Personal Information

1. **Primary information**
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2. **Overview**

Dr. Akram Sadeghi received her PhD in molecular genetics from Tarbiat Modares University of Iran in 2013, and curently works as Associate Prof. in the Microbial biotechnology Department of Agricultural Biotechnology Research Instituet of Iran (ABRII). Her activities are focused on production of biofertilizers and biopesticides and identification of abiotic stress tolerance mechanisms in Actinomycetes. In addition, she is familiar with different technologies, such as genetic engineering, metagenomics, molecular markers, bioinformatics and functional genomics.

3. Research summary

- **Performed Research**

1. Study on optimum growth conditions and designing formulation for increasing viability of native *Streptomyces* isolates as biocontrol agent
2. Study of the mechanisms of salt tolerance in *Streptomyces* and their relation with biocontrol properties
3. Effect of drought stress and using *Streptomyces* bacterium on yield and yield components of maize hybrid KSC 260
4. The effect of native PGPR *Streptomyces* isolates on wheat salt tolerance
5. Isolation and molecular characterization of *Streptomyces* isolates effective on control of the fungal causal agent of sugar beet damping off and initial root rot
6. Preparation and evaluation of three products based on growth promoting bacteria on greenhouse cucumber, tomato and bell pepper (mega project)

4-Selected Papers

1. Orouji, E., Fathi Ghare baba, M., Sadeghi, A. et al. 2023. Specific *Streptomyces* strain enhances the growth, defensive mechanism, and fruit quality of cucumber by minimizing its fertilizer consumption. BMC Plant Biology 23, 246.
2. Abbasi, S., Alipour Kafi, S, Karimi E, Sadeghi, A . 2022. *Streptomyces* consortium improved quality attributes of bell pepper fruits, induced plant defense priming, and changed microbial communities of rhizosphere under commercial greenhouse conditions. Rhizosphere, 23: 100570.
3. Abbasi, S., Nasirzadeh, F., Mashhadi Akbar Boojar M., Alipour Kafi, S., Karimi, E., Khelghatibana F., Sadeghi, A. 2022. *Streptomyces* strains can improve the quality properties and antifungal bioactivities of tomato fruits by impacting WRKY70 transcription factor gene and nitrate accumulation. Plant Physiology and Biochemistry, 188: 31-37.
4. Abbasi, S., Spor, A., Sadeghi, A., Safaie, N. 2021. *Streptomyces* strains modulate dynamics of soil bacterial communities and their efficacy in disease suppression caused by *Phytophthora capsici*. Scientific reports, 11: 9317
5. Alipour Kafi, S, Karimi, E, Akhlaghi Motlagh, M, Amini, Z, Mohammadi, A, Sadeghi, A. 2021. Isolation and identification of Amycolatopsis sp. strain 1119 with potential to improve cucumber fruit yield and induce plant defense responses in commercial greenhouse. Plant and Soil, 468, 125–145.
6. Alipour Kafi S, Arabhosseini S, Karimi E, Koobaz P, Mohammadi A, Sadeghi A (2021) *Pseudomonas putida* 3-57 induces cucumber (Cucumis sativus L.) defense responses and improves fruit quality characteristics under commercial greenhouse conditions. Scientia Horticulturae 280: 109942
7. Abbasi, S., Sadeghi, A., M Omidvari. Tahan, V. 2021. The stimulators and responsive genes to induce systemic resistance against pathogens: an exclusive focus on tomato as a model plant. Biocatalysis and Agricultural Biotechnology, 101993
8. Fatollahi, P., Ghasemi, M., Yazdian, F., Sadeghi, A. 2021. Ectoine production in bioreactor by *Halomonas elongata* DSM2581: Using MWCNT and Fe-nanoparticle. Biotechnology Progress 37 (1), e3073
9. Abbasi, S., Sadeghi, A., Safaie, N. 2020. Biocontrol of Cucumber Damping-off by *Streptomyces* Strains Producing Siderophore and Cellulase under Extreme Condition. Biological Journal of Microorganism, 9 (33):1-13.
10. Abbasi, S., Sadeghi, A., Safaie, N.2020. *Streptomyces* alleviate drought stress in tomato plants and modulate the expression of transcription factors *ERF1* and *WRKY70* genes. Scientia Horticulturae. 265: 109206.
11. Abbasi, S., Safaie, N., Sadeghi, A., Shamsbakhsh, M. 2020. Tissue-specific synergistic bio-priming of pepper by two *Streptomyces* species against *Phytophthora capsici*. PLoS ONE, 15(3): e0230531.
12. Akbari, AR., Gharanjik S., Koobaz, P., Sadeghi, A. 2020. Plant growth promoting *Streptomyces* strains are selectively interacting with the wheat cultivars especially in saline conditions, Heliyon 6 (2020) e03445.
13. Abbasi, S., Safaie, N., Sadeghi, A., Shamsbakhsh, M. 2019. *Streptomyces* strains induce resistance to *Fusarium oxysporum* f. sp. *lycopersici* race 3 in tomato through different molecular mechanisms. Frontiers in Microbiology. 10:1505.
14. Esmaeil Zade, N. S., Sadeghi, A., Moradi, P. 2019. *Streptomyces* strains alleviate water stress and increase peppermint (*Mentha piperita*) yield and essential oils. Plant and Soil. 434: 441–452.
15. Sadeghi, A., Koobaz, P., Azimi, H., Karimi, E., Akbari, A. R. 2017. Plant growth promotion and suppression of Phytophthora drechsleri damping-off in cucumber by cellulase-producing *Streptomyces*. BioControl. 62: 805-819.

16. Zare, R., Dezfulian, M., Amini, Z., Karimi, E., Sadeghi, A., Rahmati, R. 2018. Isolation and molecular identification of isolates of plant growth promoting *Pseudomonas* and *Bacillus*. Crop Biotech, 24:95-109.
17. Karimi E., Sadeghi A. 2015. Study on optimum growth condition and designing formulation for increasing shelf life of *Streptomyces rimosus* strain c-2012 as biocontrol agent. Biological Journal of Microorganism, 4 (15):109-122.
18. Sadeghi, A, Soltani, BM, Salehi Jouzani, G, Hadavand, H, Khayam Nekouei, M and Sadeghizadeh, M. 2014. Diversity of the ectoines biosynthesis genes in salt tolerant *Streptomyces* and evidence for inductive effect of ectoines on their accumulation. Microbiol Res,169: 699-708.
19. Sadeghi, A, Soltani, BM, Salehi Jouzani, G, Karimi, E, Khayam Nekouei, M and Sadeghizadeh, M. 2014. Taxonomic study of a salt tolerant *Streptomyces* sp. strain C-2012 and the effect of salt and ectoine on lon expression level. Microbiol Res, 169: 232-238.
20. Karimi, E., Sadeghi, A., Abaszadeh Dahaji, P., Dalvand, Y., Omidvari, M., Kakuei Nezhad, M. 2012. Biocontrol activity of salt tolerant *Streptomyces* isolates against phytopathogens causing root rot of sugar beet. Biocontrol Sci Technol 2012; 22: 333-349.
21. Sadeghi, A., Karimi, E., Dahaji, P.A, Ghorbani Javid, M., Dalvand, Y., Askari, H. 2012. Plant growth promoting activity of an auxin and siderophore producing isolate of *Streptomyces* under saline soil conditions. World J Microbiol Biotechnol 2012; 28: 1503-1509.
22. Sadeghi, A., Hesan, A. R., Askari, H., Naderi Qomi, D., Farsi, M., Majidi Hervan, E. 2009. Biocontrol of Rhizoctonia solani damping off of sugar beet with native *Streptomyces* strains under field conditions. Biocontrol Science and Technology, 19: 985-991.

5. Achievements

- **Inventions (Patents):**

- Sadeghi A. (2005) Biocontrol of fungal disease and growth promotion of plant using an abiotic stress resistant *Streptomyces* (Iranian Patent Grant Number:38505275)
- Sadeghi A., et al. (2008), Process of biocontrol of plant pathogens by a *Streptomyce*s strain resistant to environmental stresses (Iranian Patent Grant Number:38710077).
- Karimi E., Sadeghi A., Dalvand Y. (2012) Simple and low coast formulation to increase viability of *Streptomyces* bacteria (Iranian Patent Grant Number:390120785)

- **Books**

- Biosafety aspects of Genetically Modified Plants, Authors: Salehi Jouzani Gholamreza, Masoud Tohidfar and Akram Sadeghi, 2011, ABRII Press, 317 pages.
- An introduction to Bioethics, Authors: Hassan Rahnama, Masoud Tohidfar, Gholamreza Salehi Jouzani, Seyyed Mojtaba Khayam Nekouie, Akram Sadeghi, Saeed Soheilivand, 2008, ABRII Press, 270 pages.

- جوایز
- رونمایی دستاورد توسط مقام محترم رئیس جمهور ۱۳۹۰
- دریافت لوح تقدیر از مقام محترم وزیر کشاورزی ۱۳۹۰
- دریافت لوح تقدیر از مقام محترم استاندار البرز ۱۳۹۰
- کسب عنوان استعداد برتر (اختراع سطح ۳) –۱۳۸۸ داوری شده توسط سازمان پژوهشهای صنعتی و بنیاد ملی نخبگان
- کسب عنوان استعداد برتر (اختراع سطح ۳) –۱۳۹۱ داوری شده توسط سازمان پژوهشهای صنعتی و بنیاد ملی نخبگان

- دریافت لوح تقدیر و جایزه نقدی از مقام محترم شهردار کرج