Seyed Mahdi Ziaratnia (PhD)

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B. Research background

1. **Tissue culture Saffron and production of stigma like tissue.**
2. **Micropropagation and root induction of seedless barberry (*Breberis vulgaris*).**
3. **Micropropagation of a miniature Rose (Baby masquerade) *via* Tissue culture.**
4. **Production of potato virus free seed by meristem culture.**
5. **Germination and microtuber production of Black cumin (*Bunium persicum*) *via* tissue culture.**
6. **Somatic embryogenesis in Black cumin (*Bunium persicum*).**

C: Education

1. PhD (2009)

University: University of Pretoria, Pretoria, South Africa

Field of study: Plant Biotechnology (Medicinal plants)

PhD thesis title: Identification and characterization of a novel phenolic compound and cinnamte 4-hydroxylase in *Helichrysum aureonitens*

2. MSc. (1995):

University: University of Tarbiat Modarres, Tehran, Iran;

Field of study: Biotechnology (Plant tissue culture)

Master thesis title: Production of Potato Microtuber by *In vitro* Culture

3. B.Sc (1991):

University: University of Gillan, Rasht, Iran

Field of study: Agronomy & Plant Breeding

4. Research interests

According to my 16 years academic and research experience on tissue culture of different plants as well as experience on identification and isolation of an involved gene in flavonoids biosynthetic pathway, expression and purification of Cinnamate 4-hydrixylaze enzyme in the yeast expression system (*Pichia pastoris*) and isolation of a novel compound from one of the South African medicinal plants, I prefer to work on the following research fields.

1. **Cell and tissue culture of medicinal plants.**
2. **Metabolic engineering to increase secondary metabolites in medicinal plants.**
3. **Production of recombinant proteins in micro organisms for enzyme production.**

5. Current projects:

1. **Investigation on *in vitro* production of crocin using cell suspension cultures of saffron (*Crocus sativus*)**
2. **Investigation on callus induction and establishment of cell suspension cultures of Black zira (*Bunium persicum*)**
3. **Investigation on callus induction and establishment of cell suspension cultures of seedless Barberry (*Berberis vulgaris*)**
4. **Investigation on callus induction and establishment of cell suspension cultures of Ceravia (*Carum carvi*)**
5. **Investigation on callus induction and establishment of cell suspension cultures of Kelussia (*Kelussia odoratissima*)**

6. Recent publications:

1) **Khosravinia, S., Ziaratnia, S.M., Bagheri, A.R., Marashi, S.H., 2013. The determination of suitable culture medium and hormone combinations for callus induction and cell suspension culture establishment of *Bunium persicum* (Boiss.) B. Fedtsch. Iranian Journal of Medical and Aromatic Plants. (Accepted).**
2) **Khosravinia, S., Ziaratnia, S.M., Bagheri, A.R., Marashi, S.H., 2013. Investigation of inhibitory activity of cell extracts and comparison of it with the essential oils and seed extracts of *Bunium persicum*. Journal of Research and Innovation in Food Science and Technology (Accepted).**
3) **Ziaratnia, S.M., Mardani, H., Azizi, M., 2012. Application of in vitro cultures for germination and tuberization of black zira *[Bunium persicum* (Boiss.) B. Fedtsch.]. Journal of Research and Innovation in Food Science and Technology. (Accepted).**
4) **Khosravinia, S., Ziaratnia, S.M., Bagheri, A.R., Marashi, S.H., 2012. Isolation and Identification of Scopoletin from Cell Suspension. Cultures of Black Zira (*Bunium persicum*). Crop Biotechnology, 2: 49-56.**
5) **Khosravinia, S., Ziaratnia, S.M., Bagheri, A.R., Marashi, S.H., 2012. Comparison of Cuminaldehyde Contents from Cell Suspension Cultures and Seeds of *[Bunium persicum* (Boiss.) B. Fedtsch.]. Notulae Botanicae Horti Agrobotanici Cluj-Napoca, 4:49-54.**
6) **Abdul-raoof Al-Shawkany,Mohammadreza Nasiri, Saeed Zibaee, Mojtaba Tahmasebi Pour, Seyed Mahdi Ziaratnia, Mohsen Fathi Najafi, Alireza Haghparast, Shahrokh Ghovvati, Seyyed Hassan Pourseyed and Mohammad Rashtibaf, 2012. Amino acid diversity of antigenic sites of Iranian type O foot-and- mouth disease virus. Journal of Cell and Molecular Research 3, 66-74.**
7) **Al-Shawkany, A.R., Nasiri, M. R., Zibaee, S., Tahmasebi Pour, M., Ziaratnia, S.M., Fathi Najafi, M., Haghparast, A.R., 2012. Phylogenetic analysis of the 3C gene of type O foot-and-mouth disease virus field isolate Iran. Animal Sciences Journal (Pajouhesh & Sazandegi) 94:34-42.**
8) **Ziaratnia, S.M., Lall, N., Kunert, K.J., 2009. Elicitation of 7-Methyljuglone in *Drosera capensis*. South African Journal of Botany 75, 97-103.**

9) **Ziaratniaa, S.M., Kiyoshi, O., Husseina, A. A., Muranaka, T., Lall, N., Kunert, K. J., Meyer, J.J. M., 2009. Isolation and identification of a novel chlorophenol from a cell suspension culture of *Helichrysum aureonitens*. Chemical and Pharmaceutical Bulletin 57 (11) 1282-1283.**

7. Conference presentations:

1. **Ziaratnia, S.M., Role of Biotechnology in production of plant secondary metabolites, Key Speech, 3rd Iranian Agricultural Biotechnology Congress. Ferdowsi University of Mashhad, Iran. 3-5 Sep, 2012.**
2. **Ziaratnia, S.M., Salmani, E., Yassini, S.A., Investigation on the effect of plant growth regulators on callus induction of Saffron (*Crocus sativus* L.). 3rd Iranian Agricultural Biotechnology Congress. Ferdowsi University of Mashhad, Iran. 3-5 Sep, 2012.**
3. **Ziaratnia, S.M., Salmani, E., 2012. Investigation on the effect of plant growth regulators on callus induction of seedless Barberry (*Berberis vulgaris*). 3rd Iranian Agricultural Biotechnology Congress. Ferdowsi University of Mashhad, Iran. 3-5 Sep, 2012.**
4. **Isolation and identification of a fluorescent compound from cell suspension cultures of Black zira [*Bunium persicum* (Boiss.) B. Fedtsch.]. 3rd Iranian Agricultural Biotechnology Congress. Ferdowsi University of Mashhad, Iran. 3-5 Sep, 2012.**
5. **Khosravinia, S., Ziaratnia, S.M., Bagheri, A.R., Marashi, S.H., Effect of different levels of growth regulators on callus induction of [*Bunium persicum* (Boiss.) B. Fedtsch.]. 12th Iranian Genetics Conference. May 21-23, 2012.**
6. **Khosravinia, S., Ziaratnia, S.M., Bagheri, A.R., Marashi, S.H., Composition of essential oils from cells suspension cultures of Bunium persicum (boiss.) by supercritical fluid, solvent and hydrodistillation methods. National Congress on on Medicinal plants**
7. **Mardani, H., Ziaratnia, S.M., Azizi, M., Application of in vitro cultures for germination and tuberization of black zira [Bunium persicum (Boiss.) B. Fedtsch.]. National Congress on Medicinal plants. May 16-17, 2012**

8. **Ziaratnia, S.M., Kiyoshi, O., Hussein, A.A., Muranaka, T., Lall, N., Kunert, K.J., Meyer, J.J.M. Isolation and identification of a novel chlorophenol from a cell suspension culture of *Helichrysum aureonitens*. South African Association of Botanists - 2009.**
9. **Ziaratnia, S.M., Hussein, A.A., Kiyoshi, O., Muranaka, T., Kunert, K.J., Meyer, J.J.M. A novel phenolic compound and an alternative biosynthetic pathway for flavonoids in *Helichrysum aureonitens*. South African Association of Botanists- 2008.**
10. **Ziaratnia, S.M., Meyer, J.J.M., Kunert, K.J., Lall, N., Elicitation of 7-Methyljuglone in Drosera capensis. South African Association of Botanists - 2006.**

D: Research and academic position background

1. **Research Institute of Science and Food Technology (RISFT) (1995 till now)**
   Position: Researcher
   Mashad-Iran

2. **Iranian Research Organization for Science and Technology (IROST) (1993 till 1995)**
   Position: Researcher
   Shiraz-Iran;
   Field of work: Biotechnology (Plant tissue culture)

E: WORKSHOPS (INSTRUCTOR AND LECTURER)

- **Gene Cloning and Expression in *Saccharomyces cerevisiae*, by: RIFST, RVSRI, FIB (Mashhad-Iran) 2012.**

- **Gene Cloning and Expression in *Escherichia coli*, by: RIFST, RVSRI, FIB (Mashhad-Iran), 2011.**
- **Gene Cloning and Expression in *Pichia pastoris*, by: RIFST, RVSRI, FIB (Mashhad-Iran), 2011.**
- **1st Workshop on Plant Tissue Culture; Sponsored by: IROST (Mashad-Iran) 1**
- **2nd Workshop on Plant Tissue Culture; Sponsored by: IROST&KAEC (Mashad-Iran) 2000.**
- **3rd Workshop on Plant Tissue Culture; Sponsored by: IROST&KAEC (Mashad-Iran) 2002.**
- **4th Workshop on Plant Tissue Culture; Sponsored by: IROST & KAEC (Mashad-Iran) 2002.**

Note: Khorasan Agricultural Education Center (KAEC), Research Institute of Food Science and Technology (RIFST), Institute of Biotechnology-Ferdowsi University of Mashhad (FIB), Razi Vaccine and Serum Research Institute- North East Branch (RVSRI)

8. Award for academic excellence

Title: Third Ferdowsi Festival award for the research project of "Propagation of miniature Rose (Baby masquerade) *via* Tissue culture".

Given by: President of Ferdowsi University of Mashhad- 2000

G: REFEREES

1- Prof. JJ Marion Meyer (Head of Department of Plant Science, University of Pretoria- South Africa).

Email: marion.meyer@up.ac.za

2- Prof. Karl Kunert (Professor at Department of Plant Science, University of Pretoria- South Africa).

Email: karl.kunert@fabi.up.ac.za

3- Prof. Toshya Muranaka (Professor at Kihara Institute for Biological Research, Yokohama City University, Yokohama, Kanagawa-Japan) .

Email: muranaka@yokohama-cu.ac.jp

4- Dr. Christine Maritz-Oliver (Department of Genetics, University of Pretoria- South Africa).

Email: christine.maritz@up.ac.za

5- Prof. Ahmed A. Hussein, (Department of Natural Sciences), University of Western Cape- South Africa).

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