



Mohammad Hossein Morowvat

A) Personal Information:

Name: Mohammad Hossein

Surname: Morowvat

Date and Place of Birth: March 21, 1983; in: Neyriz, Fars Province, Iran

Sex: Male

Marital Status: Married (No children)

Languages:

- Persian (Original Language),
- English (Professional),
- German (Reading, writing, speaking)
- French (Elementary)

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B) Education:

- 2008-2014: Ph.D. in Pharmaceutical Biotechnology, Department of Pharmaceutical Biotechnology, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Thesis Title: Study of the effects of *ackA* and *pta* inhibition by antisense RNA on acetate excretion and recombinant beta interferon expression in *Escherichia coli*, under supervision of Dr. H. Vahidi, Dr V. Babaeipour, Dr. N. Maghsoudi and Dr H. Rajabi-Memari.

- 2001-2008: Pharm. D. Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran.

Thesis Title: PCR amplification of 18S rRNA, Single Cell Protein production and fatty acid evaluation of some naturally isolated Microalgae, under supervision of Dr. Y. Ghasemi, Dr. S. Rasoul-Amini and Dr. A. Mohagheghzadeh.

C) Publications:

C.1) Research Papers:

1. Shaker, S., Morowvat, M.H., Ghasemi, Y., 2021. Bioinformatics analysis and identification of phytoene synthase gene in microalgae. *Recent Patents on Biotechnology*, Accepted.
2. Morowvat, M.H., 2021. CRISPeering: Bioengineering the host cells through CISPR-Cas9 genome editing system as the next-generation of cell factories. *Recent Patents on Biotechnology*, Accepted.
3. Alipour, S., Kalari, S., Morowvat, M.H., Sabahi, Z., Dehshahri, A., 2021. Green synthesis of selenium nanoparticles by cyanobacterium *Spirulina platensis* (abdf2224): Cultivation condition quality controls. *BioMed Research International*, 6635297.
4. Sabetian, S., Zarei, M., Namavar Jahromi, B., Morowvat, M.H., Tabei, S.M.B., Cava, C., 2021. Exploring the dysregulated mRNAs-miRNAs-lncRNAs interactions associated to idiopathic non-Obstructive azoospermia. *Journal of Biomolecular Structure and Dynamics*.

5. Hosseinpour, Z., Najafpour-Darzi, G., Latifi, N., Morowvat, M.H., Manahiloh, K.N., 2021. Synthesis of a biopolymer via a novel strain of *Pantoea* as a soil stabilizer. *Transportation Geotechnics*, 26:100425.
6. Taghizadeh, S.-M., Morowvat, M.H., Negahdaripour, M., Ebrahimezhad, A., Ghasemi, Y., 2021. Biosynthesis of metals and metal oxide nanoparticles through microalgal nanobiotechnology: Quality control aspects. *BioNanoScience*, 11(1): 209-226.
7. Rafiee, A., Memarpour, M., Taghvamanesh, S., Karami, F., Karami, S., Morowvat, M.H., 2021. Drug delivery assessment of a novel triple antibiotic-eluting injectable platelet-rich fibrin scaffold: An *in-vitro* study. *Current Pharmaceutical Biotechnology*, 22(3): 380-388.
8. Rafiee, A., Memarpour, M., Najibi, Y., Khalvati, B., Kianpour, S., Morowvat, M.H., 2020. Antimicrobial efficacy of a novel antibiotic-eluting injectable platelet-rich fibrin scaffold against a dual-species biofilm in an infected immature root canal model. *BioMed Research International*, 6623830.
9. Kavousipour, S., Mohammadi, S., Eftekhari, E., Barazesh, M., Morowvat, M.H., 2021. *In silico* investigation of signal peptide sequences to enhance secretion of CD44 nanobodies expressed in *Escherichia coli*. *Current Pharmaceutical Biotechnology*, 22(9): 1192-1205.
10. Barazesh, M., Mohammadi, S., Bahrami, Y., Mokarram, P., Morowvat, M.H., Saidijam, M., Karimipour, M., Kavousipour, S., Vosoughi, A.R., Khanaki, K., 2021. CRISPR/Cas9 technology as a modern genetic manipulation tool for recapitulating of neurodegenerative disorders in large animal models. *Current Gene Therapy*, 21(2): 130-148.
11. Morowvat, M.H., 2020. Effects of *ackA*, *pta* and *poxB* inhibition by antisense RNA on acetate excretion and recombinant beta interferon expression in *Escherichia coli*. *Koomesh*, 22(3): 505-517 (in Persian).
12. Zarei, M., Rahbar, R., Nezafat, N., Negahdaripour, M., Morowvat, M.H., Ghasemi, Y., 2020. Computational analysis of arginine deiminase sequences to provide a guideline for protein engineering. *Current Proteomics*, 17(2): 132-146.
13. Zarei, M., Rahbar, R., Negahdaripour, M., Morowvat, M.H., Nezafat, N., Ghasemi, Y., 2020. Cell penetrating peptide: Sequence-based computational prediction for intracellular delivery of arginine deiminase. *Current Proteomics*, 17(2): 117-131.

14. Morowvat, M.H., Ghasemi, Y., 2020. Effects of sulfur starvation on growth rates, biomass and lipid contents in the green microalga *Scenedesmus obliquus*. *Recent Patents on Biotechnology*, 14(2): 145-153.
15. Negahdaripour, M., Nezafat, N., Heidari, R., Erfani, N., Hajighahramani, N., Ghoshoon, M.B., Shoolian, E., Rahbar, M.R., Najafipour, S., Dehshahri, A., Morowvat, M.H., Ghasemi, Y., 2020. Production and preliminary *in vivo* evaluations of a novel *in silico*-designed L2-based potential HPV vaccine. *Current Pharmaceutical Biotechnology*, 21(4): 316-324.
16. Abdollahi, S., Morowvat, M.H., Savardashtaki, A., Irajie, C., Najafipour, S., Zarei, M., Ghasemi, Y., 2020. Amino acids sequence based analysis of arginine deiminase from different prokaryotic organisms: An *in silico* approach. *Recent Patents on Biotechnology*, 14(3): 235-246.
17. Mousavi, P., Morowvat, M.H., Mostafavi-Pour, Z., Aram, F., Malekzadeh, K., Nezafat, N., Ghasemi, Y., 2020. Experimental analysis of E2BB (LTIIB) signal peptide in secretory production of reteplase in *Escherichia coli*. *International Journal of Peptide Research and Therapeutics*, 46.
18. Morowvat, M.H., Goharian, S., Ghasemi, Y., 2019. Investigation of antioxidant properties of three naturally isolated microalgae: Identification and bioinformatics evaluation of the most efficient strain. *Recent Patents on Biotechnology*, 13(4): 277-283.
19. Esfandiari, F., Motazedian, M.H., Asgari, G., Morowvat, M.H., Molaei, M., Heli, H., 2019. Paromomycin-loaded mannosylated chitosan nanoparticles: synthesis, characterization and targeted drug delivery against leishmaniasis. *Acta Tropica*, 197: 105045.
20. Zarei, M., Rahbar, R., Morowvat, M.H., Nezafat, N., Negahdaripour, M., Berenjian, A., Ghasemi, Y., 2019. Arginine deiminase: Current understanding and applications. *Recent Patents on Biotechnology*, 13(2): 124-136.
21. Zarei, M., Nezafat, N., Rahbar, M.R., Negahdaripour, M., Sabetian, S., Morowvat, M.H., Ghasemi, Y., 2019. Decreasing the immunogenicity of arginine deaminase enzyme via structure-based computational analysis. *Journal of Biomolecular Structure and Dynamics*, 37(2): 523-536.

22. Zarei, M., Nezafat, N., Morowvat, M.H., Ektefaie, M., Ghasemi, Y., 2019. *In silico* analysis of different signal peptides for secretory production of arginine deiminase in *Escherichia coli*. *Recent Patents on Biotechnology*, 13(3): 217-227.
23. Morowvat, M.H., Ghasemi, Y., 2019. Maximizing biomass and lipid production in heterotrophic culture of *Chlamydomonas reinhardtii*: Techno-economic assessment. *Recent Patents on Food, Nutrition and Agriculture*, 10(2): 115-123.
24. Entezar-Almahdi, E., Morowvat, M.H., 2019. Pharmacokinetic aspects of carbon nanotubes: Improving outcomes of pegylation. *Current Nanoscience*, 15(5): 454-459.
25. Mohammady, M., Ghetmiri, S.I., Baharizade, M., Morowvat, M.H., Torabi, S., 2019. Expanding the biotherapeutics realm via miR-34a: "Potent clever little" agent in breast cancer therapy. *Current Pharmaceutical Biotechnology*, 20(8): 665-673.
26. Mohammadi, S., Mostafavi-Pour, Z., Ghasemi, Y., Barazesh, M., Kavousi Pour, S., Atapour, A., Mokarram, P., Morowvat, M.H., 2019. *In silico* analysis of different signal peptides for the excretory production of recombinant NS3-GP96 fusion protein in *Escherichia coli*. *International Journal of Peptide Research and Therapeutics*, 25(4): 1279-1290.
27. Mohammadi, F., Nezafat, N., Berenjhan, A., Negahdaripour, M., Zamani, M., Ghoshoon, M.B. Morowvat, M.H., Hemmati, S., Ghasemi, Y., 2019. Extracellular production of a potent and chemical resistant nattokinase in immobilized *Escherichia coli* using response surface methodology. *Current Pharmaceutical Biotechnology*, 19(11): 856-868.
28. Khademi, H., Morowvat, M.H., Ghasemi, Y., 2018. Effects of nitrogen and sulfur starvation on β -carotene production and lipid profile of *Dunaliella salina*. *Trends in Pharmaceutical Sciences*, 4(3): 187-196.
29. Morowvat, M.H., Ghasemi, Y., 2018. Cell growth, lipid production and productivity in photosynthetic microalga *Chlorella vulgaris* under different nitrogen concentrations and culture media replacement. *Recent Patents on Food, Nutrition and Agriculture*, 9(2): 142-151.
30. Niknezhad, S.V., Morowvat, M.H., Najafpour-Darzi, G., Iraj, A., Ghasemi, Y., 2018. Exopolysaccharide from *Pantoea* sp. BCCS 001 GH isolated from nectarine fruit: Production in submerged culture and preliminary physicochemical characterizations. *Food Science and Biotechnology*, 27(6): 1735-1746.

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32. Barazesh, A., Motazedian, M.H., Sattarahmady, N., Morowvat, M.H., Rashidi, S., 2018. Preparation of meglumine antimonate loaded albumin nanoparticles and evaluation of its anti-leishmanial activity: an in vitro assay. *Journal of Parasitic Disease*, 42(3): 416-422.
33. Morowvat, M.H., Ghasemi, Y., 2018. Studying the effects of different phosphorous concentrations on biomass and β -carotene production in nitrogen starved *Dunaliella salina*. *Research Journal of Pharmacy and Technology*, 11(2): 494-498.
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35. Sajadian, S.F., Morowvat, M.H., Ghasemi, Y., 2018. Investigation of autotrophic, heterotrophic and mixotrophic culture of lipid and biomass content in *Chlorella vulgaris*. *National Journal of Physiology, Pharmacy and Pharmacology*, 8(4): 594-599.
36. Zarei, M., Nezafat, N., Morowvat, M.H., Dehshahri, A., Ghoshoon, M.B., Berenjian, A., Ghasemi, Y., 2017. Medium optimization for recombinant soluble arginine deiminase expression in *Escherichia coli* using response surface methodology. *Current Pharmaceutical Biotechnology*, 18(11): 935-941.
37. Eskandarian, T., Morowvat, M.H., Zare, M., 2017. Assessment of cytotoxicity of titanium tetrafluoride on human fibroblast cell line and optimization of operational conditions using response surface methodology. *Journal of Clinical and Diagnostic Research*, 11(12): ZC23-ZC26.
38. Mousavi, P., Mostafavi-Pour, Z., Morowvat, M.H., Nezafat, N., Zamani, M., Berenjian, A., Ghasemi, Y., 2017. In silico analysis of several signal peptides for the excretory production of reteplase in *Escherichia coli*. *Current Proteomics*, 14 (4): 326-335.
39. Negahdaripour, M., Eslami, M., Nezafat, N., Hajighahramani, N., Ghoshoon, M.B., Shoolian, E., Dehshahri, A., Erfani, N., Morowvat, M.H., Ghasemi, Y., 2017. A novel HPV prophylactic

- peptide vaccine, designed by immunoinformatics and structural vaccinology approach. *Infection, Genetics and Evolution*, 54: 402-416.
40. Safarpour, H., Banadkoki, S.B., Keshavarzi, Z., Morowvat, M.H., Soleimanpour, M., Pourmolaei, S., Shirazi, F.H., 2017. Expression analysis and ATR-FTIR characterization of the secondary structure of recombinant human TNF- α from *Escherichia coli* SHuffle® T7 express and BL21 (DE3) cells. *International Journal of Biological Macromolecules*, 99: 173-178.
 41. Negahdaripour, M., Nezafat, N., Hajighahramani, N., Rahmatabadi, S.S., Morowvat, M.H., Ghasemi, Y., 2017. In silico study of different signal peptides for secretory production of interleukin-11 in *Escherichia coli*. *Current Proteomics*, 14 (2): 112-121.
 42. Morowvat, M.H., Ghasemi, Y., 2017. Impacts of nitrogen starvation on expression profiles of involving genes in triacylglycerol biosynthesis in *Chlamydomonas reinhardtii*: Towards microalgal systems biotechnology. *Journal of Young Pharmacists*, 9 (4): 496-501.
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 44. Shaker, S., Morowvat, M.H., Ghasemi, Y., 2017. Effects of sulfur, iron and manganese starvation on growth, β -carotene production and lipid profile of *Dunaliella salina*. *Journal of Young Pharmacists*, 9 (1): 43-46.
 45. Morowvat, M.H., Ghasemi, Y., 2016. Developing a robust method for quantification of β -carotene in *Dunaliella salina* biomass using HPLC methods. *International Journal of Pharmaceutical and Clinical Research*, 8 (10): 1423-1428.
 46. Morowvat, M.H., Ghasemi, Y., 2016. Spray-drying microencapsulation of β -carotene contents in powdered *Dunaliella salina* biomass. *International Journal of Pharmaceutical and Clinical Research*, 8 (11): 1533-1536.
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48. Morowvat, M.H., Ghasemi, Y., 2016. Evaluation of antioxidant properties of some naturally isolated microalgae: Identification and characterization of the most efficient strain. *Biocatalysis and Agricultural Biotechnology*, 8: 263-269.
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50. Nikbakht, M., Gholami, A., Morowvat, M.H., Ghasemi, Y., Mohagheghzadeh, A., 2016. Analysis of volatiles and 18S rRNA gene of *Haplophyllum canaliculatum* in *in vitro* cultures. *Research Journal of Pharmacognosy*, 3 (4): 17-25.
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52. Zarei, M., Mobasher, M.A., Morowvat, M.H., Mousavi, P., Montazeri-Najafabady, N., Hajighahramani, N., Ghasemi, Y., 2016. Effects of menthone and piperitone on growth, chlorophyll *a* and β -carotene production in *Dunaliella salina*. *Journal of Applied Pharmaceutical Science*, 6 (9): 215-219.
53. Mousavi, P., Morowvat, M.H., Montazeri-Najafabady, N., Abolhassanzadeh, Z., Hamidi, M., Niazi, A., Ghasemi, Y., 2016. Investigating the effects of phytohormones on growth and β -carotene production in a naturally isolates strain of *Dunaliella salina*. *Journal of Applied Pharmaceutical Science*, 6 (8): 164-171.
54. Montazeri-Najafabady, N., Negahdaripour, M., Salehi, M.H., Morowvat, M.H., Shaker, S., Ghasemi, Y., 2016. Effects of osmotic shock on production of β -carotene and glycerol in a naturally isolated strain of *Dunaliella salina*. *Journal of Applied Pharmaceutical Science*, 6 (8): 160-163.
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56. Mosaviyam, B., Ramezani, A., Morowvat, M.H., Niazi, A., Mousavi, P., Moghadam, A., Zarrini, G., Ghasemi, Y., 2016. HSP70 gene expression analysis in *Dunaliella salina* under salt stress. *International Journal of Pharmacognosy and Phytochemical Research*, 8 (5): 767-770.

57. Rafiee, B., Morowvat, M.H., Rahimi-Ghalati, N., 2016. Comparing the effectiveness of dietary vitamin C and exercise interventions on fertility parameters in normal obese men. *Urology Journal*, 13 (2): 2635-2639.
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59. Faridi, P., Rezaei, Z., Mohagheghzadeh, A., Hamidpour, M., Morowvat, M.H., Khalaj, A., Ghasemi, Y., 2015. Chemical composition and antimicrobial activity of volatile oil of *Phoenix dactylifera* staminate flower spikes. *International Journal of Pharmacognosy and Phytochemical Research*, 7 (6): 1139-1141.
60. Shaker, S., Nemati, A., Montazeri-Najafabady, N., Mobasher, M.A., Morowvat, M.H., Ghasemi, Y., 2015. Treating urban wastewater: Nutrient removal by using immobilized green algae in batch cultures. *International Journal of Phytoremediation*, 17: 1177-1182.
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63. Morowvat, M.H., Babaeipour, V., Rajabi-Memari, H., Vahidi, H., 2015. Optimization of fermentation condition for recombinant human Interferon beta (rhINF- β) production by *Escherichia coli* using response surface methodology. *Jundishapur Journal of Microbiology*, 8 (4): e16236.
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87. Morowvat, M.H., Ghasemi, Y., 2016. Enhancement of recombinant human interferon- β production in high cell density cultivation of *Escherichia coli*. *Current Pharmaceutical Biotechnology*. Submitted.

C.2) GenBank Insertions:

1. Ghasemi, Y., Niknezhad, S.V., Najafpour Darzi, G., Morowvat, M.H, Mousavi, P., Kazemi, A. 2018. *Scenedesmus* sp. VN 001 18S ribosomal RNA gene, partial sequence. NCBI, MG653564.1, GI: 1476493962.
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59. Yavari, F., Ghoshoon, M.B., Morowvat, M.H., Mohagheghzadeh, A., Zarrini, G.R., Rasoul-Amini, S., Ghasemi, Y., Characterization of antibacterial activity and 16S rRNA gene of

- Chroococcus dispersus* MCCS 006, 11th Iranian Pharmaceutical Sciences Conference (IPSC). August 18-21, 2008, Kerman, Iran, 82, (poster presentation).
60. Mosavi-Azam, S.B., Ghoshoon, M.B., Morowvat, M.H., Mohagheghzadeh, A., Rasoul-Amini, S., Ghasemi, Y., In Vivo bioconversion of carvone and menthone by *Desmodesmus communis* MCCS 010, 11th Iranian Pharmaceutical Sciences Conference (IPSC). August 18-21, 2008, Kerman, Iran, 81, (poster presentation).
61. Ghoshoon, M.B., Morowvat, M.H., Moshavash, M., Shokravi, Sh., Mohagheghzadeh, A., Rasoul-Amini, S., Ghasemi, Y., Metabolism of limonene and characterization of 18S rRNA gene in *Chlorella vulgaris* MCCS 012, 11th Iranian Pharmaceutical Sciences Conference (IPSC). August 18-21, 2008, Kerman, Iran, 80, (poster presentation).
62. Raei, M.J., Ostovan, Z., Morowvat, M.H., Shokravi, Sh., Mohagheghzadeh, A., Rasoul-Amini, S., Ghasemi, Y., Biotransformation of thymol, carveol and linalool by a natural isolate of *Oocystis pusilla*, 11th Iranian Pharmaceutical Sciences Conference (IPSC). August 18-21, 2008, Kerman, Iran, 80, (poster presentation).
63. Nikbakht, M., Gholami, A., Mohagheghzadeh, A., Faridi, P., Morowvat, M.H., Abolhassanzadeh, Z., Ghasemi, Y., Analysis of volatiles and 18S rRNA of *Haplophyllum canaliculatum* in vitro cultures, PSE Young Scientists meeting, Future Trends in Phytochemistry: Compounds-Enzymes-Genes, Bad herrenalb, Germany, Mar, 26-29, SL26, (poster presentation).
64. Ghasemi, Y., Morowvat, M.H., Rasoul-Amini, S., Mohagheghzadeh, A., Shokravi, Sh., Khalaj, A., Abolhassanzadeh, Z., Phylogenetic relationship among various strains of some naturally isolated microalgae from South of Iran based on 18S rRNA sequences, The first international congress on Health Genomics and Biotechnology & The 5th National Biotechnology Conference & 4th Iranian Congress of Genetic Disorders & Disabilities, Tehran, Iran, Nov, 24-26, 2007, 10042, (poster presentation).
65. Zargarani, A., Mohagheghzadeh, A., Ghasemi, Y., Morowvat, M.H., The First International Congress of Medical Law in Iran, Medical Ethics in Ancient Persia, Tehran, Iran, Nov, 14-15, 2007, (Poster Presentation).
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 70. Nouri, F., Morowvat, M.H., Ghasemi, Y., Rasoul-Amini, S., Mohagheghzadeh, A., Shokravi, Sh., Production of prednisolone using *Chlamydomonas reinhardtii*, The 13th Seminar of Iranian Pharmacy Students, November, 1-3, 2007, Tabriz, Iran, E518, (poster presentation).
 71. Parvizi, R., Morowvat, M.H., Ghasemi, Y., Rasoul-Amini, S., Mohagheghzadeh, A., Shokravi, S., Progesterone side-chain cleavage by *Oocystis pusilla*, The 13th Seminar of Iranian Pharmacy Students, November, 1-3, 2007, Tabriz, Iran, E528, (poster presentation).
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 73. Ghoshoon, M.B., Morowvat, M.H., Ghasemi, Y., Rasoul-Amini, S., Mohagheghzadeh, A., Shokravi, Sh., Characterization of antimicrobial activity and 16S rRNA gene of *Nostoc muscorum*, The 13th Seminar of Iranian Pharmacy Students, November, 1-3, 2007, Tabriz, Iran, E506, (poster presentation).
 74. Morowvat, M.H., Ghasemi, Y., Rasoul-Amini, S., Mohagheghzadeh, A., Shokravi, Sh., Single cell protein and PCR amplification of 18S rRNA gene of *Chlorella vulgaris*, The 13th Seminar of Iranian Pharmacy Students, November, 1-3, 2007, Tabriz, Iran, E505, (poster presentation).
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79. Afifi, S., Peymani, P., Morowvat, M.H., Mohagheghzadeh, A., Rasoul-Amini, S., Ghasemi, Y., Production and Evaluation of Single Cell Protein from Naturally Isolated *Scenedesmus* Sp. And *Chlorella vulgaris*. The 6th Research Day of Pharmacy Students, Jan, 2, 2007, Shiraz, Iran, 30 (Poster Presentation).
80. Hourangh, M., Morowvat, M.H., Shokravi, Sh., Mohagheghzadeh, A., Rasoul-Amini, S., Ghasemi, Y., Application of Microalgae in Nanobiotechnology. The 6th Research Day of Pharmacy Students, Jan, 2, 2007, Shiraz, Iran, 27 (Poster Presentation).
81. Raei, M.J., Morowvat, M.H., Ghoshoon, M.B., Ghasemi, Y., Mohagheghzadeh, A., Shokravi, Sh., PCR amplification of cyanobacterial 16S rRNA gene isolated from south of Iran. The 12th Seminar of Iranian Pharmacy Students, November, 1-3, 2006, Sari, Iran, 39 (poster presentation).
82. Moshavash, M., Ostovan, Z., Morowvat, M.H., Ghasemi, Y., Mohagheghzadeh, A., Biotransformation of thymol by *Chlorella vulgaris* isolated from paddy-fields of Fars province. The 12th Seminar of Iranian Pharmacy Students, November, 1-3, 2006, Sari, Iran, 54 (poster presentation).
83. Moradian, A., Ghasemi, Y., Mohagheghzadeh, A., Shokravi, Sh., Morowvat, M.H., Antifungal and antibacterial activity of microalgae collected from paddy-fields of Fars province. 10th Iranian Pharmaceutical Sciences Conference (IPSC). August 21-24, 2006, Tehran, Iran, 92 (poster presentation).
84. Mohagheghzadeh, A., Morowvat, M.H., Ghasemi, Y., Shams Ardekani, M.R., A survey on Iranian ancient medicine. The 11th Seminar of Iranian Pharmacy Students, November, 9-11, 2005, Shiraz, Iran, 21 (poster presentation).
85. Morowvat, M.H., Mohagheghzadeh, A., Ghasemi, Y., Abedtash, H. Research on traditional Iranian physicians. The 5th research day of pharmacy students, faculty of pharmacy, January 2, 2004, Shiraz university of medical sciences, Shiraz, Iran, 14 (poster presentation).

C.5) Research Proposals

1. Morowvat, M.H., Study of the effects of *ackA*, *pta* and *poxB* inhibition by antisense RNA on acetate excretion and recombinant beta interferon expression in *Escherichia coli*. No. 94-01-36-10599, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
2. Morowvat, M.H., Ghasemi, Y., Vector design, construction, cloning and expression of human interleukin-1 receptor antagonist in *Escherichia coli* BL21 (DE3). No. 95-01-36-11913, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
3. Morowvat, M.H., Ghasemi, Y., Enhancement of human interleukin-1 receptor antagonist production in high cell density cultivation of *Escherichia coli* using fed-batch cultivation strategy. No. 95-01-36-11914, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
4. Morowvat, M.H., Ghasemi, Y., Culture medium optimization to maximize the human interleukin 1 receptor antagonist production and minimize the acetate excretion. No. 95-01-36-11915, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
5. Morowvat, M.H., Ghasemi, Y., Aghaleh, M., Evaluating the cytotoxicity of monolayered and multilayered carbon nanotubes as a scaffold for human chondrocyte stem cell precursors and optimizing the operating conditions. No. 1396-01-36-14521, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
6. Morowvat, M.H., Farshad, O., Evaluating the cytotoxicity of monolayered and multilayered carbon nanotubes on three different human cell lines. No. 1396-01-36-14612, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
7. Morowvat, M.H., Ghasemi, Y., Metabolic changes of recombinant *Escherichia coli* BL21 (DE3) during overexpression of recombinant human interleukin 1 receptor antagonist in HCDC. No. 95-01-36-11916, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
8. Morowvat, M.H., Cloning, expression and enhancement of recombinant human teriparatide production in *Escherichia coli*. No. 1396-01-36-16033, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
9. Morowvat, M.H., Evaluation of single chain variable fragment ranibizumab in *Escherichia coli* prokaryotic host. No. 1396-01-36-15981, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
10. Morowvat, M.H., Ghasemi, Y., Abdollahi, E., Irajie, C., Laboratory scale production of the biosimilar form of pegylated uricase (Pegloticase). No. 1396-01-106-16312, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
11. Morowvat, M.H., Culture medium optimization to maximize the recombinant human teriparatide production and minimize the acetate excretion. No. 1396-01-36-16039, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.

12. Morowvat, M.H., Bioengineered host cells through CRISPR-Cas9 genome editing system as the next-generation of cell factories. No. 97-01-36-16814, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
13. Morowvat, M.H., Entezar-Almahdi, E., Functionalizing carbon nanotubes as a successful tool for promoting the pharmacokinetic aspects. No. 97-01-36-16808, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
14. Morowvat, M.H., Ghasemi, Y., Studying the effects of different phosphorous concentrations on biomass and β -carotene production in nitrogen starved *Dunaliella salina*. No. 95-01-36-11911, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
15. Morowvat, M.H., Ghasemi, Y., Effect of sulfur starvation on growth rate, biomass and lipid contents in the green microalgae *Scenedesmus obliquus*. No. 95-01-36-11912, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
16. Morowvat, M.H., Roointan, A., Road to future of systems biotechnology: CRISPR-Cas mediated metabolic engineering for recombinant protein production. No. 94-01-36-10630, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
17. Morowvat, M.H., Ghasemi, Y., Goharian, S., Investigation of antioxidant properties of three naturally isolated microalgae: Identification and bioinformatic evaluation of the most efficient strain. No. 94-01-103-10726, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
18. Morowvat, M.H., Ghasemi, Y., Khademi, H., Effect of nitrogen and sulfur starvation on beta carotene production and lipid profile of *Dunaliella salina*. 94-01-103-10728, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
19. Morowvat, M.H., Ghasemi, Y., Sajadian, S.F., Investigation of autotrophic, heterotrophic and mixotrophic culture on lipid and biomass content in *Chlorella vulgaris*. No. 94-01-103-10730, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
20. Morowvat, M.H., Enhancement of recombinant human interferon- β production in high cell density cultivation of *Escherichia coli*. No. 94-01-36-10598, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
21. Morowvat, M.H., Ghasemi, Y., Shaker, S., Effect of nutrient starvation on beta carotene production and lipid profile of *Dunaliella salina*. No. 94-01-36-9445, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
22. Morowvat, M.H., Ghasemi, Y., The impacts of nitrogen starvation on expression profiles of genes involved in triacylglycerol (TAG) biosynthesis in *Chlamydomonas reinhardtii*. No. 93-01-36-7856, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.

23. Morowvat, M.H., Ghasemi, Y., Developing a robust method for quantification of β -carotene in *Dunaliella salina* biomass using HPLC method. No. 93-01-36-7943, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
24. Morowvat, M.H., Ghasemi, Y., Fourier Transform Infrared (FTIR) spectroscopy for rapid determination of lipid accumulation under sulfur limitation in *Chlamydomonas reinhardtii* microalga. No. 93-01-36-7939, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
25. Morowvat, M.H., Ghasemi, Y., Effects of spray drying conditions on the β -carotene content of powdered *Dunaliella salina*. No. 93-01-36-7940, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
26. Morowvat, M.H., Ghasemi, Y., Evaluation of antioxidant properties of some naturally isolated microalgae Identification and characterization of the most efficient strain. No. 93-01-36-7941, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
27. Morowvat, M.H., Ghasemi, Y., Medium optimization by artificial neural networks for maximizing the triglycerides-rich lipids from biomass of *Chlorella vulgaris*. No. 93-01-36-7942, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
28. Morowvat, M.H., Ghasemi, Y., Effects of nitrogen concentration and media replacement on cell growth and lipid production in photosynthetic microalga *Chlorella vulgaris*. No. 93-01-36-7728, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
29. Morowvat, M.H., Ghasemi, Y., Maximizing biomass and lipid production in heterotrophic culture of *Chlamydomonas reinhardtii*. No. 93-01-36-7748, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
30. Morowvat, M.H., Ghasemi, Y., Optimisation of culture medium for enhanced biomass production by *Dunaliella salina*. No. 93-01-36-7749, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
31. Morowvat, M.H., Ghasemi, Y., Screening of some naturally isolated microalgal strains for poly unsaturated fatty acids (PUFA) production. No. 93-01-36-7750, Research deputy, Shiraz University of Medical Sciences, Shiraz, Iran.
32. Morowvat, M.H., Vahidi, H., Babaeipour, V., Rajabi-Memari, H., Study of the effects of *ackA* and *pta* inhibition by antisense RNA on acetate excretion and recombinant beta interferon expression in *Escherichia coli*, No. 1391-1-94-9518, Research deputy, Faculty of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
33. Morowvat, M.H., Vahidi, H., Babaeipour, V., Enhancement of recombinant human interferon- β production in high cell density cultivation of *Escherichia coli* including RNA antisense of *ackA* and

- pta* genes, No. 1391-1-94-9557, Research deputy, Faculty of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
34. Morowvat, M.H., Determination of growth kinetics of *Escherichia coli* BL21 (DE3) during interferon beta production, No. 1391-1-150-9422, Student Research Committee, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
 35. Morowvat, M.H., Down regulation of acetate production using antisense RNA technology in *Escherichia coli*, No. 1391-1-150-9404, Student Research Committee, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
 36. Morowvat, M.H., Enhancement of recombinant human interferon- β production in high cell density cultivation of *Escherichia coli* using metabolic engineering method, No. 1391-1-150-9413, Student Research Committee, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
 37. Morowvat, M.H., Application of different methods to regulate acetate production in *Escherichia coli* during recombinant protein production, No. 1391-1-150-9415, Student Research Committee, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
 38. Morowvat, M.H., No. 1391-1-150-9420, Design and construction of a general plasmid containing antisense RNA against *ackA* and *pta* in *Escherichia coli*. Student Research Committee, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

D) Workshops:

1. EndNote, July 11, 2012, Tehran, Iran.
2. Writing and Publishing a Scientific Paper, July 10, 2012, Tehran, Iran.
3. IPM-NUS Workshop on Computational Biology, April 5-7, 2011, Tehran, Iran.
4. Gene Delivery. January 29, 2009, Tehran, Iran
5. PCR amplification and electrophoresis of small subunit nuclear rRNA gene of microorganisms. December 25, 2007, Shiraz, Iran, (as lecturer).
6. Introduction to medical databases, December 14, 2007, Shiraz, Iran.
7. Two-dimensional electrophoresis and proteomics, November 27-29, 2007, Tehran, Iran.
8. Principles and Usage of Microarray technique in Molecular Biology, October 29-November 1, 2007, Shiraz, Iran.
9. Advance methods in DNA & RNA electrophoresis, October 29-November 1, 2007, Shiraz, Iran.
10. Two-Dimensional Electrophoresis and IEF, October 29-November 1, 2007, Shiraz, Iran.
11. Real Time PCR, October 29-November 1, 2007, Shiraz, Iran.

12. Bioinformatics and its Application in Biotechnology, October 23-27, 2007, Tabriz, Iran.
13. The first International workshop on Microalgal Biotechnology, September 9-10, 2007, Tabriz, Iran.

E) Laboratory and Technical skills:

- PCR, Gel electrophoresis, SDS PAGE, Gel doc.
- DNA and RNA extraction, Plasmid extraction, RFLP, Transformation, Cloning
- Cell culture of microalgae, some bacteria and some mammalian cells
- Scale-up of recombinant proteins production using bioreactor
- Medium and strain optimization for recombinant protein production
- Isolation of microorganisms from nature and screening them for production of bioactive compounds
- Gram staining of bacteria
- 16S rRNA and 18S rRNA amplification of microalgae and plants and some bacteria
- Application of bioinformatics in biotechnology
- Extraction of lipids from microalgae, esterification and detecting them using GC-MS apparatus
- Antimicrobial activity, MIC, and composition of essential oils of plants using GC/MS apparatus
- Common laboratory skills (PH meter, Spectrophotometry, Centrifuge ...)
- Computer based skills (Microsoft office word, power point, publisher, Photoshop ...)
- Language based skills (professional in English, expert in German, acquaintance to Old Persian languages).

F) Activities:

- Member of editorial committee of the Microbial Fuel Cell, July 2010-now.
- Member of editorial committee of the Iranian Journal of Pharmaceutical Research (IJPR), January 2010-now.

- Member of editorial committee of the Biofuel Research Journal, August 2014-now.
- Member of the referee committee of the 14th seminar of Iranian pharmacy students, February 11-14, 2009, Ahvaz, Iran.
- Member of the referee committee of the 1st global student scientific-research congress of regional cooperative committees-west division, March, 11-13, 2009, Khoram Abad, Iran.
- Member of the referee committee of 10th Students' International Conference on Biomedical and Interdisciplinary Research (SICOBAIR), May, 14-16, 2009, Tehran, Iran.
- Member of Research committee of students, Shiraz University of Medical Sciences, 2007-8.
- Member of executive committee of the 9th Iranian congress of Toxicology, May, 15-17, 2007, Shiraz, Iran.
- Member of executive committee of the 6th Research Day of Pharmacy Students, January, 2, 2007, Shiraz, Iran.
- Member of executive committee of the university cultural week, December, 1-6, 2006.
- Member of executive committee of the 11th Seminar of Iranian Pharmacy Students, November, 9-11, 2005, Shiraz, Iran.
- Member of editorial committee of Ahouraii magazine, 2004-5.

G) Awards:

- Awarded prize for the best elite researcher in 4th Congress of Iran's National Elites, Oct 2010, Tehran, Iran.
- Awarded prize for the best researcher student in 15th Razi Research Festival on Medical Sciences, Jan 2010, Tehran, Iran.
- Awarded prize for the best researcher student in Shahid Beheshti University of Medical Sciences, Dec 2008, Tehran, Iran.
- Awarded prize for the best poster presentation at the 11th Seminar of Iranian Pharmacy Students, Nov, 9-11, 2005, Shiraz, Iran.

H) Membership:

- Iran's National Elites Foundation
- Medical Council of Islamic Republic of Iran
- Iranian Society of Bioinformatics
- Iranian Society of Biotechnology

I) Research Interests:

- Metabolic and Bioprocess Engineering of *Escherichia coli*
- Systems and Synthetic Biology
- Microalgal Biotechnology
- Pharmaceutical Biotechnology
- Microalgal Biofuels
- Monoclonal Antibodies Production

J) Work Experiences:

- Technical assistant at Sina Darou Pharmaceutical Company
- Visitor researcher at CinnaGen Pharmaceutical Biotechnology Company
- Visitor researcher at Zist Darou Danesh Pharmaceutical Biotechnology Company
- Novel Technologies Advisor at Shafa Pharmed Pharmaceutical Biotechnology Company
- Scientific Advisor at Iranian Green Future (Algomed®) Pharmaceutical Company

K) Teaching Experiences:

- Pharmaceutical Biotechnology, to Pharmacy students, School of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran; 2014-now.
- Biological Products, to Pharmacy students, School of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran; 2014-now.

- Fundamentals and Principles of Engineering in Medical Biotechnology, to PhD students of Medical Biotechnology, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran; 2014-now.
- Biosafety, to PhD students of Medical Biotechnology, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran; 2014-now.
- Nanobiotechnology, to PhD students of Pharmaceutical Biotechnology, School of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran; 2014-now.
- Cell Culture, to PhD students of Pharmaceutical Biotechnology, School of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran; 2014-now.
- Biology and Genetic Engineering, to PhD students of Pharmaceutical Biotechnology, School of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran; 2014-now.

L) Supervised Theses and Dissertations:

- Pharm. D. students' theses, 15.
- PhD. Students, 5
- DDS Students, 2

M) References:

1. Dr. Y. Ghasemi, Professor in Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran, E-mail: Ghasemiy@sums.ac.ir
2. Dr. H. Vahidi, Professor in Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Shahid Beheshti University of Medical Sciences, Tehran, Iran, E-mail: Hovahidi@yahoo.com