

**Sayyed Mohammad Hadi Alavi**

September 17, 1978, Tehran

Reproductive Biology Lab,  
School of Biology,  
College of Science,  
University of Tehran,  
P. O. Box: 14155-6655,  
Tehran 14176-14411, Iran

Tel.: +98 (021) 61113314  
Mobile: +98 (0912) 9589487  
Fax: +98 (021) 66492992  
e-mail: [hadi.alavi@ut.ac.ir](mailto:hadi.alavi@ut.ac.ir)  
e-mail: [smhalavi1@gmail.com](mailto:smhalavi1@gmail.com)  
<https://science.ut.ac.ir/en/web/biology/hadi.alavi>

**JOB HISTORY**

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- 2017, Assistant Professor, University of Tehran, Tehran, Iran.
- 2017, Adjunct Assistant Professor, Shahid Beheshti University, Tehran, Iran.
- 2015, Research Associate, Tohoku University, Sendai, Japan.
- 2014, Researcher, Czech University of Life Sciences, Prague, Czech Republic.
- 2011, Post-Doctoral Fellow, Tohoku University, Sendai, Japan.
- 2009, Researcher, University of South Bohemia, České Budějovice, Czech Republic.

**EDUCATION**

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- PhD, Animal Breeding - Fishery, University of South Bohemia, České Budějovice, Czech Republic, September 3, 2009.
- MSc, Natural Resources Engineering - Fishery, University of Tehran, Tehran, Iran, March 3, 2003.
- BSc, Natural Resources Engineering - Fishery, University of Tehran, Tehran, Iran, September 21, 2000.

**FELLOWSHIP AND SCHOLARSHIP**

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- Japan Society for the Promotion of Science Post-Doctoral Fellowship, 2011–2013
- The University of South Bohemia PhD scholarship, 2005–2009

**AWARDS**

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- Early Career Faculty Award, The National Elites Foundation of Iran, 2019.
- The 20<sup>th</sup> Iranian Annual Academic Book Award to “Fish Spermatology”, 2012.
- The Dean Best Annual Publication Award to “Alavi, S.M.H., et al., 2009. Effects of osmolality on sperm morphology, motility and flagellar wave parameters in Northern pike (*Esox lucius* L.). Theriogenology 72: 32–43”, Faculty of Fisheries and Protection of Waters, University of South Bohemia, 2009.

- The Director Best Annual Publication Award to “Alavi, S.M.H., et al., 2008. Fish Spermatology. Alpha Science Ltd, Oxford”, Research Institute of Fish Culture and Hydrobiology, University of South Bohemia, 2008.
- The University of Tehran President Award to the excellent out-standing post- graduate research, 2004.
- Faculty of Natural Resources Dean Award to undergraduate student, 2000.

## GRANTS

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### Grants awarded to me as principal investigator or co-principal investigator

- Monitoring and effects of agricultural and industrial pollutants on reproductive system of fish inhabiting the southern Caspian sea, Department of Environment of Iran (192/S/1400), PI, 2023.
- Identification of reproductive biomarkers for environmental risk assessment of polycyclic aromatic hydrocarbons in the Persian Gulf, Department of Environment of Iran (120/S/98), PI, 2021.
- Factors affecting sperm quality in fish: Stress and environmental temperature, The National Elites Foundation of Iran, PI, 2019.
- Identification of epigenetic biomarkers of male germ cell disorders linked to adverse environmental factors, Grant Agency of the Czech Republic (P503/12/1834), Co-PI, 2012–2014.
- Effect of endocrine disruptors on reproductive parameters and expression of selected genes in fish and mouse gonads, Grant Agency of the Czech Republic (523/09/1793), Co-PI, 2009–2012.

### Other grants: To my PhD supervisor, PostDoc mentor, and PhD students (2008-2014)

- Neuroendocrine control of sperm maturation and motility in marine bivalve, The Japan Society for the Promotion of Science Grant-in-Aids for Postdoctoral fellows (23-01404) to Prof. M. Osada, Ph.D., 2011–2013.
- Modulations in neuroendocrine regulation of steroidogenesis in male goldfish exposed to anti-androgen vinclozolin, The Grant Agency of the University of South Bohemia (067/2013/Z) to M. Golshan, M.Sc., 2013.
- Mechanisms of action of Bisphenol A on steroidogenesis using gene expression of vitellogenin, StAR, P450scc, 3beta-HSD and CYP19 in male fish, The Grant Agency of the University of South Bohemia (033/2010/Z) to A. Hatef, M.Sc., 2010.
- Ultrastructure, energetic and competition in spermatozoa: A comparative study using two models species of chondrosteian and teleostean fishes, The Grant Agency of the Czech Republic (524/06/0817) to Prof. O. Linhart, DrSc., 2006–2008.

## RESEARCH

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### ❖ Research track at WoS (Sep 20, 2023)

Number of publications: 79

H-Index: 30

Total citations: 2623

Citations without self-citations: 2280

Citation per item: 33.2

### ❖ Area of research

#### Cell and molecular biology of reproduction

- Comparative reproductive physiology
- Biology of gametes and fertilization
- Reproductive health and fertility

## SOCIETIES

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- The Zoological Society of Japan, 2013–2017.
- Society of Environmental Toxicology and Chemistry, 2014–2015.
- Society for Reproduction and Fertility, 2005–2006.
- World Sturgeon Conservation Society, 2005–2006.

## LECTURES

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### Invited lectures

- Energy balance and fertility. School of Physics, College of Science, University of Tehran, Tehran, Iran, November 2023.
- A state-of-the-art review of sperm motility signaling in fishes. The 19<sup>th</sup> International Congress on Animal Reproduction. Bologna, Italy, June 26–30, 2022.
- Regulatory mechanisms of sperm motility initiation in fishes – a review. The 21<sup>st</sup> National and 9<sup>th</sup> International Congress on Biology, Semnan University, Semnan, February 2021.
- Reproductive strategies to conserve biodiversity in fishes. Iranian Fisheries Research Organization, Tehran, Iran, May 2019.
- Sperm cryopreservation in sturgeons – A review. Iranian Fisheries Research Organization, Tehran, Iran, January 2018.
- Sperm biology in fish and bivalves: Basic sciences, evolutionary biology and environmental health perspectives. School of Biology, College of Science, University of Tehran, Tehran, Iran, January 2017.

- Sperm biology in fish and bivalves: Basic sciences, evolutionary biology and environmental health perspectives. School of Biology, College of Science, University of Tehran, Tehran, Iran, December 2016.
- Sperm biology in fish and bivalves: From basic sciences to environmental perspectives. Department of Aquatic Bio-Science, Tohoku University, Sendai, Japan, November 2015.
- Sperm biology in aquatic organisms: Physiological controls and the effects of environmental contaminants. Department of Biological Sciences, University of Calgary, Calgary, Canada, November 2014.
- Evolutionary sperm biology in fish and marine bivalve mollusks. Department of Biology, Yamagata University, Yamagata, Japan, July 2013.
- Diversity in the mechanisms of sperm activation in fish. Annual Meeting of the Japan Society of Spermatology, Tohoku University, Sendai, Japan, November 2012.
- Endocrine regulation of reproduction in male fish: Testicular development and sperm morphology, physiology and motility signaling. Graduate School of Agricultural Science, Tohoku University, Sendai, Japan, June 2012.
- Sperm motility and flagellar beating behavior in fish. Department of Biological Sciences, Dartmouth College, Hanover, NH, USA, June 2010.
- Sperm morphology, physiology and motility in fish: Evolutionary biology and environmental health perspectives. Shimoda Marine Research Center, Tsukuba University, Shimoda, Japan, March 2010.
- Sperm motility signaling in fish. Institute of Molecular biology and Biophysics, Swiss Federal Institute of Technology, Zurich, Switzerland, October 2009.
- Spermatology as a tool for aquaculture development. UR AFPA, Université de Lorraine, Nancy, France, April 2009.
- Biology of sperm in freshwater fish. Department of Aquaculture, University of Nordland, Bodø, Norway, April 2008.

#### **Lectures at conferences and symposiums**

- Physiology of sperm motility initiation in bivalves. The 1<sup>st</sup> International Conference on Marine Sciences. Bandar Abbas, Iran, December 17, 2022.
- Metabolic stress decreases sperm quality in goldfish associated with changes in hormonal functions of hypothalamus-pituitary-testis axis. The 7<sup>th</sup> International Workshop on the Biology of Fish Gametes. Rennes, France, September 2–6, 2019.
- Serotonin induces initiation of sperm motility in marine bivalve mollusks. The 84<sup>th</sup> Annual Meeting of the Zoological Society of Japan, Okayama University, Okayama, September 26–28, 2013.
- Calcium-dependent sperm activation in bivalve mollusks is prohibited by scallop oocyte maturation arresting factor and enhanced by serotonin. AQUA 2012: Global Aquaculture - Securing Our Future, Prague, Czech Republic, September 1–5, 2012.

- Structure, motility, fertilization and cryopreservation of sperm of chondrosteian fish species – a review. The 6<sup>th</sup> International Symposium on Sturgeon, Wuhan, China, October 25–31, 2009.
- Semen characteristics, sex steroids and stress indicators in *Acipenser ruthenus* after spermiation induction by carp pituitary extract and GnRH $\alpha$  implants. The 6<sup>th</sup> International Symposium on Sturgeon, Wuhan, China, October 25–31, 2009.
- Biology of sperm and control of reproduction in Cyprinidae. The 2<sup>nd</sup> International Workshop on the Biology of Fish Gametes, Valencia, Spain, September 9–11, 2009.
- A review on sperm motility characteristics in freshwater fish. Aquaculture Europe, Krakow, Poland, September 15–18, 2008.
- Ultrastructure, biochemical characteristics and motility of *Barbus barbus* spermatozoa, The 1<sup>st</sup> International Workshop on the Biology of Fish Sperm, Vodňany, Czech Republic, August 29–31, 2007.
- Roles of extracellular Ca<sup>2+</sup> and pH on motility and flagellar waveform parameters in sturgeon spermatozoa. The 8<sup>th</sup> International Symposium in Reproductive Physiology of Fish, Saint-Malo, France, June 3–8, 2007.
- Spermatology as a tool in aquaculture management. Czechoslovak Society of Arts & Sciences Congress, Českých Budějovicích, Czech Republic, June 26–30, 2006.
- Sperm motility and energetics in sturgeon fishes. The 5<sup>th</sup> International Symposium on Sturgeon, Ramsar, Iran, May 9–13, 2005.

## **PEDAGOGICAL ACTIVITY AND SERVICES**

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### **Courses taught**

#### Undergraduate (BSC)

General Biology  
 Principles of Animal Physiology  
 Animal Biology II: Physiology of Organs  
 Animal Biology III: Endocrine System  
 Biology of Fishes  
 Aquatic Ecology and Aquaculture  
 Principles of Animal Biotechnology  
 Literature in Animal Biology  
 Project

#### Graduate (MSc or PhD)

Advanced Endocrinology - MSc  
 The Physiology of Reproduction - MSc  
 Eco-physiology in Aquatic Animals - MSc  
 Research Methods and Data Presentation in Biology - MSc  
 Biotechnology in Aquatic animals - MSc  
 Seminar - MSc  
 Recent Topics in Cell and Developmental Biology - PhD  
 Neuroendocrinology of Reproduction - PhD  
 Recent Topics in Reproduction - PhD  
 Thesis - MSc  
 PhD dissertation

### **Supervised Ph.D. students**

- Negar Kazori, M.Sc., Anabolic-anabolic steroids disruptions of reproduction, Supervisor, University of Tehran, in progress.

- Mahboubeh Mahlouji, MSc, The mechanisms of action of polycyclic aromatic hydrocarbon on reproductive system in fish, Supervisor, University of Tehran, in progress.
- Omid Khademzadeh, M.Sc., Semen quality and fertility in the male Arabian yellowfin sea bream (*Acanthopagrus arabicus*) fed a selenium nanoparticle-supplemented plant protein-rich diet. Co-advisor, Khorramshahr University of Marine Science and Technology, Jan 2024.
- Mahdi Golshan, MSc, Environmental contaminants and endocrine associated male infertility in fish, Advisor, University of South Bohemia, České Budějovice, Czech Republic, Sep 2015.
- Azadeh Hatef, M.Sc., Sperm functions impairments and steroidogenesis transcriptomic alternations in fish exposed to endocrine disrupting chemicals, Advisor, University of South Bohemia, České Budějovice, Czech Republic, Sep 2012.

### **Supervised M.Sc. students**

- Vahidehsadat Mirjalili, B.Sc., Food restriction-disrupted gametogenesis and gamete quality in female goldfish. Supervisor, University of Tehran, in progress.
- Sargol Asadi, B.Sc., Bacterial growth in zebrafish sperm during short-term storage. Co-Supervisor, September 22, 2022.
- Fatemeh-Zahra Tondrow, B.Sc., Anthropological features of reproductive disorders in patients with diabetes mellitus. Supervisor, September 13, 2022.
- Negar Kazori, B.Sc., Transgenerational effects of nandrolone decanoate misuse on reproductive system and fertility in male F1 progeny of rat. Supervisor, September 13, 2022
- Saba Faqihzadeh, B.Sc., The effects of diazinon on thyroxine metabolism in goldfish (*Carassius auratus*). Supervisor, September 27, 2021.
- Somayeh Hashemi, B.Sc., The effects of organophosphate insecticide diazinon on hormonal functions of the thyroid gland in goldfish (*Carassius auratus*). Supervisor, September 20, 2021.
- Sholeh Karimi, B.Sc., Androgenic-anabolic steroids-disrupted endocrine regulation of spermatogenesis in rats. Supervisor, September 12, 2021.
- Sara Alijanpour, B.Sc., The effects of various types of metabolic stress on hormonal functions of thyroid gland in animal models. Supervisor, September 12, 2021.
- Mohammad Alem Sediqi, B.Sc., Effects of temperature on sperm production and motility in goldfish (*Carassius auratus*), Supervisor, September 22, 2019.

### **Supervised B.Sc. students**

- Amirali Vaseghi, Crosstalk between the thyroid hormones and fish reproduction.
- Arian Hezarkhani, Biological relationships between flagellar length and velocity of fish sperm.

- Mina Yavari, Visiting student, Environmental contaminants and fish reproduction.
- Mahdi Ahmadi, Visiting student, Environmental contaminants and fish reproduction.
- Sepideh Barzegar-Fallah, Visiting student, Sperm motility signaling in aquatic animals.
- Neda Farhadi, Physiological relationships between sperm motility and ATP contents in fish.
- Negin Goudarzi, A comparison of morphological parameters of sperm in Cyprinidae.
- Negin Koosheshi, Physiological roles of calcium ions in sperm motility in Cyprinidae.
- Fatemeh Malekinejad, Sperm phenotype in fishes: Effects of size on motility features.
- Zahra Alidoost, Sperm motility features in tench (*Tinca tinca*).
- Forough Chelengari, Visiting student, Stress physiology and sperm quality in sturgeon.
- Sarina Azargoon, Physiology of sperm motility initiation in amphibians.

## SERVICES

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### Guest editor

- **Alavi, S.M.H.**, Butts, I.A.E., 2024. *Reproduction and Development in Aquatic Animals*. In progress, Heliyon, ISSN 2405-8440, Elsevier.
- Kowalski, R., **Alavi, S.M.H.**, Dzyuba, B., Źarski, D., Horváth, Á., 2021. *Reproductive Biology in Aquatic Animals: Implications for Aquaculture and Environmental Conservation*. *Animals*, ISSN 2076-2615, Multidisciplinary Digital Publishing Institute (MDPI).
- **Alavi, S.M.H.**, Cosson, J., 2019. *Reproductive Biology in Male Aquatic Animals: From Stem Cells to Sperm – a review collection*. *Theriogenology*, ISSN 0093-691X, Elsevier.
- **Alavi, S.M.H.**, Linhart, O., Rosenthal, H., 2008. *The Proceedings of the 1<sup>st</sup> International Workshop on the Biology of Fish Sperm*. *Journal of Applied Ichthyology*, Volume 24, Issue 4, ISSN 0175-8659, Wiley-Blackwell.

### Program committee

- The 2<sup>nd</sup> International Conference on Marine Sciences, Scientific Committee Member, Qeshm, Iran, February 27-28, 2024.
- The 1<sup>st</sup> International Conference on Marine Sciences, Scientific secretary, Bandar Abbas, Iran, December 17, 2022.
- Workshop on “Methods for sperm quality assessment in aquatic animals”, The 4<sup>th</sup> International Congress on Fisheries and Aquatic Research. Tehran, Iran, November 18–20, 2020.
- Workshop on “Sperm biology in fish: From basic to applied sciences”, The 2<sup>nd</sup> National Conference on Fisheries Sciences & Aquatic Organisms. Lahijan, Iran, May 1–2, 2011.
- Chair of session, The 6<sup>th</sup> International Symposium on Sturgeon, Wuhan, China, October 25–31, 2009.

- Workshop on “Methods for sperm motility assessment and cryopreservation in sturgeon”, lecture and practical course, The 6th International Symposium on Sturgeon, Wuhan, China, October 25–31, 2009.
- The 2<sup>nd</sup> International Workshop on the Biology of Fish Gametes, Organizing Committee – Member, Valencia, Spain, September 9–11, 2009.
- The 1<sup>st</sup> International Workshop on the Biology of Fish Sperm, Executive chair, Vodňany, Czech Republic, August 29–31, 2007

**Reviewer** – most recent

Animal Reproduction Science, Aquaculture, Aquaculture Reports, Aquatic Toxicology, Comparative Biochemistry and Physiology Part C, Heliyon, Iranian Journal of Fisheries Sciences, Reproduction and Breeding, Science of the Total Environment, Scientific Reports, Theriogenology Wild