193-202

Ebrahimigajoti T, Haciyev V, Javanshir A, **Nosrati H**, Razban-Haghighi A, Eimanifar A, Stewart N. (2010) Vegetation Analysis of Sutan-Chay Basin in Arasbaran. American Journal of Agricultural .and Biological Sciences. 5: 357-362

Razban-Haghighi A, Mohammadi Y, **Nosrati H**, Nikniazi M, Abdigazijahani M. (2009) A Datura metel Psbz gene, complete cds; and tRNA-Gly gene, complete sequence; chloroplast. Physiology & Genetics. NCBI, GenBank: GQ227401.1

B) Conferences

Akbarian H, Razban-Haghighi A Housainpurfezi MA. (2016) Studying genetic diversity of ,Nosrati H different populations of Capparis spinosa (Capparaceae). *The* 19th National and 7th International .Iranian Biological Conference. Tabriz, East-Azerbaijan, Iran

Khoshkish S, Razban-Haghighi A. (2016) Investigation of karyotypic diversity among of ,Nosrati H different populations of Cannabis sativa (Cannabaceae). *The* 19th National and 7th International .Iranian Biological Conference. Tabriz, East-Azerbaijan, Iran

Samadi-Alamiyan S, Razban-Haghighi A, Housainpurfezi MA. (2016) The systematic study ,Nosrati H of *Ribes* based on morphology and ITS sequencing. *The* 19th National and 7th International .Iranian Biological Conference. Tabriz, East-Azerbaijan, Iran

Momenzadeh P, Razban-Haghighi A. (2016) Karyological study of different populations of ,Nosrati H *Dracocephalum moldavica* (Lamiaceae). *The* 19th National and 7th International Iranian Biological .Conference. Tabriz, East-Azerbaijan, Iran

What is the species? *The* 19th National and 7th International Iranian Biological (2016) .Nosrati H .Conference. Tabriz, East-Azerbaijan, Iran

Mohsennezhad F, Bakhshi Khaniki G. (2016) Floristic and climatological study of Gunbruf- ,Nosrati H Sahand Mountain. *The* 19th National and 7th International Iranian Biological Conference. Tabriz, .East-Azerbaijan, Iran

Jabarzadeh S, Jabarzadeh M, **Nosrati H**. (2016) The study of floristic and vegetations life-forms of Ravand region in the Northwest of Khoy. *The*19th National and 7th International Iranian Biological .Conference. Tabriz, East-Azerbaijan, Iran

Bagheri M, **Nosrati H**, Hosseinpourfeizi MA, Razban-Haghighi A. (2012) Comparison the genetic diversity of different populations of *Glycyrrhiza glabra* based on individual and bulked DNA. *The .17*th National and the 5th International and Iranian Biological Conference. Kerman, Iran

Mazinani M, **Nosrati H**. (2012) Impact of DNA sampling mode on plant populations genetic studies: case study in *Capparis spinosa*. *The 17*th National and the 5th International and Iranian .Biological Conference. Kerman, Iran

Gerstberger P, Wilcock CC. (2010) Identification the triploid interspecific hybrid between ,Nosrati H European diploid *Fragaria* (Rosaceae) based on karyology and morphology. *The 16*th National .and Iranian Biological Conference. Mashhad, Iran

Nazemiyeh H, Mardi A, Movafeghi A, Dehghan G. (2010) Impact of altitude on the level of ,Nosrati H B-farnesene in different populations of *Tuecrium polium* (Lamiaceae) studied using hydro-distillation method by GC and GC-MS. *The 16*th National and 4th *International Iranian Biological .Conference. Mashhad, Iran*

Nazemiyeh H, BagherzadehS, Movafeghi A, Dehghan G. (2010) Impact of rainfall on the ,Nosrati H levels of Ortho-Cymene in different populations of *Artemisia spicigera* (Asteraceae) using hydro-distillation method by GC and GC-MS. *The 16*th National and 4th International Iranian

.Biological Conference. Mashhad, Iran

Hosseinpourfeizi MA, Seyed-Tarrah S, Razban-Haghighi A. (2010) Comparison of the ,Nosrati H genetic similarity using two different DNA, bulked- and individuals, among different populations of *Onobrychis viciifolia* (Fabaceae) at close geographical distances using RAPDs. *The 16*th .National and 4th International Iranian Biological Conference. Mashhad, Iran

Hosseinpourfeizi MA, Nikniazi M, Razban-Haghighi A. (2010) A comparative study of ,Nosrati H genetic similarity among different accessions of *Lathyrus sativus* L. (Fabaceae) using bulkedand individuals-DNA based on RAPDs. *The 16*th National and 4th International Iranian .Biological Conference. Mashhad, Iran

Floristic study of middle Basin of Aji-Chai River, Tabriz. *The 6*th Iranian National () .Nosrati H1998 .Biological Conference, Kerman, Iran

Floristic study of Goyja-Bell region, Ahar, East-Azerbaijan, Iran. *The 6*th Iranian () .Nosrati H1998 .National Biological Conference, Kerman, Iran

(C) Scientific Databases (NCBI

,Nosrati HAligolizadeh R. (2023) Thymus pubescens voucher ANRREC, 137387 internal transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene and internal transcribed spacer 2, complete sequence; and large subunit ribosomal RNA gene, partial sequence. GenBank: OQ152046.1

,Nosrati HHosseinpourfeizi M, Fakheryan M. (2022) *Nigella sativa* maturase K (matK) gene, partial cds; chloroplast. GenBank: OM807066.1

,Nosrati HJafari G. (2022) Salicornia europaea MatK gene, partial cds; chloroplast. GenBank: OL408065.1

,Nosrati HHaghi M, Fekry M. (2022) *Tribulus terrestris* maturase K gene, partial cds; chloroplast. GenBank: OM683274.1

,Nosrati HNysary N, Hosseinpourfeizi M, Mohsennezhad F. (2021) *Heracleum persicum* maturase K (matK) gene, partial cds; chloroplast. GenBank: MW678647.1

Razban-Haghighi A, Mohammadi Y, **Nosrati H,** Nikniazi M, Abdigazijahani A. (2016) Datura metel Psbz gene, complete cds; and tRNA-Gly gene, complete sequence; chloroplast. GenBank:GQ227401.1

Amjad L, **Nosrati H**, Zaare-Nahandi F, Dehghan G, HosseinpourFaizi MA, Salehi SY. (2012) *Medicago sativa* betaine aldehyde dehydrogenase (BADH) mRNA, complete cds. *GenBank*: JX312735.1

Hosseinpourfeizi MA, Rohani L. and Razban-Haghighi A. (2004) *Medicago minima* internal ,Nosrati H transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene, complete sequence; and internal transcribed spacer 2, partial sequence. GenBank: KF938693.1

,Nosrati HHosseinpourfeizi MA, Rohani L. and Razban-Haghighi A. (2004) *Medicago orbicularis* internal transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene, complete sequence; and internal transcribed spacer 2, partial sequence. GenBank: KF938694.1

Hosseinpourfeizi MA, Afaghi S. and Razban-Haghighi A. (2004) *Leonurus cardiaca i*nternal ,Nosrati H transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene, complete sequence; and internal transcribed spacer 2, partial sequence. GenBank, KF986733.1

Hosseinpourfeizi MA, Rohani L, Razban-Haghighi A. (2004) *Medicago radiata* internal ,Nosrati H transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene, complete sequence; and

internal transcribed spacer 2, partial sequence. GenBank: KF938696.1

Hosseinpourfeizi MA, Rohani L, Razban-Haghighi A. (2004) *Medicago sativa* internal ,Nosrati H transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene, complete sequence; and internal transcribed spacer 2, partial sequence. GenBank: KF938697.1

Hosseinpourfeizi MA, Rohani L, Razban-Haghighi A. (2004) *Medicago scutellate* internal ,Nosrati H transcribed spacer 1, partial sequence; 5.8S ribosomal RNA gene, complete sequence; and internal transcribed spacer 2, partial sequence. GenBank: KF938695.1

D) Books

1. Molecular Phylogenetic Systematics of Ferns and Gymnosperms (2021)
2. Pollination and Fertilization in the Flowering Plants (2018)
3. Botany: Plant Morphology & Anatomy; Principles & Methods of Plant Classification; Techniques in Modern Plant Taxonomy; Botanical Latin Dictionary (2017)
4. Botany: From Classical Systematics to Modern Taxonomy (2016)

زمینه های تدریس

EXPERIENCES IV) TEACHING

I teach the following courses on the Systematic Botany and Plant Molecular Phylogeny, Ecology and Phytogeography and Pollination Biology in the classroom, lab and field, parallel to my research interest and :activities

:BSc and MSc levels): cover the following subjects) Systematic Botany & Molecular Phylogeny (1

(aStudying the major groups of non-vascular and vascular plants with especial focus on Angiosperms; Identification of members of different plant families from major plant groups including Ferns, Gymnosperms and Angiosperms (e.g., Gramineae, Brassicaceae) using dichotomous keys (Flora Iranica, Rechinger, 1964, in Latin and Flora of Turkey, Davis, 1965, in English); Recognizing characters (qualitative and quantitative) and character status in members of some angiosperms families (e.g., Gramineae, Fabaceae, Brassicaceae), and preparing table of characters status, subsequently constructing the hierarchical clustering dendrogram, and .discussing the relationship among members on the dendrogram

Describing and discussing the phylogenetic concepts by giving examples including: phylogenetic (b trees (tree's branches, nodes, leaves and root); monophyletic and non-monophyletic (poly- and para-phyletic) groups, the fully resolved and unresolved (Polytomy) trees, rooted and unrooted trees, ingroup and outgroup, Consensus trees, the resampling method (e.g., Bootstrapping), Constructing phylogenetic trees (distance- and informative site-based methods), character evolution; Constructing the phylogenetic trees using homologous DNA sequences obtained from .online websites such as NCBI using software such as MEGA

:Plant Ecology and Phytogeography (2

The following concepts and methods are delivered: sampling by relev :a) Vegetation analysis (quadrat) and transect, recording vegetation qualitative and qualitative data (species richness, abundance, cover) and environmental data (edaphic e.g., soil EC, pH; topographic e.g., attitude, slope, aspects) for each relev; classification of plots based on the vegetation data using ordination analysis (e.g., Principal Coordinate Analysis) for recognition of *Associations*; Assessing relationship among vegetation data (species and relev) and environmental factors using

ordination methods (e.g., Canonical Corresponding Analysis) to infer causative relationship between them; **Geographic Information Systems** (QGIS): concepts such as vectors, layers, plugins are explained with examples; analyzing of vegetation of a given area is discussed using Satellite Imagery through calculating vegetation indices (e.g., Normalized Difference Vegetation Index), Creating vegetation map using DIVA-GIS, Clipping raster layer by mask layer e.g., bioclimatic .variables; creating vegetation map

Concepts and methods in ecological phylogeny are discussed including: :b) Ecological phylogeny species pool, local communities, forces shaping/driving the biological communities (interspecific competition, environmental filtering), phylogenetic clustering and overdispersion, phylogenetic diversity indices of communities, assessing relationship of these indices with environmental .components, species abundance and species richness using R software

SDM): Downloading bioclimate variables (WorldClim) and species) c) Species Distribution Models occurrence records (from GBIF), building SDM models, projecting the current and future species' distribution sites maps and range shifts under climate warming using bioclimatic/occurrence data, estimating the most effective bioclimate variables on species distribution, relative importance of .bioclimate variables in distribution using R software

The following principals, concepts and technical methods are discussed: :Pollination Biology (3 Measuring pollen variability, pollinator and pollination's types failure; self-incompatibility (SI): definition and molecular mechanisms, its importance in agricultural & wild plants); apomixis: definition and molecular mechanisms, SI importance in agricultural & wild plant populations, importance of pollinators in reproductive success of wild and cultivated plant species concepts, generalist and specialist pollinators, pollinators/flowers typifications (insects/flowers types: allotropus/allophylous, hemitropous/hemiphylous, eutropus/euphylous), pollinators/flowers typification and conservation management, increasers/decreasers plant families based on pollination .typification