

# *Curriculum vitae*

## **Farnoosh Fattahi**

**Assistant professor, Tarbiat Modares University (TMU)**

**Physiology and Breeding of Medicinal Plants**

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## **EDUCATION**

- **Ph.D.** in Horticultural sciences – Physiology and Breeding of Medicinal, Spice and Beverage plants, Department of Horticultural Sciences, Agriculture faculty, Tarbiat Modares University .Tehran- Iran. 2015.

Supervisor: Dr. Abdolali Shojaeiyan. GPA: 18.03/20, Grade of thesis: Excellent

### Ph.D. Thesis

Establishment of Tropane Alkaloids Production System in Hairy root with Emphasis on *Hyoscyamus* spp.

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- **M.SC.** of Horticultural Sciences- Medicinal Plants, Department of Horticultural Sciences, Agriculture faculty, Tarbiat Modares University .Tehran- Iran. 2009,

Supervisor: Professor Reza Omidbiagi. Grade of thesis: Excellent

### M.S. Thesis

The Effect of Harvest Time on the Essential Oil Quantity and Quality of Lemon Thyme (*Thymus × citriodorus* (pers.) Schreb).

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- **B.Sc.** Degree in the field of Horticultural Sciences Engineering, Department of Horticultural Sciences, Agriculture faculty, Shiraz University, Shiraz- Iran , 2000.

## Sabbatical

Training period on hairy root cultures and tropane alkaloid production of Solanaceae family species, Pharmacy faculty of Barcelona University, Brcelona, Spain. (2013-2014) Under supervision of **prof. Javier Palazon**

## Fields of Interests

- Metabolic engineering for the improvement of secondary metabolite production
- Analysis of phytochemicals using HPLC, GC and GC/Mass
- Plant secondary metabolite production by hairy roots (*Agrobacterium rhizogenes*)
- Effect of biotic and abiotic elicitors on plant secondary metabolite production.
- Scaling up of plant secondary metabolites production by bioreactor.
- Plant secondary metabolite production by biotransformation and every new method.
- Plant bioactive compounds bioassay

## Language

- Persian (Native language)
- English (Good command in English)

## Lectures and Teaching

### Tarbiat Modares University | 2016- Continued

- “Medicinal and Industrial plants” for M.S. students
- “Biotechnology in Rangeland” for M.S. students
- “Utilization and Processing of Medicinal and Industrial Plants” for M.S. students

## Honers and Awards

- Awarded as a first rank in Ph.D. entrance exam
- First rank Ph.D. graduate (2015)
- Third rank B.Sc. graduate (2000)

## Workshops/training courses attended

- Regional Experts Meeting and Workshop on Herbal Medicine Processing Including Extraction, Standardization, Processing, Formulation, Packaging and Commercialization. Tehran. Iran.
- First international workshop on breeding for (a) biotic Resistance and Quality. Which was held at the college of Abouraihan, University of Tehran. Iran.
- Workshop on primer designing- gene analysis, promoter and sequence. Medicinal plant and Drug research Institute of Shahid Beheshti University

## Presentations

- Fattahi, F. 2010: "Introduction on GC, GC/Mass, and HPLC analysis" Presented at Department of Horticulture, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran.
- Fattahi, F. 2010: "Introduction on breeding of medicinal plants and improvement of secondary metabolite production" Presented at Department of Horticulture, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran.
- Fattahi, F. 2010: "Introduction on secondary metabolite engineering" Presented at Department of Horticulture, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran.
- Fattahi, F. 2010: "Survey on cultivation, harvesting and medicinal properties of *Agromonia eupatoria* L." Presented at Department of Horticulture, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran.
- Fattahi, F. 2010: Survey on cultivation, harvesting and medicinal properties of *Equisetum arvense* L. Presented at Department of Horticulture, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran.

## Publications

### Papers in Refereed Journals (ISI)

**Yousefvsnd, S., Fattahi, F., Hosseini, S. M., Urech, K., and Schaller, G.** (2022). Viscotoxin and lectin content in foliage and fruit of *Viscum album* L. on the main host trees of Hyrcanian forests. *Scientific Reports*, 12, 10383. <https://doi.org/10.1038/s41598-022-14504-3>

**Soursouri, A., Hosseini, S. M., and Fattahi, F.** (2022). Triterpene acids variations in *Viscum album* L. growing on typical host trees of Hyrcanian forests in different seasons (Submitted to a journal)

**Lotfizadeh, Kh., Fattahi, F., NejadEbrahimi, S.** (2022). Effect of different phonological stages and organ type on the quantity and quality of phenolic compounds and the antibacterial effect of Pilerwort (*Ficaria kochii* (Ledeb.) Iranshahr & Rech.f) (Submitted to a journal)

**Fattahi, F., Shojaeiyan, A., Palazon, J., Moyano, E., and Torras-Claveria, L.** (2021). Methyl- $\beta$ -cyclodextrin and coronatine as new elicitors of tropane alkaloid biosynthesis in *Atropa acuminata* and *Atropa belladonna* hairy root cultures. *Physiologia Plantarum*, 172(4), 2098-2111.

**Soursouri, A., Hosseini, S. M., and Fattahi, F.** (2019). Biochemical analysis of European mistletoe (*Viscum album* L.) foliage and fruit settled on Persian ironwood (*Parrotia persica* CA Mey.) and hornbeam (*Carpinus betulus* L.). *Biocatalysis and Agricultural Biotechnology*, 22, 101360

**Fattahi, F., Shojaeiyan, A., Askari, H., Naghdi Badi, H. and Mirmasoumi, M.** (2015). The effect of different physicochemical treatments on seed germination of *Datura innoxia* Mill. *Quarterly Eco-Phytochemical Journal of Medical Plants*. 9(1): 32-42. (In Persian)

**Fattahi, F., Shojaeiyan, A., Askari, H., Naghdi Badi, H., Ayyari, M., Mokhtassi-Bidgoli, A. and Palazon Barandela, J.** (2015). Quantitative Assessment of Hyoscyamine and Scopolamine Tropane Alkaloids in Root and Shoot of *Hyoscyamus* spp. from Iran *Journal of Medicinal Plants*. 56: 105-114. (In Persian)

**Omidbaigi, R., Fattahi, F., Fattahi, F. and Karimzadeh, Gh.** (2010). Harvest time affect on the herb yield and essential oil content of lemon thyme (*Thymus  $\times$  citriodorus* (Pers.) Schreb). *Iranian Journal of Medicinal and Aromatic Plants*. 26(3): 317-325. (In Persian)

**Omidbaigi, R., Fattahi, F. and Alirezalu, A.** (2009). Essential oil content and composition of *Thymus×citriodorus* L. at different phenological stages. Journal of Essential Oil Bearing Plants. 12(3): 333-337

**Omidbaigi, R., Dadman, B. and Fattahi, F.** (2008). Influence of nitrogen fertilizer on the herb yield, essential oil content and composition of *Tagetes minuta* L. Journal of Essential Oil Bearing Plants. 11(1): 45-52.

## Conferences Papers

**Lotfizadeh, Kh., Fattahi, F.** (2021). The Effect of hydro ethanolic extract of *Ficaria kochii* (Ledeb.) Iranshahr and Rech.f. flower organ in the full flowering stage against *Escherichia coli*. The first national conference on medicinal plants for entrepreneurship and commercialization. University of Jiroft. Iran.

**Lotfizadeh, Kh., Fattahi, F.** (2021). Phytochemical study of hydro ethanolic and ethylacetate extract of leaves of *Ficaria kochii* (Ledeb.) Iranshahr & rech.f. at different phenological stages of growth. The first national conference on medicinal plants for entrepreneurship and commercialization. University of Jiroft. Iran.

**Lotfizadeh, Kh., Fattahi, F., NejadEbrahimi, S.** (2021). Phytochemical study of hydro alcoholic extract of *Ficaria kochii* (Ledeb.) Iranshahr & Rech.f. leave In the fruiting phenological stage. 12th Iranian horticultural science congress. Vali-e-Asr University of Rafsanjan. Iran.

**Lotfizadeh, Kh., Fattahi, F., NejadEbrahimi, S.** (2021). Comparison of catechin content in ethanolic and ethyl acetate extracts of *Ficaria kochii* (Ledeb.) Iranshahr & Rech.f. terrestrial organ in the vegetative growth. 12th Iranian horticultural science congress. Vali-e-Asr University of Rafsanjan. Iran.

**Lotfizadeh, Kh., Fattahi, F., NejadEbrahimi, S.** (2021). Identification of phenolic compounds and total flavonoid in the ethanol and ethyl acetate extract of the *Ficaria kochii* (Ledeb.) Iranshahr & Rech.f.) root at different phenological stages. The 1st International and 8<sup>th</sup> National Conference on Rangeland Management in Iran. Ferdowsi University of Mashhad, Mashhad, Iran

**Lotfizadeh, Kh., Fattahi, F., NejadEbrahimi, S.** (2021). Identification of phenolic and flavonoid composition of hydroethanolic extract of *Ficaria kochii* (Ledeb.) Iranshahr & Rech.f. flower. The 1st International and 8<sup>th</sup> National Conference on Rangeland Management in Iran. Ferdowsi University of Mashhad, Mashhad, Iran

**Yousefvsnd, S., Fattahi, F., Hosseini, S. M.** (2021). Evaluation of total viscotoxin in foliage of mistletoe plant harvested from Persian ironwood and hornbeam hosts in autumn. University of Jiroft. Iran.

**Yousefvsnd, S., Fattahi, F., Hosseini, S. M.** (2021). Comparison of the amount of total lectin in the foliage of mistletoe settled on Persian ironwood and Hornbeam hosts in the early of fruiting University of Jiroft. Iran.

**Yousefvsnd, S., Fattahi, F., Hosseini, S. M.** (2021). Evaluation of total lectin content of European mistletoe (*Viscum album* L.) foliage settled on Persian ironwood (*Parrotia persica* C. A. Mey. L.) in autumn and winter. 12th Iranian horticultural science congress. Vali-e-Asr University of Rafsanjan. Iran.

**Yousefvsnd, S., Fattahi, F., Hosseini, S. M.** (2021). Quantitative analysis of total lectin content of European mistletoe (*Viscum album* L.) foliage settled on ironwood and hornbeam bases in the flowering stage. 12th Iranian horticultural science congress. Vali-e-Asr University of Rafsanjan. Iran.

**Yousefvsnd, S., Fattahi, F., Hosseini, S. M.** (2021). Evaluation of total lectin content of European mistletoe (*Viscum album* L.) foliage settled on *Carpinus betulus* L. in Spring and summer. The 1st International and 8<sup>th</sup> National Conference on Rangeland Management in Iran. Ferdowsi University of Mashhad, Mashhad, Iran

**Yousefvsnd, S., Fattahi, F., Hosseini, S. M.** (2021). Evaluation of total viscotoxin content of European mistletoe (*Viscum album* L.) foliage settled on Persian ironwood (*Parrotia persica* C. A. Mey. L.) in winter and Spring. The 1st International and 8<sup>th</sup> National Conference on Rangeland Management in Iran. Ferdowsi University of Mashhad, Mashhad, Iran

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2020). Quantitative and qualitative analysis of oleanolic, betulinic and ursolic acids in Mistletoe (*Viscum album* L.) settled on *Carpinus betulus* L. at winter season. The annual international congress of new findings in agricultural and natural resources, environment and tourism. Tehran, Iran.

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2020). Quantitative and qualitative analysis of oleanolic, betulinic and ursolic acids in Mistletoe (*Viscum album* L.) settled on *Parrotia persica* C.A.Mey. at summer season (case study: Daeiz forest). The 5th international conference on the new horizons in the agricultural sciences, natural resources and environment. Tehran, Iran.

**Koshki Zamani, Z. and Fattahi, F.** (2020). Identification of flavonoid compounds of hydromethanolic, hydroethanolic and ethyl acetate extracts of *Crocus caspius* Fisch C.A.May. 6th National Congress on Strategic Research in Chemistry and Chemical Engineering with Emphasis on Iranian Native Technologies. Iran

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2020). Biochemical analysis of Mistletoe (*Viscum album* L.) settled on hornbeam (*Carpinus betulus* L.) at summer. 10<sup>th</sup> national conference on sustainable medicinal plants and agriculture. Hamedan, Iran.

**Koshki Zamani, Z. and Fattahi, F.** (2019). Identification of phenolic compounds of ethanolic extract of Caspian Saffron (*Crocus caspius* Fisch C.A.May). 11<sup>th</sup> Iranian Horticultural Science congress. Urmia University. Urmia, Iran

**Fattahi, F., Soursouri, A., Hosseini, S.M.** (2019). Quantity and quality of triterpene acids of *Viscum album* L. on two different host species from Hyrcanian forests of Iran, *Parrotia persica* C.A.Mey. and *Carpinus betulus* L. 7<sup>th</sup> Mistletoe Symposium, **Germany.**

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2019). Quantitative and qualitative analysis of triterpenic Acids in Mistletoe settled on *Parrotia Persica* C.A.Mey. at fruiting stage. National conference on knowledge and technology of agricultural sciences, natural resources and environment of Iran. Tehran, Iran.

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2019). Quantitative and qualitative analysis of triterpene acids in Mistletoe settled on *Parrotia persica* C.A.Mey. at Spring Season. The 5<sup>th</sup> international conference on new research finding in agriculture, natural resources and environment. Shiraz, Iran.

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2019). Quantitative analysis of betulinic acid in fruit and foliage of Mistletoe settled on *Parrotia Persica* C.A.Mey. at fruiting stage. 9<sup>th</sup> national conference on sustainable medicinal plants and agriculture. Hamedan, Iran.

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2018). Quantitative and qualitative analysis of triterpenic acid contents in Mistletoe settled on *Parrotia Persica* C.A.Mey. of Hyrcanian forests. 7<sup>th</sup> national congress of medicinal plants. Shiraz, Iran.

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2018). Quantitative and qualitative analysis of triterpene acids in mistletoe settled on Hornbeam (*Carpinus Betulus* L.) at full flowering stage. The first national congress and the international exhibition of medicinal plants and Iranian medicines effective on diabetes. Mashhad, Iran

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2018). Quantitative and qualitative analysis of triterpenic acids in fruits of European Mistletoe settled on *Carpinus Betulus* L. at fruiting stage. International congress on agricultural engineering and related industries. Tehran, Iran.

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2018). Comparison of betulinic acid content in European Mistletoes settled on *Parrotia persica* and *Carpinus betulus* at full flowering stage. 1<sup>st</sup> international congress and 2<sup>nd</sup> national conference on biotechnology of medicinal plants and mushrooms. University of Zanjan, Iran.

**Fattahi, F., Shojaeiyan, A., Palazon, J., Moyano, E., Torras-Claveria, L.** (2018). Methyl-  $\beta$ - cyclodextrin and coronatine effect on hyoscyamine and scopolamine content

of hairy root cultures of *Atropa acuminata*. The 66th Annual Meeting of the GA jointly with the 11th S-TCM in Shanghai, **China**.

**Soursouri, A., Hosseini, S.M. Fattahi, F.** (2017). Quantitative and qualitative analysis of triterpenic Acids in Mistletoe settled on *Carpinus betulus* L. in Spring Season. International conference on the new horizons in the agricultural sciences, natural resources and environment. Tehran, Iran.

**Fattahi, F., Shojaeiyan, A., Naghdi Badi, H. A., Mokhtassi-Bidgoli, A. and Palazon Barandela, J.** (2016). Quantitative assessment of hyoscyamine and scopolamine tropane alkaloids in root and shoot of *Hyoscyamus* spp. from Iran. 9th Congress of Iranian Horticultural Science. Ahvaz, Iran.

**Fattahi, F., Shojaeiyan, A., Askari, H. and Palazon Barandela, J.** (2015). Assessment for efficiency of two methods of transformation in some Iranian *Hyoscyamus* spp. and *Atropa acuminata* in order to hairy root production by *Agrobacterium rhizogenes*. 1<sup>st</sup> International and 9<sup>th</sup> National Biotechnology Congress of Islamic Republic of Iran. Shahid Beheshti University. Tehran, Iran.

**Fattahi, F. and Omidbaigi, R.** (2009). Effect of Harvest Time on the Essential Oil Quantity and Quality of Lemon Thyme (*Thymus × citriodorus* (pers.) Schreb). 6<sup>th</sup> National Congress of Horticultural sciences. Gilan university. Gilan. Iran.

**Fattahi, F. and Omidbaigi, R.,** (2007). Research on phonological stages and essential oil quantity of *Marrubium vulgare* which is cultivated in north of Tehran. Iran. The 3rd. National Congress of Medicinal plants. Shahed university. Tehran.Iran.

## Theses Supervisor

- The Effect of *Parrotia persica* C.A.Mey. and *Carpinus betulus* L. as Host Species on some Medicinal Bioactive Compounds of *Viscum album* L. (MSc. thesis).
- Chemical Analysis and Antibacterial Properties Assessment of Some Phenolic Compounds in Flowers and Corms of Caspian Saffron (*Crocus caspius* Fisch C.A.May). (MSc. thesis).
- Effect of Two Host Species in Different Seasons on Viscotoxins and Total Lectin in Mistletoe (*Viscum album* L.). (MSc. thesis).

- The Effect of Different Phenological Stages on the Quantity and Quality of Phenolic Compounds and the Antibacterial Effect of Pilerwort (*Ficaria kochii* (Ledeb.) Iranshahr & Rech.f). (MSc. thesis).

## Membership in Scientific Community

Since 2018 Member in International Society for Medicinal plant and Natural Product Research (GA)