



ZAHRA SOURI

ASSISTANT PROFESSOR

DEPARTMENT OF BIOLOGY

CONTACT

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Kermanshah, IRAN

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SOFTWARES

- Office Word
- Office PowerPoint
- Office Excel
- Adobe Photoshop
- SPSS

CERTIFICATES

Outstanding M.Sc. (2013)

Distinguished Ph.D. (2015),

Guest Researcher at Wageningen University (2017)

LANGUAGES

English:

Reading ● ● ● ● ●

Writing ● ● ● ● ●

Speaking ● ● ● ● ●

EDUCATION

B.S. in biology, Razi university, Kermanshah, Iran 2005-2009

M.Sc. in plant physiology, Razi university, Kermanshah, Iran 2010-2013

Ph.D in plant physiology, Razi university, Kermanshah, Iran 2013-2018



WORK EXPERIENCE

🔬 Stress Physiology & Phytoremediation Researcher

Assistant Professor with 32 papers, 4 book chapters, and 24 conference presentations. Expertise in heavy metal stress, hyperaccumulators, nanotechnology, and hydroponics.

🌐 International Collaborations

Guest Researcher at Wageningen University, Guest Editor for Frontiers in Plant Science, reviewer for top journals.

🎓 Educator & Graduate Mentor

Teaching plant physiology and biotechnology, supervising Ph.D. and M.Sc. theses, member of scientific societies.

♣️ Nanotechnology & Sustainable Agriculture

Specializing in synthesis and application of nanoparticles for stress mitigation, micronutrient delivery, and phytoremediation enhancement in crops.

📖 Editorial & Peer Review Activities

Guest Editor for Frontiers in Plant Science (Special Issues: Silicon and Heavy Metal Stress; Plant Responses to Arsenic Toxicity). Reviewer for Chemosphere, Ecotoxicology and Environmental Safety, Plant Physiology and Biochemistry.

ABOUT ME

SOFT SKILLS

- Adaptability
- Teamwork
- Leadership
- Time Management
- Communication
- Creativity
- Decision-Making
- Self-Awareness

HARD SKILLS

- Problem Solving
- Critical Thinking
- Phytoremediation
- Hydroponic Culture
- Nanotechnology
- Statistical Analysis

REFERENCES

Name:

Zahra Souri

Job Title:

Assistant Professor

Organization:

Razi University

I am an Assistant Professor of Plant Physiology at Razi University, Iran, with a deep passion for understanding how plants respond to environmental stresses. My research focuses on heavy metal stress, phytoremediation, and the application of nanotechnology to enhance plant tolerance and nutrient efficiency.

With over a decade of experience in teaching and research, I have authored 32 peer-reviewed papers, 4 book chapters, and presented at 24 international conferences. My work has taken me to Wageningen University in the Netherlands as a Guest Researcher, and I collaborate with scientists across Europe and Asia.

Beyond research, I am committed to mentoring the next generation of plant scientists and contributing to sustainable agriculture through innovative, eco-friendly solutions. I believe in the power of science to address global challenges like food security and environmental remediation.

Honors and Awards

Outstanding Graduate Student (M.Sc.) Award, Razi University, Kermanshah, Iran, 2013.

Distinguished researcher (Ph. D student) at Razi University, Kermanshah, Iran, 2015.

ACADEMIC AND RESEARCH EXPERIENCE

Used to work as Guest researcher at Wageningen University, Netherlands, 2017.



RESEARCH INTEREST/EXPERIENCE

- Plant physiology
- Abiotic stress
- Heavy metal stress
- Hyper-accumulator plants
- Nanotechnology
- Hydroponic systems

RESEARCH PLANS

- 1- Improvement the phytoremediation ability of *Isatis cappadocica* through the superparamagnetic iron oxide nanoparticles (Fe_3O_4 @GSH). Iran National Science Foundation (2019), Grant No, 97026162.
- 2- Green synthesis of a novel zinc nanoparticle based on hydrochar and investigation of its nanoprimering on reducing toxicity and accumulation of arsenic in wheat. Iran National Science Foundation (2024), Grant No, 4022184.

PUBLICATIONS

Papers

- 1- Karimi N, **Souri Z**. 2013. Metabolic adaptations to arsenic-induced oxidative stress in *Isatis cappadocica*. Iranian Journal of Plant Physiology, 3 ④, 785-792.
- 2- Karimi N, **Souri Z**. 2013. Effect of different arsenic and phosphorus concentrations on osmolytes contents of *Isatis cappadocica*. Plant Process and Function, 2, 5.
- 3- Karimi N, **Souri Z**. 2014. Evaluation of different levels of arsenic and phosphorus on antioxidant compounds content in *Isatis cappadocica*. Iranian journal of plant biology, 6, 21.
- 4- Karimi N, **Souri Z**. 2015. Evaluation the effect of different arsenic and phosphorus levels on chlorophyll and malondialdehyde content of *Isatis cappadocica*. Plant Process and Function, 4, 11.
- 5- Karimi N, **Souri Z**. 2015. Effect of phosphorus on arsenic accumulation and detoxification in Arsenic Hyperaccumulator, *Isatis cappadocica*. Journal of Plant Growth Regulation, 34, 88-95. DOI: 10.1007/s00344-014-9445-x.
- 6- Karimi N, **Souri Z**. 2016. Antioxidant enzymes and compounds complement each other during arsenic detoxification in shoots of *Isatis cappadocica* Desv. Chemistry and Ecology, 32(10), 937-951. DOI: 10.1080/02757540.2016.1236087.
- 7- **Souri Z**, Karimi N, Sarmadi M, Rostami E. 2017. Salicylic acid nanoparticles (SANPs) improve growth and phytoremediation efficiency of *Isatis cappadocica* Desv., under As stress. IET Nanobiotechnology, 11④: 650-655. DOI: 10.1049/iet-nbt.2016.0202.
- 8- **Souri Z**, Karimi N. 2017. Enhanced Phytoextraction by As Hyperaccumulator *Isatis cappadocica* Spiked with Sodium Nitroprusside. Soil and Sediment Contamination: An International Journal. 26 ④: 457-468. DOI: 10.1080/15320383.2017.1326457.
- 9- **Souri Z**, Karimi N, Luisa M. Sandalio. 2017. Arsenic Hyperaccumulation Strategies: An Overview. Frontiers in Cell and Developmental Biology. 5, 67. DOI: 10.3389/fcell.2017.00067.
- 10- **Souri Z**, Karimi N, de Oliveira L.M. 2018. Antioxidant enzymes responses in shoots of arsenic hyperaccumulator, *Isatis cappadocica* Desv., under interaction of arsenate and phosphate. Environmental Technology, 39(10):1316-1327. DOI: 10.1080/09593330.2017.1329349.
- 11- **Souri Z**, Karimi N. 2018. Interactive of arsenate and phosphate on arsenic-induced oxidative stress in root of *Isatis cappadocica* Desv. Plant Process and Function, 7, 25.

- 12- Farooq M.A, Niazi A, Akhtar J, Saif Ullah, **Souri Z**, Karimi N, Zed Rengel. 2019. Acquiring Control: The Evolution of ROS-Induced Oxidative Stress and Redox Signaling Pathways in Plant Stress Responses. *Plant Physiology and Biochemistry*. 141, 353-369. DOI: 10.1016/j.plaphy.2019.04.039.
- 13- Karimi N, **Souri Z**, Vakili F, Farooq MA, Javaid Akhtar J. 2019. The role of selenium on mitigating arsenic accumulation, enhancing growth and antioxidant responses in metalicolous and non-metalicolous population of *Isatis cappadocica* Desv. and *Brassica oleracea* L. *Environmental Science and Pollution Research*. 26(21), 21704-21716. DOI: 10.1007/s11356-019-05392-8.
- 14- **Souri Z**, Karimi N, Farooq MA, Luisa M. Sandalio. 2020. Nitric oxide improves tolerance to arsenic stress in *Isatis cappadocica* Desv. shoots by enhancing antioxidant defenses. *Chemosphere*. 239, 124523. DOI: 10.1016/j.chemosphere.2019.124523.
- 15- **Souri Z**, Karimi N. 2021. The effect of arsenic and sodium nitroprusside on the physiological responses and antioxidant enzymes activity of *Isatis cappadocica*. *Journal of Plant Process and Function*. 10 (41): 187-208.
- 16- **Souri Z**, Khanna K, Karimi N, Ahmad P. 2021. Silicon and Plants: Current Knowledge and Future Prospects. *Journal of Plant Growth Regulation*. 40: 906-925. DOI: 10.1007/s00344-020-10172-7.
- 17- **Souri Z**, Karimi N, Norouzi L, Ma X. 2021. Elucidating the physiological mechanisms underlying enhanced arsenic hyperaccumulation by glutathione modified superparamagnetic iron oxide nanoparticles in *Isatis cappadocica*. *Ecotoxicology and Environmental Safety*. 206: 111336. DOI: 10.1016/j.ecoenv.2020.111336.
- 18- **Souri Z**, Karimi N, Farooq M.A, da Silva Lobato AK. 2021. Improved physiological defense responses by application of sodium nitroprusside (SNP) in *Isatis cappadocica* Desv. under cadmium stress. *Physiologia Plantarum*. 173:100-115. DOI: 10.1111/ppl.13226.
- 19- **Souri Z**, Karimi N, Norouzi L, Ma X. 2021. The effect of NADPH oxidase inhibitor diphenyleneiodonium (DPI) and glutathione (GSH) on *Isatis cappadocica*, under Arsenic (As) toxicity. *International Journal of Phytoremediation*. 23 ©: 945-957. DOI:10.1080/15226514.2020.1870435.
- 20- Khademi Azam S, Karimi N, **Souri Z**, Vaculik M. 2021. Multiple effects of silicon on alleviation of arsenic and cadmium toxicity in hyperaccumulator *Isatis cappadocica* Desv. *Plant Physiology and Biochemistry*. 168:177-187. DOI:10.1016/j.plaphy.2021.09.027.
- 21- Arianmehr M, Karimi N, **Souri Z**. 2022. Exogenous supplementation of Sulfur (S) and Reduced Glutathione (GSH) Alleviates Arsenic Toxicity in Shoots of *Isatis cappadocica* Desv and *Erysimum allionii* L. *Environ Sci Pollut Res Int*. doi: 10.1007/s11356-022-19477-4.
- 22- **Souri Z**, Farooq M.A, Karimi N. 2023. Editorial: Silicon and heavy metal stress in plants: current knowledge and future prospects. *Front. Plant Sci*. 14:1227863. doi: 10.3389/fpls.2023.1227863.

- 23- Karimi N, Mortezaazadeh A, **Souri, Z.** et al. 2024. Silicon Application Alleviates Arsenic Toxicity in *Isatis* (*Isatis cappadocica* Desv.) by Modulating Key Biochemical Attributes and Antioxidant Defense Systems. *J Plant Growth Regul* 43, 219–230. <https://doi.org/10.1007/s00344-023-11079-9>.
- 24- Karimi N, Khademi Azam S, **Souri Z.** 2024. Investigating the effect of silicon on the growth and some physiological parameters of *Brassica napus* L. under arsenic and cadmium stress. *JOURNAL OF PLANT ENVIRONMENTAL PHYSIOLOGY*. 19 (75), 1-20.
- 25- Soheili M, Karimi N, **Souri Z.** et al. 2025. Mitigation of Nickel Stress-Induced Toxicity in *Odontarrhena inflatum* and *Erysimum cheiri* by Modulating Ion Homeostasis and Antioxidant Defense System. *J Plant Growth Regul* 44, 2425–2444. <https://doi.org/10.1007/s00344-024-11557-8>.
- 26- Karimi N, Pakdel H, **Souri Z.**, Norouzi L. et al. 2025. Effects of phytostabilized Zinc Sulfide nanocomposites on growth and Arsenic accumulation in Wheat (*Triticum aestivum* L.) under Arsenic stress. *Plant Stress*. 16, 100886. <https://doi.org/10.1016/j.stress.2025.100886>
- 27- **Souri Z** and Norouzi L. 2025. Synthesis of Nano-Fertilizer Based on Hydrochar Derived from Plant Waste and Its Effect on Wheat. *Cereal Biotechnology and Biochemistry*. 4③, 317–327
- 28- Karimi N, Nosrati B, **Souri Z.**, Marek Vaculik. 2025. The Dual Role of Sulfur and Selenium in Mitigating Arsenic Toxicity in *Isatis cappadocica* Desv.: A Physiological, and Ionomic Analysis of Stress Responses. *Journal of Soil Science and Plant Nutrition*. 25④, 8941–8950.
- 29- Tahjib-Ul-Arif, M., Zahan, I., Hossain, M.S. ...**Souri Z.**, et al. 2025. Melatonin-mediated ionic homeostasis in plants: mitigating nutrient deficiency and salinity stress. *Discov. Plants* 2, 143.
- 30- Janinejad A, Karimi N, **Souri Z.**, Norouzi L, Sasani S, Farooq M. 2026. Nicotinamide-functionalized nanobiochar enhances iron/zinc bioavailability and wheat growth through controlled micronutrient delivery. *Plant Stress*, 100886.
- 31- **Souri Z.**, Karimi N, Ghanbari E, Norouzi L, Zaid A. 2026. Facile synthesis of ZnO/Biochar Nanocomposites (ZBNcs) and investigation of their nano-priming effects on reducing the accumulation of arsenic (As) in *Triticum aestivum* cv. Azar-2. *BMC Plant Biol*. doi: 10.1186/s12870-026-09168-4.
- 32- **Souri Z.**, Farooq MA and Vaculik M. 2026. Editorial: Understanding plant responses and phytoremediation strategies for arsenic toxicity. *Front. Plant Sci*. 17:1866458. doi: 10.3389/fpls.2026.1866458

Conferences

- 1- **Souri Z**, Karimi N. 2012. Effects of arsenic and phosphorus interaction on their accumulation and some physiological parameters in an arsenic-hyperaccumulator *Isatis cappadocica*. 17th National and 5th International Iranian Biology Conference.
- 2- **Souri Z**, Karimi N. 2012. The study of arsenic and phosphorus interaction on some biochemical parameters of arsenic-hyperaccumulator, *Isatis cappadocica*. 3th annual conference of Razi University.
- 3- **Souri Z**, Karimi N. 2013. The effect of different arsenic and phosphorus concentration on anthocyanin contents of *Isatis cappadocica*. 4th annual conference of Razi University.
- 4- Emamiyan Abadeh T, Karimi N, Ghasempour H.R, **Souri Z**. 2014. Effect of different concentrations of chromium on photosynthetic efficiency and phytoremediation by *Ceratophyllum demersum* L. 3th Iranian Conference of Plant Physiology.
- 5- **Souri Z**, Karimi N. 2014. Evaluation of different levels arsenic and phosphorus on peroxidase enzyme activity in *Isatis cappadocica*. 18th National and 6 th International Congress of Biology in Iran.
- 6- **Souri Z**, Karimi N, Sarmadi M, Rostami E. 2014. The effects of salicylic acid nanoparticle, on growth and photosynthetic pigments of *Isatis cappadocica* under arsenic stress. 18th National and 6 th International Congress of Biology in Iran, (Presentation).
- 7- **Souri Z**, Karimi N, Sarmadi M, Rostami E. 2015. The using of nanotechnology for enhancement biomass of *Isatis cappadocica*. 1th International and 9th National Biotechnology Congress.
- 8- **Souri Z**, Karimi N. 2015. The impact of different levels arsenic and phosphorus on phytoremediation efficiency of *Isatis cappadocica*. 1th International and 9th National Biotechnology Congress.
- 9- Azimi M.A, Karimi N, Ghasempour H.R, **Souri Z**. 2015. Effect of different concentrations of chromium on efficiency and phytoremediation by wheat (cv. sardari). 3th International Conference of Biology and Ecology.
- 10- Azimi M.A, Karimi N, Ghasempour H.R, **Souri Z**. 2015. The effect of different levels of pH on growth and photosynthetic pigments in wheat (cv. sardari) plants, under chromium toxicity. 4th Iranian Conference of Plant Physiology.
- 11- **Souri Z**, Karimi N. 2016. Investigated the role of nitric oxide on growth of *Isatis cappadocica*, under cadmium stress. 3th international conference on applied research in chemistry and chemical Engineering and biology. (Presentation).
- 12- Karimi N, **Souri Z**, Sarmadi M. 2016. Impact of salicylic acid nanoparticle, on antioxidant responses of *Isatis cappadocica* under arsenic stress. 7th International Congress of Biology.
- 13- **Souri Z**, Karimi N. 2016. Interaction of arsenic and nitric oxide on lipid peroxidation in *Isatis cappadocica*. 7th International Congress of Biology.
- 14- Mortezaazadeh A, Karimi N, **Souri Z**. 2018. The effect of arsenate and arsenite on some growth parameters of *Isatis cappadocica*. 20th national and 8th International Congress of Biology.
- 15- Mortezaazadeh A, Karimi N, **Souri Z**. 2018. The impact of silicon and nano silicon on improving resistance of *Isatis cappadocica* to arsenite. 20th national and 8th International Congress of Biology.

- 16- Esmaeili A, Karimi N, **Souri Z**. 2020. Effect of malic and citric acids on growth and photosynthetic pigment content of *Isatis cappadocica*, under chromium stress. 2nd International conference on Biology and Earth Sciences.
- 17- Karimi N, **Souri Z**, 2021. Application of nanotechnology in heavy metal remediation by plants. 7th Iranian Conference of Plant Physiology.
- 18- Karimi N, **Souri Z**, 2022. Increasing the efficiency of phytoremediation using nanoparticles (Nano-phytoremediation). 22nd National and 10th International Congress on Biology (Presentation).
- 19- **Souri Z**, Karimi N, 2022. Improvement of heavy metals stress in plants by gaso-transmitters. 22nd National and 10th International Congress on Biology (Presentation).
- 20- **Souri Z**, 2023. Biosynthesis of phenolic compounds in plants. The first international conference on the biology of medicinal plants.
- 21- Derekeh Z, **Souri Z**. 2024. Effect of Chromium on Protein Content and Antioxidant Enzyme Activities in the shoot of Quinoa. The 30th national and the 5th international iranian food sciences and technology congress.
- 22- Derekeh Z, **Souri Z** 2024. Nano-priming as an innovative seed-priming methodology for abiotic stress tolerance in crops. Seed 2024 (Medicinal Plants, Crop, Horticulture, Pasture and Forest).
- 23- Ranjbari F, **Souri Z** et al. 2024. Investigating the effect of nanoparticles containing zinc and thiourea on the germination of *Brassica napus* under arsenic stress. The 23rd National Congress and the 11th International Congress of Iranian Biology.
- 24- Ranjbari F, **Souri Z**, et al. 2025. Green synthesis of zinc-sulfur nanocomposite (nZn-S) and investigation of its effect on rapeseed plant growth under arsenic stress conditions. The 3th International Conference and the 4th National Conference on Agriculture, Environment and Food Security.
- 25- **Souri Z**. 2025. Heavy metal stress in medicinal plant. The 3rd International and 4th National Conference on Agriculture, Environment, and Food Security.
- 26- Amiri E, Karimi N, **Souri Z**. 2025. Evaluation of the effect of vanadium on some antioxidant indices of maize (*Zea mays* L.) cultivar KSC703. 9 th National and 1st International Conference of Plant Physiology.
- 27- Amiri E, Karimi N, **Souri Z**. 2025. Evaluation of the effect of vanadium element on growth indices in maize (*Zea mays* L.) cultivar KSC703. 9 th National and 1st International Conference of Plant Physiology.
- 28- Amiri M, **Souri Z**, Norouzi L. 2025. Improving the Growth of Thyme (*Thymus vulgaris*) under Cadmium Stress using Citric Acid Carbon Dots (CDs- CA). 9th National and 1st International Conference of Plant Physiology.
- 29- **Souri Z**. 2025. Arsenic tolerance mechanisms in hyperaccumulator plants. 9th National and 1st International Conference of Plant Physiology.
- 30- Najafi S, **Souri Z**, Norouzi L. 2025. The Effect of Biochar Modified with Iron-Zinc Nanoparticles on the Germination of Chia (*Salvia hispanica*). 9th National and 1st International Conference of Plant Physiology.

Book chapters

- 1- **Souri Z**, Karimi N, Farooq M.A, Akhtar J. 2019. Phytohormonal signaling under abiotic stress, In "Plant Life under Changing Environment". Published by Elsevier. DOI: 10.1016/B978-0-12-818204-8.00019-9.
- 2- **Souri Z**, Cardoso A.A, da-Silva C.J, de Oliveira L.M, Dari B, Sihi D, Karimi N. 2019. Heavy metals and photosynthesis: Recent Developments. In "Photosynthesis, Productivity, and Environmental Stress". Published by John Wiley & Sons. DOI: 10.1002/9781119501800.ch7.
- 3- **Souri Z**, Sharifan H, de Oliveira L.M, Ngatia L. 2022. Arsenic removal by phytoremediation techniques, In "Arsenic in Plants: Uptake, Consequences and Remediation Techniques". Published by John Wiley & Sons. DOI: 10.1002/9781119791461.ch14
- 4- Khan EA, **Souri Z**, Gaytán VG. 2022. Polyamine Metabolism and Ethylene Signaling in Plants, In "Ethylene in Plant Biology". Published by John Wiley & Sons. DOI: 10.1002/9781119744719.ch20.