

CURRICULUM VITAE

NASSER MAHNA



PROFESSOR

Affiliation: Department of Horticultural Sciences,
University of Tabriz, Tabriz, Iran

Work phone: +98 41 3339 2027

Cell phone: +98 914 103 4096

Fax: +98 41 3334 5332

Academic E-mail: mahna@tabrizu.ac.ir

Personal E-mail: n.mahna@gmail.com

Nationality: Iranian

Gender: Male

ORCID ID: [0000-0001-8808-4015](https://orcid.org/0000-0001-8808-4015)

EMPLOYERS AND POSITIONS:

2023 - NOW: Full Professor, Department of Horticultural Sciences, Faculty of Agriculture, University of Tabriz

2013 - 2023: Associate Professor, Department of Horticultural Sciences, Faculty of Agriculture, University of Tabriz.

2007 - 2013: Assistant Professor, Department of Horticultural Sciences, Faculty of Agriculture, University of Tabriz.

Job Duties: Teaching/Research in Breeding, Genetics and Biotechnology of Horticultural Plants

RESEARCH ACTIVITY AND THEMES: Breeding, Genetics and Biotechnology of Horticultural Plants; Postharvest Molecular Biology and Biotechnology; Plant Secondary Metabolites and Metabolic Engineering; Molecular Biology and Biotechnology of Plant Tolerance to Stresses (a/biotic and nanomaterial).

MAIN RESPONSIBILITIES: Associate Professor; Founder and Principal Investigator of Plant Biotechnology Lab; Ph.D. admission and evaluation committees.

TEACHING EXPERIENCES:

UNDERGRADUATE: Plant Biotechnology and Tissue Culture; Genetics; Principles of Plant Breeding; Fundamentals of Computer Applications in Biology; Statistics; Experimental Designs

MASTER'S DEGREE: Fruit Breeding; Molecular Markers; Plant Biotechnology; Molecular Genetics; Medicinal Plant Breeding; Genetic Engineering; Plant Biotechnology.

PH.D.: Bioinformatics; Advanced Genetic Engineering; Molecular Genetics; Genetic Engineering; Plant Biotechnology.

SUPERVISION: 20 Ph.D. students and 50 Master's students

EDUCATION AND TRAINING:

2001-2007: Ph.D. in Plant Breeding-Biometrical Genetics, University of Tabriz; "Thesis title: Isolation of MADS-box genes involved in apple flowering".

1996-1998: Master's degree in Plant Breeding, University of Tabriz. "Thesis title: Genetic studies in Grass pea landraces of Iran".

1192-1996: Bachelor's degree in Agronomy and Plant Breeding, University of Tabriz, Tabriz, Iran.

SCHOLARSHIPS:

2021-2022: Visiting scientist at the Institute of Plant Genetics, Polish Academy of Sciences, Poznan, Poland

2016-2017: Visiting scientist at the University of Florida, Gainesville, Florida, USA

2014-2014: Visiting scientist at the Center for Research in Agricultural Genomics, Barcelona, Spain

2006-2007: Visiting scholar at Fruit Breeding and Biotechnology Lab, KU Leuven, Belgium

2001-2006: Full scholarship for a Ph.D. program (the University of Tabriz and MSRT)

1996-1998: Full scholarship for Master's degree (Agriculture Ministry)

LANGUAGES:

Azerbaijani (Mother tongue); Persian (Native/bilingual); English (Full Professional); Turkish (Communication); Arabic (Understanding)

BIBLIOMETRICS:

Google Scholar: <https://scholar.google.com/citations?user=sOSESRYAAAAJ&hl=en>

ResearchGate: https://www.researchgate.net/profile/Nasser_Mahna

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=23978491600>

PUBLICATIONS (SELECTED): * : CORRESPONDING AUTHOR

- Xie, X., Zhong, M., Huang, X., Yuan, X., **Mahna, N.**, Mussagy, C. U., Ren, M. 2024. Astaxanthin biosynthesis for functional food development and space missions. **Critical Reviews in Biotechnology**. 1–15. (IF: 8.2) (Q1) <https://doi.org/10.1080/07388551.2024.2410364>
- Kazemzadeh-Beneh, H., Safari, E., Zaare-Nahandi, F., **Mahna, N.*** 2024. The elicitation effects of diode and He-Ne laser irradiations on the alleviation of nutrient-deficiency-induced damage in anthocyanin-producing red-fleshed apple cell suspension. **International Journal of Radiation Biology**, 1–15. (IF: 2.1) (Q1) <https://doi.org/10.1080/09553002.2024.2398083>
- Mahna, N.***, Nayeri, S. 2024. Genome Editing in Horticultural Plants: Present Applications and Future Perspective. In: Ricroch, A., Eriksson, D., Miladinović, D., Sweet, J., Van Laere, K., Woźniak-Gientka, E. (eds) A Roadmap for Plant Genome Editing . **Springer**, Cham. https://doi.org/10.1007/978-3-031-46150-7_14 (Book chapter)
- Dejahang A., Maghsoudi N., Mousavi A., Farsad-Akhtar N., Matias Hernandez L., Pelaz S., Folta K., **Mahna N.***, 2023. TEMPRANILLO homolog in apple regulates flowering time in the woodland strawberry *Fragaria vesca*. **Scientific Reports**, 13, 1968 (IF: 4.99) (Q1) <https://doi.org/10.1038/s41598-023-29059-0>
- Vaezi S., Asghari M., Aghdam M.S., Farrokhzad A., and **Mahna N.** 2022. Exogenous methyl jasmonate enhances phytochemicals and delays senescence in harvested strawberries by modulating GABA shunt pathway. **Food Chemistry**. 393, 133418 (IF: 9.231) (Q1) <https://doi.org/10.1016/j.foodchem.2022.133418>
- Cheng H., Xie X., Ren M., Yang S., Zhao X., **Mahna N.**, Liu Y., Xu Y., Xiang Y., Chai H., Zheng L., Kou Y., Ge H., Jia R., 2022. Characterization of Three SEPALLATA-like MADS-Box Genes Associated with Floral Development in *Paphiopedilum henryanum* (Orchidaceae). **Frontiers in Plant Science**. 13, 916081. (IF: 6.627) (Q1) <https://doi.org/10.3389/fpls.2022.916081>
- Heidari M., Farsad-Akhtar N., Toorchi M. Mohajel Kazemi E., **Mahna N.*** 2022. Proteomic, biochemical, and anatomical influences of nanographene oxide on soybean (*Glycine max*). **Journal of Plant Physiology**. (IF: 3.5) (Q1) <https://doi.org/10.1016/j.jplph.2022.153667>
- Nayeri S., Rouz B.B.K., AhmadiKah A., **Mahna N.** 2022. CRISPR/Cas9-mediated P-CR domain-specific engineering of CESA4 heterodimerization capacity alters cell wall architecture and improves saccharification efficiency in poplar, **Plant Biotechnology Journal**. 20 (6), 1197-1212. (IF: 13.26) (Q1) <https://doi.org/10.1111/pbi.13803>
- Younessi-Hamzekhanlu, M., Jafarpour, P., **Mahna, N.***, 2022. Exploitation of next generation sequencing technologies for unraveling metabolic pathways in medicinal plants: A concise review. **Industrial Crops and Products**. 178, 114669. (IF: 6.4) (Q1) <https://doi.org/10.1016/j.indcrop.2022.114669>
- Younessi-Hamzekhanlu, M., Dibazarnia, Z., Oustan, S., Vinson, T., Katam, R., **Mahna, N.***, 2021. Mild Salinity Stimulates Biochemical Activities and Metabolites Associated with Anticancer Activities in Black Horehound (*Ballota nigra* L.). **Agronomy** 11, 2538. (IF: 3.4) (Q1) <https://doi.org/10.3390/agronomy11122538>
- Safari G., Niazi A., Farsad-Akhtar N., **Mahna N.*** 2020. Engineering 4-hydroxyisoleucine Biosynthesis by Ectopic Expression of Bacterial IDO Gene in Fenugreek and Tobacco. **Industrial Crops and Products**. 156, 112839. (IF: 6.4) (Q1) <https://doi.org/10.1016/j.indcrop.2020.112839>
- Akbari, M.; Katam, R.; Husain, R.; Farajpour, M.; Mazzuca, S., **Mahna, N.*** 2020. Sodium Chloride Induced Stress Responses of Antioxidative Activities in Leaves and Roots of Pistachio Rootstock. **Biomolecules** 10(2), 189; (IF: 6.064) (Q1) <https://doi.org/10.3390/biom10020189>
- Silva, K. J. P., **Mahna N.**, et al. 2018. "NPR1 as a transgenic crop protection strategy in horticultural species." **Horticulture Research** 5(1): 15. (IF: 6.072) (Q1) <https://doi.org/10.1038/s41438-018-0026-1>
- Akbari, M., **Mahna N.*** et al.(2018). "Ion homeostasis, osmoregulation, and physiological changes in the roots and leaves of pistachio rootstocks in response to salinity." **Protoplasma** 1-14. (IF: 3.356) (Q1) <https://doi.org/10.1007/s00709-018-1235-z>
- Aazami, M. A. and **Mahna N.*** (2017). "Salicylic acid affects the expression of VvCBF4 gene in grapes subjected to low temperature." **Journal of Genetic Engineering and Biotechnology** 15(1): 257-261. <https://doi.org/10.1016/j.jgeb.2017.01.005>
- Ghasimi Hagh Z, Rahnama H, Panahandeh J, Baghban Kohneh Rouz B, Arab Jafari KM, **Mahna N.** 2009. Green-tissue-specific, C(4)-PEPC-promoter-driven expression of Cry1Ab makes transgenic potato plants resistant to tuber moth (*Phthorimaea operculella*, Zeller). **Plant Cell Reports** 28(12): 1869-79. (IF: 4.570) (Q1) <https://doi.org/10.1007/s00299-009-0790-3>
- Panahandeh J., Valizadeh M., Khosroshahly M., Yermishin A. and **Mahna N.** 2008, Microsporogenesis and crossing behavior of a tetraploid, interspecific inter-EBN hybrid potato. **Scientia Horticulturae** 116(4): 348-353. (IF: 4.342) (Q1) <https://doi.org/10.1016/j.scienta.2008.02.006>

Some Other Publications in English:

- Panahirad, S., Naghshiband-Hassani, R., Bergin, S., Katam, R., **Mahna N.***, 2020. Improvement of Postharvest Quality of Plum (*Prunus domestica* L.) Using Polysaccharide-Based Edible Coatings. **Plants** 9, 1148. (IF: 3.9) (Q1) <https://doi.org/10.3390/plants9091148>
- Srinivasan, K., Altemimi, A.B., Narayanaswamy, R., Vasantha Srinivasan, P., Najm, M.A. and **Mahna, N.***, 2023. GC-MS,

- alpha-amylase, and alpha-glucosidase inhibition and molecular docking analysis of selected phytoconstituents of small wild date palm fruit (*Phoenix pusilla*). **Food Science & Nutrition** 11(9) ; 5304-5317. <https://doi.org/10.1002/fsn3.3489>
- Moradi Digehsara, M., Naghshiband Hassani, R., **Mahna, N.** and Nicola, S., 2023. Enhanced H₂S biogenesis followed by its postharvest application retarded senescence development by promoting multiple antioxidant protection systems in button mushroom during cold storage. **Food Science and Technology International**, p.10820132221133144. (IF: 2.638) (Q3) <https://doi.org/10.1177/10820132220916559>
- Panahi, S., Naghshiband-Hassani, R., **Mahna, N.***, 2020. Pectin-based edible coating preserves antioxidative capacity of plum fruit during shelf life. **Food Science and Technology International**. 26 (7): 583-592. (IF: 2.638) (Q3) <https://doi.org/10.1177/10820132220916559>
- Panahirad, S., Naghshiband-Hassani, R., Ghanbarzadeh, B., Zaare-Nahandi, F., **Mahna, N.***, 2019. Shelf Life Quality of Plum Fruits (*Prunus domestica* L.) Improves with Carboxymethylcellulose-based Edible Coating, **HortScience** 54(3), 505-510. (IF: 1.874) (Q2) <https://doi.org/10.21273/HORTSCI13751-18>
- Alaei S. and **Mahna N.** 2012. Comparison of essential oil composition in *Dracocephalum moldavica* in greenhouse and field. **Journal of Essential Oil Bearing Plants**. 16:3, 346-351. (IF: 1.699) <https://doi.org/10.1080/0972060X.2013.813237>
- Alaei S., **Mahna N.***, 2022. The Influence of Exogenous Application of Glycine Betaine on Growth and Ion Accumulation in Strawberry under Saline Conditions. **International Journal of Horticultural Science and Technology**. 10 (1): 41-52. <https://doi.org/10.22059/IJHST.2022.333892.516>
- Kazemzadeh H., **Mahna N.***, E. Safari and A. Motallebi-Azar. 2016. Blue Diode and Red He-Ne Lasers Affect the Growth of Anthocyanin Producing Suspension Cells of Apple. **International Journal of Horticultural Science and Technology** 5(2): 231-239. <https://doi.org/10.22059/IJHST.2018.234739.196>
- Kazemzadeh H., **Mahna N.***, Safari E., Zaare-Nahandi F., Motallebi-Azar A. 2016. Effect of Diode and He-Ne Laser on In Vitro Production of Anthocyanin in Apple Cell Suspension Culture. **International Journal of Horticultural Science and Technology**, 2(2): 205-212. <https://doi.org/10.22059/IJHST.2015.56437>
- Rafieipour M., Motallebi-Azar A., **Mahna N.**, Kazemnia H., Kazemiani S., Yarmohamadi F. 2011. Evaluation of genetic variability of six Iranian landraces of onion (*Allium cepa* L.) for seed yield and yield components. **Russian Agricultural Sciences** 37(5): 385-391. <https://doi.org/10.3103/S1068367411050181>
- Etedali F., Moghaddam Vahed M., Khossroshahli M., Motallebi-Azar A., Valizadeh M., Javidfar F. and **Mahna N.** 2011. Heterosis for callus growth rate from mature embryo culture of rapeseed (*Brassica napus* L.). **Russian Agricultural Sciences** 37 (6): 469-473. <https://doi.org/10.3103/S1068367411060073>
- Panahandeh J. and **Mahna N.** 2012. The Karyomorphology of *Allium hirtifolium* Bioss., a less known edible plant species from Iran. **Plant Physiology and Breeding** 2011, 1(2): 53-57.
- Mahna N.**, Motallebi Azar A, 2007, In vitro micropropagation of apple (*Malus x domestica* Borkh.) cv. Golden Delicious. **Commun Agric Appl Biol Sci** 72(1):235-238.
- Mahna N.**, Dreesen R, Baghban Kohneh Rouz B, Ghareyazie B, Valizadeh M, Grigorian V, Keulemans J., 2006, Isolation and characterization of a MADS-box type gene from apple (*Malus x domestica*). **Commun Agric Appl Biol Sci** 71(1):187-191.

Papers in Persian with English Abstracts:

- Abdollahi, R., J. Hajilou, M. Zainalabedini, **N. Mahna** and M. R. Ghaffari (2019). "Evaluation of qualitative traits of peel and flesh of some peach cultivars and genotypes." **Iranian Journal of Horticultural Science** 50(1): 151-162.
- Ghazi-Vakili, Y., A. R. Motallebi-azar, F. Zare Nahandi and **N. Mahna** (2015). "Effect of some Amino acids on increasing of the microtuberization potato (cv. Agria)." **Journal of Crops Improvement** 17(1): 131-138.
- Kakavand, F. and **N. Mahna*** (2015). "Anthocyanin Production through Callus Culture of Apple: Effect of Nitrogen Source and Concentration of Magnesium." **Agricultural Biotechnology Journal** 7(2): 121-134.
- Kazemzadeh-beneh, H., **N. Mahna***, M. Keramati, E. Safari and R. Naghshiband Hassani (2017). "Effect of combined He-Ne and diode lasers on anthocyanin production and growth in cell suspension cultures of a red-fleshed apple (*Malus* sp.)." **Journal of Plant Process and Function** 6(21): 237-246.
- Taymouri, A., N. S. Bashir and **Mahna, N.***, (2023). "Replicability of an ALSV-based VIGS vector in wild strawberry and fenugreek." **Agricultural Biotechnology Journal** 15(3): fa97-fa114.
- Shojaii, A., H. Mohajjel Shoja and **N. Mahna** (2016). "Study of root induction in several medicinal plant species using *A. rhizogenes* rol genes." **Genetic Engineering and Biosafety** 4(2): 157-163.
- Soltanpour, M., **N. Mahna*** and N. F. Akhtar (2019). "Effects of Different Concentrations of Plant Growth Regulators on Callus Induction and Shoot Regeneration in St. John's Wort (*Hypericum perforatum*)." **Agricultural Biotechnology Journal** 10(4): 76-92.
- Soltanpour, M., **N. Mahna*** and N. Farsad-Akhtar (2018). "Regeneration in St. John's wort (*Hypericum perforatum*): Interaction of Silver Nanoparticles with Other Factors." **Journal of Medicinal Plants Biotechnology** 4(1): 95-112.
- Tayefeh, S., S. K. Kazemitabar, V. Ghasemi-Omran and **N. Mahna*** (2020). "Feasibility of hairy root induction in two *Hyssopus* species (*H. officinalis* and *H. angustifolius*)." **Iranian Journal of Horticultural Science** 50(4): 803-813.
- Tayefeh, S., **N. Mahna***, S. K. Kazemitabar and V. Ghasemiomran (2020). "The effect of silver nanoparticles on the growth and antioxidants of transgenic hairy roots in hyssop (*Hyssopus officinalis*, *H. angustifolius*)." **Journal of Medicinal Plants** 19(74): 129-144.
- Vaezi, S., M. Asghari, A. Farrokhzad, **N. Mahna** and M. S. Aghdam (2023). "The Effect of Postharvest Methyl Jasmonate Treatment on the Expression of Some Genes of Ethylene Biosynthetic Pathway and Qualitative Properties of Strawberry Fruit." **Iranian Journal of Horticultural Science** 54(4): 685-702.
- Vakili-Gartavol, M. and **N. Mahna*** (2022). "Allelotyping of S-RNase Gene and Promoter Region of MdMYB10 Gene in

- some Genotypes of Apple (*Malus* spp.)." **Journal of Horticultural Science** 35(4): 469-477.
- Yusefi, M., J. Tabatabaei, J. Hajilou and **N. Mahna** (2013). "The Effect of Root Partial Salinization on the Photosynthesis Rate and Nutrient Concentration in Strawberry." **Journal of Horticultural Science** 27(2): 178-184.
- Zadeh, F. Z., **N. Mahna***, F. Kakavand, F. Z. Nahandi and J. Panahande (2014). "Effect of concentration and source of carbohydrate on in vitro production of anthocyanin in apple." **Agricultural biotechnology Journal** 5(4): 37-48.
- Zahed Zadeh F., **Mahna N.***, Kakavand F., Zare Nahandi F., Jaber Panahandeh (2014). "Effect of concentration and source of carbohydrate on in vitro production of anthocyanin in apple." **Agricultural Biotechnology Journal** 5(4): 37-48.

Papers under Preparation/submission/review/revision (Selected):

- Tayefeh S., Kazemitabar M., Ghasemi E. and **Mahna N.*** Physiological, biochemical and genetic responses of transgenic hairy roots of two species of hyssop to silver nanoparticles.
- Vaezi S., and **Mahna N.*** An effective protocol for isolating high-quality RNA from strawberry fruits.
- Vaezi S., Asghari M. Aghdam M.S., and **Mahna N.*** Application of exogenous MeJA could delay senescence and reduce decay in cold-stored strawberry fruits through increasing ROS scavenging enzymes activity and accumulating endogenous melatonin. To be submitted to Food Chemistry.
- Sara Bahrami, Mina Amani, Mehdi Younessi-Hamzekhanlu, Nader Farsad-Akhtar, Hagop Atamian and **Nasser Mahna***, Salicylic Acid Crosstalk with Antioxidative System and Secondary Metabolism in Black Horehound (*Ballota nigra* L.), A Potential Anti-Cancer Plant.
- Many Authors, A Summary of International Gene Editing Policy
- Nasser Mahna*** and Shahnoush Nayeri, Genome Editing for Disease Resistance in Horticultural Crops (Book Chapter) (Submitted) in series "Genome Editing for Sustainable Agriculture", Volume 6: Genome Editing for Mitigation of Abiotic and Biotic Stresses in Horticultural Crops (Springer)
- Mahyar Foroutan, Mehdi Younessi Hamzekhanlou and **Nasser Mahna***, Morphological and Phytochemical Diversity of Stinging Nettle (*Urtica dioica* L.) in Northwest Iran.
- Habibi M.M., Hassanpour K., **Mahna N.***, Genome-wide Evaluation of Structure and Function of CBF and NAC Gene Families in Response to Temperature Stresses in Jujube (*Ziziphus jujuba*).

Membership in International and National Societies/Consortiums:

1. International Society for Horticultural Science (ISHS); Belgium; From 2008
2. Iranian Biotechnology Society; Iran; From 2007
3. Iranian Genetics Society; Iran; From 2007
4. Iranian Biosafety Society; Iran; From 2007
5. eCOST Action Plant Genome Editing (PlantEd); Sweden; From 2019-2024
6. eCOST Action CA21157 European Network for Innovative Woody Plant Cloning (COPYTREE), 2025-2027
7. International Plant Proteomics Organization (INPPO); Luxembourg; From 2018

Hands-on Technical Experiences:

1. Plant tissue culture techniques such as meristem and shoot tip culture, regeneration, micropropagation, culture media optimization, protoplast isolation, *A. rhizogenes*-mediated hairy root production and culture, *A. tumefaciens*-mediated plant transformation, gene gun-mediated transformation;
2. Gene cloning techniques such as primary bioinformatic analysis, primer designing, polymerase chain reaction optimization, TA cloning, cloning in non-TA vectors, Gateway technology, bacterial transformation, colony PCR, white-blue screening, Extraction of biomolecules such as DNA, RNA, Protein, Gene expression analysis using semi-quantitative RT-PCR, quantitative RT-PCR, blotting techniques, Nucleic acid and protein electrophoresis, etc.;
3. Informatics and bioinformatics tools and software such as online tools like NCBI tools, Galaxy, Vector NTI, UGene, Oligo, Mega, R, Linux-based software, CLC Genomics Workbench, Primer 3, ...;
4. Statistical analysis with software like SAS, SPSS, MSTAT-C, R;
5. Genetic manipulation technologies such as overexpression, antisense RNA, RNAi, virus-induced gene silencing;
6. CRISPR-CAS9-mediated genome editing;
7. Omics approaches including proteomics, transcriptomics, genomics, etc.;
8. Physiological and biochemical evaluations;
9. MS Office, Adobe family, EndNote, etc.

Supervisors/References:

1. Bahram Baghban Kohneh Rouz, Professor at the University of Tabriz, Iran, email: bahramrouz@yahoo.com
2. Soraya Pelaz, Professor at CRAG, Spain, email: soraya.pelaz@cragenomica.es
3. Kevin Folta, Professor at the University of Florida, USA, email: kfolta@ufl.edu
4. Silvia Mazzuca, Professor at the University of Calabria, Italy, email: silvia.mazzuca@unical.it

Reviewer/Editor/Editorial Board Member:

1. Frontiers in Plant Science: Review Editor
2. Iranian Journal of Horticultural Science: Editorial board member/Section Editor
3. Journal of Tekirdag Agricultural Faculty: Editorial advisory board member

4. Reviewer for the journals: *Frontiers in Plant Science*, *The Plant Genome*, *LWT*, *Journal of Applied Genetics*, *Physiologia Plantarum*, *Iranian Journal of Horticultural Sciences*, ...