

# Curriculum vitae of *Dr. Kasra Esfahani*

## **Personal Information**

**Kasra Esfahani, Ph.D.**  
**Molecular Genetics**



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## **Education**

**Ph.D.:** Molecular Genetics, NIGEB, Iran (2010)

**M.Sc.:** Agricultural Biotechnology, Faculty of Agriculture, University of Tehran, Iran (2001)

**B.Sc.:** Agronomy and Plant Breeding, Faculty of Agriculture, University of Tehran, Iran (1998)

**High school:** Allameh-Helli talented students' high school, Tehran, Iran (1993)

## **Research Areas**

- Molecular Farming (Platform Development and Recombinant Protein Production in Plants)
- Genome Editing (CRISPR-Cas9)
- Evaluation of the Effects of Viral and Plant 5' Untranslated Regions (5'UTRs) and Introns on Gene Expression
- Genetic Engineering (DNA Cloning, Designing and Construction of New Vectors)
- Plant Tissue Culture
- Molecular Genetics

## **Honors and Noted Activities**

- Elected board member of syndicate of National Institute of Genetic Engineering and Biotechnology Professors (2022- present)
- Scientific Secretary of the Fifth International and 13th Iranian Biotechnology Congress (2023)
- Elected Executive Committee Member and Treasurer of the Iranian Biotechnology Society (2018-present)
- Elected Executive Committee Member and Treasurer of the Iranian Genetics Society (2018-2022)
- Editorial Board Member of Journal of Biosafety (2010-2018)
- Executive Secretary of the Second National Microfluidics Congress (2018)
- Scientific Secretary of the 4 international and national Symposiums of the CRISPR (2017-2022)
- Executive Secretary of the Second International and 10th Iranian Biotechnology Congress (2017)
- Elected best professor of National Institute of Genetic Engineering and Biotechnology (2016)
- Executive Secretary of the First International and 9th Iranian Biotechnology Congress (2015)
- Executive Secretary of the First International and 13th Iranian Genetics Congress (2014)
- Reviewer at local and international scientific journals such as: Iranian Journal of Biotechnology, Iranian Journal of Biology, Journal of Plant Biology, Biosafety Journal (also Editorial Board Member), Journal of Essential Oil Bearing Plants, Koomesh, Journal of Crop Biotechnology, Genetic Engineering and Biosafety, Current Nutrition and Food Science, Current Bioinformatics and local congress such as Iranian Genetics Congress, Iranian Biotechnology Congress, Iranian Biology Congress, Iranian Bioinformatics Congress, and Iranian Biosafety Congress (Scientific Committee Member) (2005-present)
- 4th rank in National Employment Periodical Exam of Iran (2004)
- Travel Fellowship of the 16th FAOBMB Symposium, Taipei, Taiwan (2002)
- Students' Travel Fellowship of the 9th FAOBMB Congress, Lahore, Pakistan (2001)
- The first rank in M.Sc. entrance examination, University of Tehran, Tehran, Iran (1998)
- Best Paper Award in Iranian Young Researchers Society (IYRS) Congress (1996)
- Financial support by Bank Keshavarzi (BK) for top young under-graduated students of University of Tehran (1995)
- Pass entrance examination of and studying at Allameh-Helli Talented Students guidance and high school of Tehran (1985-1992)
- Organizing more than a hundred workshops on molecular techniques such as PCR, genetic engineering, primer designing, CRISPR (2010-2020)

## Patents

- **Esfahani, K.** and Salmanian A. H. (2014) Plant expression vectors containing developed multiple cloning site and sequences required for sequencing and purification of recombinant proteins. Iran patent No. 82179.
- Zamani, K., Malboobi, M. A., Lohrasebi, T., and **Esfahani, K.** (2008) Expression vectors for production and purification of plant recombinant proteins. Iran patent No. 64775.

## Submitted Genes

- *Bacillus velezensis* strain M11-RTS 16S ribosomal RNA gene , GenBank: MH628438.1
- *Glutamicibacter* sp. strain RTS3 16S ribosomal RNA gene, GenBank: MN252570.1
- *Staphylococcus gallinarum* strain RTS2 16S ribosomal RNA gene, GenBank: MN252548.1
- *Mentha longifolia* limonene synthase gene, complete cds, GenBank: MH748573.1
- *Mentha spicata* limonene synthase gene, complete cds, GenBank: MH748574.1
- *Mentha aquatica* limonene synthase gene, complete cds, GenBank: MH748575.1
- *Trachyspermum ammi* cytochrome p450 (cyp71d500) gene, complete cds, GenBank: MH638297.1

## Books

- Kahrizi, D., **Esfahani, K.**, Ashraf Mehrabi, A., Ghaheri, M., Azizi Aram, Z. and Khosravi, S., (2017) Biotechnology for Drought Improvement, Ch. 24 in Handbook of Drought and Water Scarcity, Vol. 2: Environmental Impacts and Analysis of Drought and Water Scarcity, Ed. by Eslamian S. and Eslamian F., Francis and Taylor. 445-460.
- Sanati, M.H., Noraie, M., Ghareyazie, B., Khayam, M., Malboobi, M.A., Behnia, S., **Esfahani, K.**, and Moshiri, M. (2004) National Strategy of Biotechnology in Plant Science-National State. National Biotechnology Committee, Tehran, Iran (Persian Book).
- Sanati, M.H., Noraie, M., Ghareyazie, B., **Esfahani, K.**, Behnia, S., Khayam, M., Maroof, E., and Majidi, E. (2004) National Strategy of Biotechnology in Plant Science-International Review. National Biotechnology Committee, Tehran, Iran (Persian Book).
- **Scientific Editor:** "Principles of Genetic Engineering", Authors: Ebrahimi, M.A., Tohidfar, M, Ahmadinik, E. (2015). Payame Noor University, Tehran, Iran.
- **Scientific Editor:** "Help me understand Genetics", Translators: Yari, L., and Houshmand, M. (2013). Andishe Moaser, Tehran, Iran. (This book was endorsed by Iranian Genetics Society)

## Full Papers and Abstracts

- Beheshti zadeh, R., Safaeian, S., Moslemi, E., Mousavi Nadushan, R., **Esfahani, K.** (2022). Monitoring of Pat and Nos terminator genetically modified Maize and Soybean in Infant Formula and Baby food by real-time PCR technique in Iran, *Iranian Journal of Pharmaceutical Research*, 21(1):e126921.
- Garousi, S., Jahanbakhsh, S., **Esfahani, K.**, Lohrasebi, T., Mousavi, A., Salmanian, A. H., Rezvani M., Moein, M. (2022). Meta-analysis of EGF-stimulated Normal and Cancer Cell Lines to Discover EGF-associated Oncogenic Signaling Pathways and Prognostic Biomarkers, *Iranian Journal of Biotechnology*, 20(3): 1-11.
- Abadi, B. G. J., **Esfahani, K.**, & Manjili, H. K. (2022). Evaluation of *NAT1* gene expression and methylation in the blood of people with breast cancer. *International Journal of Health Sciences*, 6(S2): 12218–12236.
- Golfam, R., Kiarostami, K., Lohrasebi, T., **Esfahani, K.**, Ghazvini, H. (2021). Application of molecular farming based on barley plant (*Hordeum vulgare* L.) platform: A Review. *Research on Crops*, 22(2).
- Garousi, S., Jahanbakhsh, S., **Esfahani, K.**, Lohrasebi, T., Mousavi, A., Salmanian, A. H. (2021). Designing and constructing the encoding cassette of human epidermal growth factor in pBI121 and pGH215 vectors, harboring kanamycin and hygromycin selectable markers, respectively, for expression in barley seeds. *Agricultural Biotechnology* 13(4): 55-80.
- Avesta, M., **Esfahani, K.** (2020). Isolation and identification of *Bacillus velezensis* RTS-M11 and assessment of its antifungal activity. *Advanced Research in Microbial Metabolites and Technology*, 3 (2): 91-103.
- Yousefian, S., Ahmadi Nik, F., Lohrasebi, T., Mirshahvalad, S., Gharanjik, S., **Esfahani, K.** (2020). Investigation of Nitrogen and Phosphate Effect on Growth and Rosmarinic Acid Production in Transgenic *Mentha aquatica* Hairy Root Induction. *Journal of Medicinal plants and By-product* 10(2): 199-207.
- Saeedpour, A., Jahanbakhsh, S., Lohrasebi, T., **Esfahani, K.**, Salmanian, A. H., Razavi, K. (2020). The Effects of Endogenous Hormones, Total Antioxidant and Total Phenol Changes on Regeneration of Barley Cultivars. *Iranian Journal of Biotechnology* 19(1): e2838.
- Saeedpour, A., Jahanbakhsh, S., Lohrasebi, T., **Esfahani, K.**, Salmanian, A. H., Razavi, K. (2020). Designing and construction of a plant expression vector containing the hygromycin antibiotic resistance marker gene. *Crop Biotechnology* 9(28): 1-9
- Masoudi Ashtiani, N., **Esfahani, K.\***, Shahbazi, F. (2020). Association of polymorphism rs3746444 (A/G) mir-499 with ovarian cancer in Iranian women population. *SJIMU* 28(1):47-55.
- Amirhamzeh, S., **Esfahani, K.\***, Salahshourifar, I., Moslemi, E. (2020). Evaluation of *PALB2* Gene Expression in Breast Cancer. *Journal of Sciences* 31(1): 5-11.

- Fallahzadeh R, **Esfahani K.**, Akhavan Sepahi A, Kamali N, Bambai B. (2019) Increasing the catalytic power of the flavin reductase DszD enzyme using site-directed mutagenesis method in *Rhodococcus erythropolis*. *Journal of Arak University Medical Sciences* **22**(5) :68-77
- Fallahzadeh, R., Bambai, B., **Esfahani, K.** and Sepahi, A.A., (2019). Simulation-based protein engineering of *R. erythropolis* FMN oxidoreductase (DszD). *Heliyon* **5**(8): e02193, 1-8.
- **Esfahani, K.\***, Adel, M., and Lohrasebi, T. (2019). Optimization of transient expression by *Agrobacterium* (Agroinfiltration) in leaves and buds of barley (*Hordeum vulgare* L.). *Cereal Research* **9**(1): 71-81.
- Mohammadi, M., Ramazani, A., Garmroodi, M., Yousefi, M., Izadi A. and **Esfahani, K.**, (2019). Resolution of Ibuprofen Enantiomers by *Rhizomucor miehei* Lipase (RML) Immobilized via Physical and Covalent Attachment. *Modares Journal of Biotechnology* **10**(3): 351-361.
- **Esfahani K.** (2019) Barley as a plant platform for producing pharmaceutical recombinant proteins. International Conference on "*Recent Innovations in Molecular Sciences*", University of the Punjab, Lahore, Pakistan. (Plenary Speaker)
- Mohammadhassan, R., **Esfahani, K.\***, and Kashefi, B. (2018) Constructional and Functional Evaluation of Two New Plant Expression Vectors-pBI121<sup>GUS-6</sup> and pBI121<sup>5+1</sup>. *Banat's Journal of Biotechnology* **9**(17): 60-68.
- Shafai, S., Moslemi, E., Mohammadi, M., **Esfahani, K.**, and Izadi, A. (2018) Expression of KLK2 gene in prostate cancer. *Tehran University Medical Journal* **75**(10): 745-751.
- Safarpour, P., Moslemi, E., and **Esfahani, K.** (2017) HER4 gene expression in FFPE Breast cancer patients. *Research in Medicine* **41**(3): 210-216.
- Behzadmand, M., **Esfahani K.\***, Salmanian A. H. and Mousavi A. (2017) Designing, Construction and Functional Analysis of Two New Plant Expression Vectors (pBI121<sup>GUS-9</sup> and pBI121<sup>3+4</sup>) with Improved Cloning Sites. *Agricultural Biotechnology* **16**(1): 75-84.
- **Esfahani K.** (2016) Define a system to improve production of recombinant proteins in plants. 13th Biennial Conference on "*Recent Advances and Challenges in Molecular Biology, Biochemistry and Biotechnology*", CIIT, Abbottabad, Pakistan. (Plenary Speaker)
- Allah Veisi L., Jafari M., **Esfahani K.** (2016). Construction of plant expression vector harboring a synthetic *AsnB* gene encoding L-Asparaginase II. Second International and 14th Iranian Crop Science Congress, Karaj, Iran.
- Allah Veisi L., Jafari M., **Esfahani K.** (2016). *Agrobacterium rhizogenes*- mediated transformation of tobacco hairy root with a synthetic gene encoding L-asparaginase enzyme. Second International and 14th Iranian Crop Science Congress, Karaj, Iran.
- Adel, M., **Esfahani, K.**, Lohrasebi, T., and Sanjarian, F. (2015) Efficiency evaluation of untranslated region of plant Alcohol Dehydrogenase (ADH) on reporter gene expression in barley (*Hordeum vulgare* L.). First International and 9th Iranian Biotechnology Congress. Tehran, Iran.

- **Esfahani K.**<sup>\*</sup>, Salmanian A. H. (2014). Construction and functional analysis of pBI105, a plant expression vector to facilitate cloning and recombinant protein purification. *Journal of Crop Biotechnology* 7: 49-58.
- Taghavian O., Mousavi A., Hashemi Sohi H., Jourabchi E. and **Esfahani K.** (2013) Functional Assessment of Plastid Signal Peptide Sequences LIM14 and AtCPrecA in Localization of Green Fluorescent Protein (GFP) and Beta-glucuronidase (GUS) Reporter Proteins in Transgenic Potato Plants. *Journal of Plant Biology* 17(5): 99-112.
- **Esfahani K.**, Salmanian A. H. (2013). Designing and construction of new plant expression vectors with more recognition sites of restriction enzymes. 8th National Congress of Biotechnology, Tehran, Iran.
- **Esfahani K.**, Motallebi M., Zamani M. R. (2012) Construction of plant expression vectors harboring chitinase (*chit42*) or glucanase (*bgn13.1*) genes from *Trichoderma* species, single or in combination using in plant transformation projects. *Iranian Journal of Biology* 24(6): 880-894.
- **Esfahani K.** (2012) pBI121<sup>+2upGUS</sup>: The new plant expression vector with two new recognition sites of restriction enzymes upstream of  $\beta$ -glucuronidase. 12th Iranian Genetics Congress, Tehran, Iran.
- **Esfahani K.** (2012) pBI121<sup>GUS-6</sup>: The new plant expression vector with several recognition sites of different restriction enzymes. 12th Iranian Genetics Congress, Tehran, Iran.
- **Esfahani K.**, Zamani M.R., and Motallebi M. (2011). Strategies of resistance to fungal diseases and global status of transgenic plants in this area. 3rd National Congress of Biosafety and Genetic Engineering, Tehran, Iran.
- **Esfahani K.**, Raoufzadeh S. Moghadasi z., Motallebi M. and Zamani M.R. (2011). Construction of a prokaryotic expression vector harbouring *bgn13.1* cDNA from *Trichoderma virens* to express BGN13.1 recombinant protein in *Escherichia coli*, BL21 (DE3) pLysS. 7th National Congress of Biotechnology, Tehran, Iran.
- **Esfahani K.**, Raoufzadeh S., Jouranbchi E., Hashemi H., Motallebi M. and Zamani m.R. (2011). Transformation of *bgn13.1* cDNA from *Trichoderma virens* to different potato cultivar. 7th National Congress of Biotechnology, Tehran, Iran. (key lecture)
- Tavalaei M., Nooroezi P., Ghareyazi B., Zeinali S., **Esfahani K.**, Behnia S., Malboobi M.A., Shariatpanahi M., Modaressi M.H., Omidinia E., Khoshkholghsima N., Jalali M., Alemzadeh A., Mousavi A., Bambaei B., Mokhtari F., Akhavan-sepahi A., Afraz F., Zamani M.R., Yazdisamadi B., Alavi M., Alavi S., Mozoni R., Mottaghi A., Nemati A., Noraei M. and Hashemi H. (2011). Evaluation and analysis of biotechnology status in Iran. 7th National Congress of Biotechnology, Tehran, Iran. (keynot lecture)
- **Esfahani K.**, Zamani M.R., and Motallebi M. (2010). Review of different approaches to enhance resistance against fungal pathogens and transformation of the genes encoding hydrolytic enzymes from various sources to develop toleration of fungal diseases in transgenic plants. *Journal of Biosafety* 3(2): 105-129.

- **Esfahani K.**, Motallebi M., Zamani M. R., Hashemi Sohi H. and Jourabchi, E. (2010). Transformation of potato (*Solanum tuberosum* cv. Savalan) by chitinase and  $\beta$ -1,3 glucanase genes from mycoparasitic fungi towards improving resistance to *Rhizoctonia solani* AG-3. *Iranian Journal of Biotechnology* 8(2): 73-81.
- **Esfahani K.**, Zamani M. R. and Motallebi M. (2010). Analyses of the effect of different concentrations of kanamycin on the development and growth of in vitro seedlings of five potato (*Solanum tuberosum*) cultivars. 11th Iranian Crop Science Congress, Tehran, Iran.
- **Esfahani K.**, Zamani M.R, Motallebi M., Rezanejad H., and Hashemi H. (2008). Designing of expression constructs containing one or two antifungal genes from fungal sources. 10th Iranian Genetic Congress, Tehran, Iran.
- **Esfahani K.** (2006). Introduction of Iranian Genetics and Biotechnology News Agency. 9th Iranian Genetic Congress, Tehran, Iran.
- **Esfahani K.** (2005). What is the Real Biotechnology? 4th Agriculture and Natural Resources Congress of Young Researchers Club, Tabriz, Iran. (Keynote lecture)
- **Esfahani K.** (2005). The Trend of Using Biotechnology in Agriculture. 1st National Biotechnology and Biocatalysts Congress, Shahr-Rey, Iran. (Keynote lecture)
- Lohrasbi T., Malboobi M. A., **Esfahani K.** and Saneii V. (2003). Isolation of Phosphate Induced Acid Phosphatase Genes from *Arabidopsis thaliana*. 7th International Congress of Plant Molecular Biology, Barcelona, Spain.
- **Esfahani K.** and Malboobi M.A. (2003). Expression Pattern of an Acid Phosphatase Gene under Environmental Stresses in *Arabidopsis thaliana*. 7th PSBMB International Conference, Lahore, Pakistan.
- **Esfahani K.** and Sanati M.H. (2003). Public opinion and political, religious and cultural reactions to human cloning. 1st International Congress of Bioethics (UNESCO), Tehran, Iran.
- **Esfahani K.**, and Sanati M.H. (2003) National and International Reactions to Human Cloning. 3rd National Congress of Biotechnology. Mashad, Iran.
- **Esfahani K.**, Mirderekvand M., Behnia S. and Ghareyazie B. (2003). Economic aspects of GM crops in Iran. 3rd National Congress of Biotechnology. Mashad, Iran.
- **Esfahani K.** and Malboobi M.A. (2003). Over expression of an acid phosphatase gene under cold stress condition in *Arabidopsis thaliana*. 8th Iranian Genetics Congress, Tehran, Iran.
- **Esfahani K.** and Malboobi M.A. (2002). cDNA cloning and expression analysis of *psr12* gene, encoding an acid phosphatase. 16th FAOBMB Symposium, Taipei, Taiwan.
- **Esfahani K.**, Lohrasbi T., Shobbar Z., Malboobi M. A. and Shah-Nejat Bousheheri A. A. (2001). The Effects of Phosphate Deficiency on Expression of an *Arabidopsis thaliana* Acid Phosphatase Gene. 9th FAOBMB Congress, Lahore, Pakistan.

- **Esfahani K.**, Lohrasbi T., Shobbar Z., Malboobi M. A. and Shah-Nejat Bousheheri A. A. (2001). Studying of the expression pattern of an acid phosphatase gene from *Arabidopsis thaliana* under some stresses. 2nd National Congress of Biotechnology, Karaj, Iran.
- **Esfahani K.**, Lohrasbi T., Shobbar Z., Malboobi M. A. and Shah-Nejat Bousheheri A. A. (2001). The expression pattern of a phosphate starvation inducible gene encoding an acid phosphatase from *Arabidopsis thaliana*. 10th Iranian Biology Conference, Shiraz, Iran.

