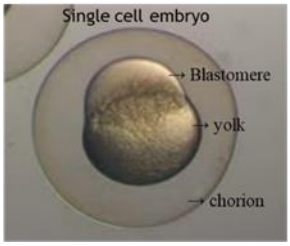
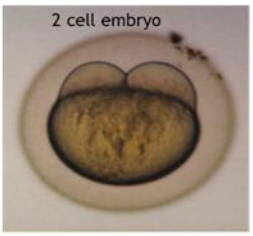
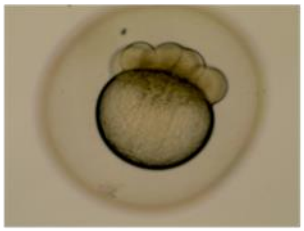
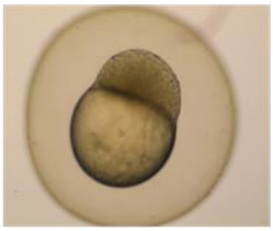




Zebrafish lab facility, Daulat Ram College

The zebrafish lab facility was set up in October 2015, jointly by the Biochemistry department and Zoology department in collaboration with CSIR-IGIB, Mathura Road, Delhi, and Sansriti Foundation Delhi. The facility has been funded by Star Innovation projects DU, Star College project DBT, Govt. of India, and Innovation projects DU. It was developed with the aim of providing an alternative ***in vivo*** **non –invasive model system for science education, teaching and research.**

The state of the art temperature and photo-period controlled facility houses an automated re-circulatory fish habitat system, RO water plant, stereo-microscopes, inverted microscope with digital display screen (Evos) and fluorescent microscope (Nikon). Apart from ongoing research projects, the facility provides training in zebrafish model system to faculty and students. Till date ~ 150 faculty members and ~1000 students from various science streams from different Delhi University Colleges have participated in various workshops and training programs conducted by the zebrafish lab facility.

Summer internship/ training programs, skill development programs are available to under-graduate and postgraduate students to get hands-on training and research experience.

Zebrafish lab facility also serves as a resource center to provide zebrafish and embryos to other colleges/ departments and research institutes to support teaching and lab practicals.

Zebrafish lab facility also serves as a nodal center for NEP-SEC course (Drosophila and zebrafish model organisms in biological studies)

Faculty associated:

Dr. Padmshree Mudgal, Biochemistry Department (Incharge Zebrafish lab Facility, padmshree.m@gmail.com, pmudgal@dr.du.ac.in)

Dr. Chitra Bhasin, Zoology Department (Superannuated)

Dr. Radhika Gupta, Biochemistry Department

Dr. Anita Mangla, Biochemistry Department

Collaborations:

Dr. Adita Joshi, Sansriti Foundation, Delhi

Project granted:

1. Innovation Project DRC (301): Zebra Fish as a Biosensor for assessing Yamuna River water quality in Delhi NCT region.
   PI: Dr. Chitra Bhasin, Dr. Padmshree Mudgal, Dr. Anita Mangla, Dr. Madhu
2. Star Innovation Project, Delhi University (2016-19): Evaluating The Effects Of Common Food Additives On Vertebrate Development And Organogenesis Using Zebra Fish As A Model System.
   PI: Dr. Padmshree Mudgal, Dr. Chitra Bhasin, Dr. Anita Mangla, Dr. Madhu

Papers Published:

1. Mudgal, P., Gupta, R., Joshi, A., Prakash, C., Gupta, K., Sachdeva, R., & Joshi, N. (2023). Assessment of Anxiolytic Activity of Brahmi (Bacopa monnieri) in Zebrafish Model System. Journal of Natural Remedies, 23(2), 661–670. https://doi.org/10.18311/jnr/2023/31362.

2. Mudgal P., Bhasin C., Joshi A., Gupta R. (2021) Zebrafish: A Versatile Learning Tool. Resonance. Nov 2021: 26(11): 1483-1601. https://www.ias.ac.in/article/fulltext/reso/026/11/1499-1521

3. Gupta R, Ranjan S, Yadav A, Verma B, Malhotra K, Madan M, Chopra O, Jain S, Gupta S, Joshi A, Bhasin C, Mudgal P. (2019) Toxic Effects of Food Colorants Erythrosine and Tartrazine on Zebrafish Embryo Development. Curr Res Nutr Food Sci 2019; 7(3). https://bit.ly/2OFNYLM

4. Bhasin C., Mudgal P., et.al. 2016. Zebrafish Early Stage Developmental Defects as Indicator of Site Specific Water Composition of River Yamuna. DU Journal of Undergraduate Research and Innovation. Volume 2, Issue 1pp 40 - 45, 2016 http://journals.du.ac.in/ugresearch

Poster Presented:

1. Poster Presented at “The 9th Zebrafish Disease Models Conference”. Oct. 4-7, 2016. Singapore:
   Mudgal P. Zebrafish as a bio-sensor to assess the impact of water pollution on human health.

2. Poster presented at "International Conference on green chemistry in Environmental Sustainability and Chemical Education. (ICGC 2016), 17th – 18th Nov. 2016.Daulat ram College, Delhi.
    a. Bhasin C., Mudgal P., et.al. Zebrafish as an early embryonic development model to assess specific and combined health impact of heavy metal contamination in river Yamuna in Delhi NCT region.
    b. Madhu, Bhasin C., Mudgal P., et.al. Zebrafish, as an early embryonic development model to assess the health impact of pesticide contamination in river Yamuna in Delhi NCT region.
3. Poster presented and abstract printed in proceedings of "International Conference in Frontiers in Biochemistry and Biotechnology: Strategies to combat human diseases", 12th - 13th February, 2020 at Shivaji College, University of Delhi.
    a. Kaur M., Gupta R., Bhasin C., Joshi A. and Mudgal P. Study of anxiolytic activity of Ayurvedic drugs using zebrafish larval stress response assays.
    b. Mall P., Saja A., Kathuria S., Bhasin C., Joshi A., Gupta R., Mudgal P. To assess the impact of food additives on learning and memory in zebrafish model.
    c. Gupta R., Kaur M., Joshi A., Bhasin C. and Mudgal P. Erythrosine induces oxidative damage in zebrafish.

3. Poster presented at the "International E-Conference on "Recent Trends in Drug Discovery and Development" organized by the Department of Chemistry, under the aegis of IQAC, Maitreyi College, University of Delhi on 8th and 9th October 2021

    a. Sachdeva R., Prakash C., Sachdeva G., Gupta K., Joshi N., Shubham, Gupta R., Dr Mudgal P. Stress Response Assays with Zebrafish Larvae to Study Anxiolytic Activity of Ayurvedic drugs.

Invited talks delivered by Dr. Padmshree Mudgal on Zebrafish model system:

1. Webinar talk on 'Zebrafish Model System', Organized by Department of Biochemistry,Shivaji College, University of Delhi (under the aegis of DBT sponsored Star College Scheme) on Zoom Meeting: https://us02web.zoom.us/j/83281224416?pwd=dVhscVZGUWFQaXhlZjhNVGZieXlZZ z09 on May 8, 2020 03:00 PM India.

2. Gave a webinar talk on 22 Oct,20 at 3.15 pm on 'Zebrafish Model System' at

    https://web.microsoftstream.com/video/41645c4e-f15a-4326-b33f-29e924559315 for BTech Biotechnology students of Amity Institute of Biotechnology

3. Keynote speaker at " 2nd Global summit on Food science and nutrition 2021" 29-30th

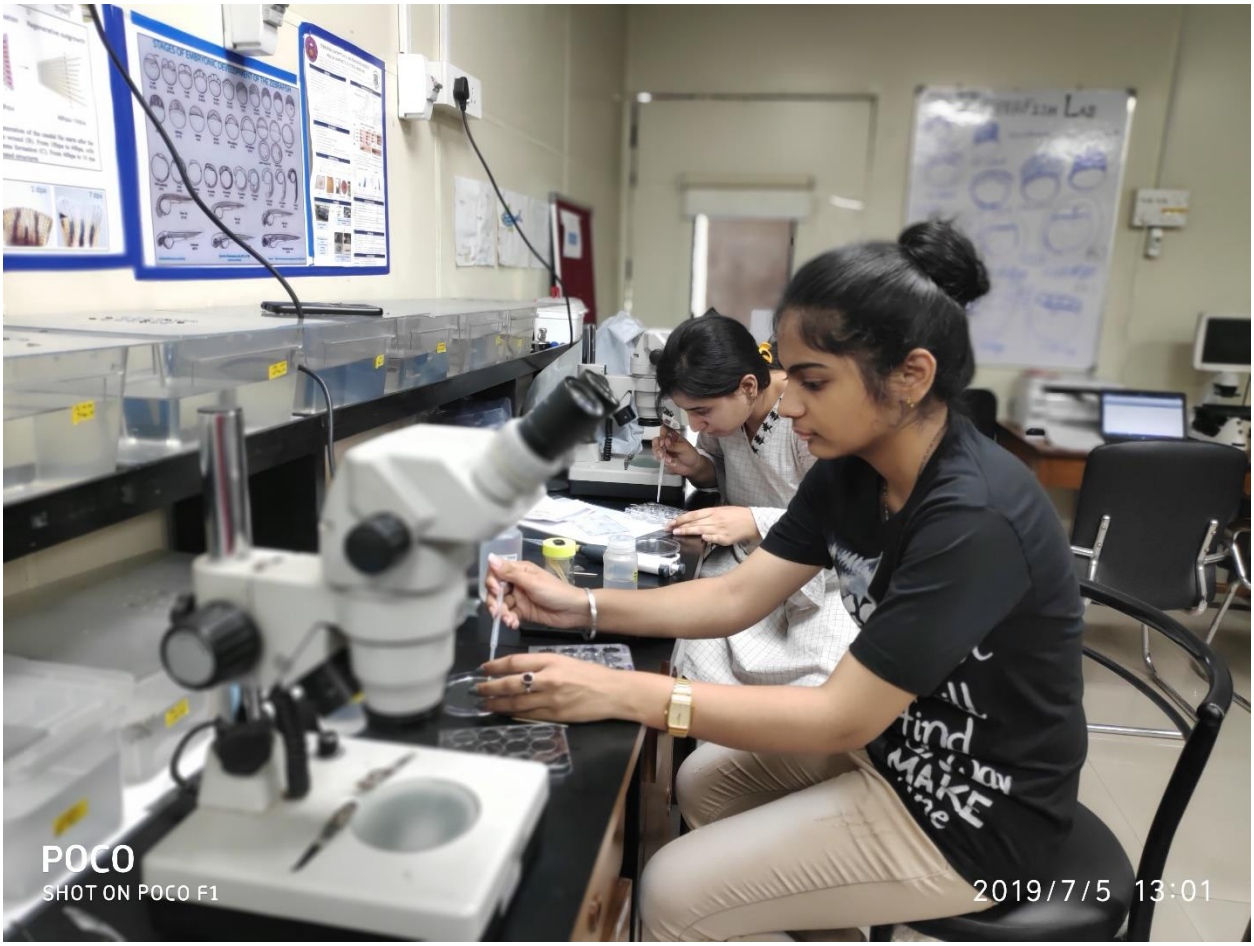
of October in Vienna, Austria, on “Assessment of Health Impact of food colorants using Zebra fish model system”

4. Invited talk on "ZEBRAFISH MODEL SYSTEM: A TOOL FOR DRUG DISCOVERY" in International E-Conference on “Recent Trends in Drug Discovery andDevelopment” organized by the Department of Chemistry, under the aegis of IQAC, Maitreyi College, University of Delhi on 8th and 9th October 2021.

5. Invited talk on "Zebrafish - An ideal Model Organism for Human Research” 21st January,2022 at ‘Skill Enhancement Workshop on Model Organism and Visual Experimentation -Zebrafish and JoVE’, organized by CHRYSALIS, The Biological Science Society, Sri Venkateswara College, University of Delhi.

Awards:

1. Award Certificate for Most Significant research outcomes for Innovation Project (2015-16) DRC: 301 :Zebra Fish as a Biosensor for assessing Yamuna river water quality in Delhi NCT region.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UNIVERSITY OF DELHI

Certificate of Appreciation

This is to certify that

The Project Investigators and Students of the Project Code DRC 301 titled *'Zebra Fish as a Biosensor for assessing Yamuna river water quality in Delhi NCT region'* of Daulat Ram College presented their research work as poster at the 94th Foundation Day of University of Delhi at Viceregal Lodge on May 01, 2016

Principal Investigators : Dr. Chitra Bhasin, Dr. Padmshree Mudgal, Dr. Anita Garg Mangla, Dr.Madhu. Students: Varsha Singh, Sakshi Jain, Kritika Sharma, Kirti Saluja, Yogita Kapoor, Priyanka Kandola, Maniki Mathur, Nikita Khatri, Alisha Arora

REGISTRAR
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Research Display at the Convocation Ceremony
19 November 2016

Certificate of Most Significant Research Outcomes

Project Code: DR 301

Project Title:
Zebra Fish as a Biosensor for assessing
Yamuna River Water Quality in Delhi NCT Region

College: Daulat Ram College

Prof. Ajay Kumar
Dean Research PS&MS

Prof. M.M. Chaturvedi
Dean Research LS

Prof. Pami Dua
Chairperson, Research Council

Dr. Deepika Bhaskar
Coordinator, Innovation Desk


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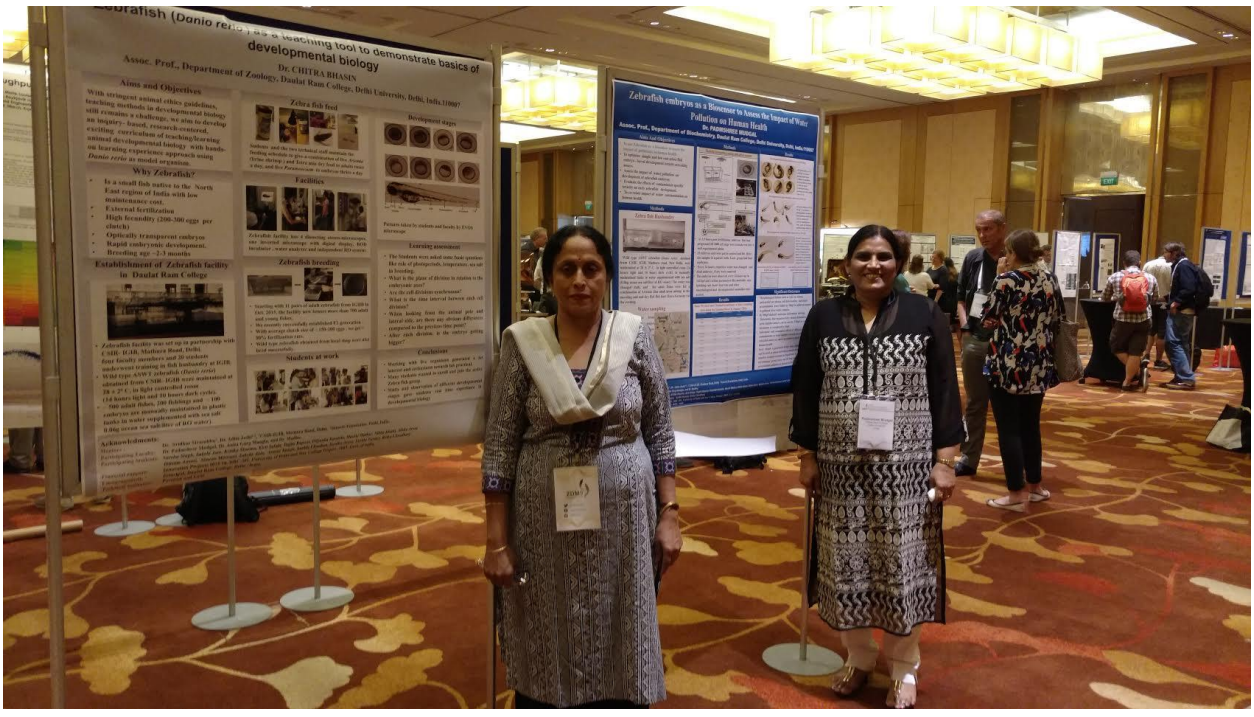
developmental biology
Dr. CHITRA BHASIN
Assoc. Prof., Department of Zoology, Daulat Ram College, Delhi University, Delhi, India.110007
Aims and Objectives
Why Zebrafish?
Establishment of Zebrafish facility in Daulat Ram College
Zebra fish feed
Facilities
Zebrafish breeding
Students at work
Development stages
Learning assessment
Conclusion
Zebrafish embryos as a Biosensor to Assess the Impact of Water Pollution on Human Health


Daulat Ram College
University of Delhi
Training Workshop on
DROSOPHILA AND ZEBRAFISH
MODEL SYSTEMS
19th - 21st December, 2016


Zebrafish Workshop


DAULAT RAM COLLEGE
UNIVERSITY OF DELHI
Organizes
Training Workshop on
ZEBRAFISH AS AN
ANIMAL MODEL SYSTEM
15th–17th March 2017
Supporting agencies
Star Innovation Project, DU.
Star college project, DBT, Govt. of India
Sanskriti Foundation Delhi.
Convenors:
Dr. Chitra Bhatti
Department of Zoology
Dr. Padmshree Mathur
Department of Biochemistry


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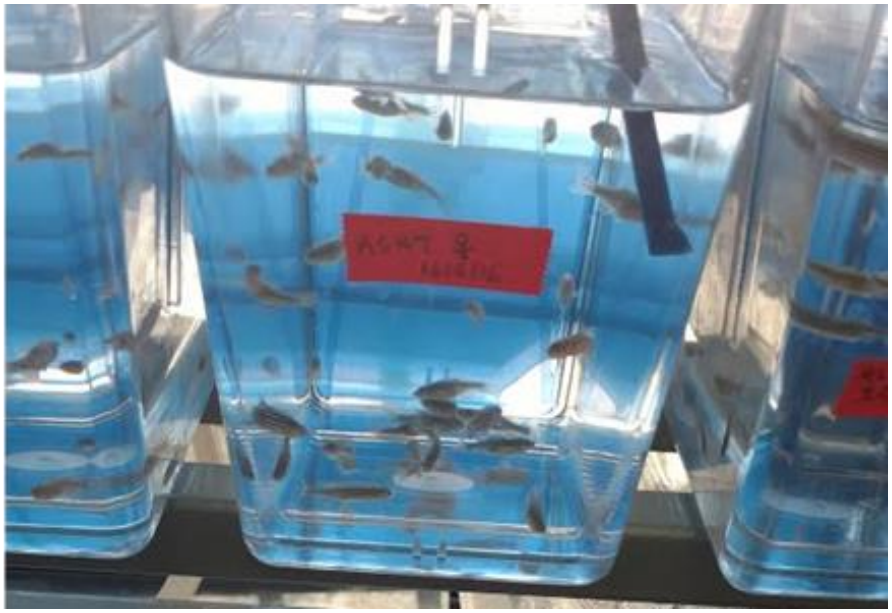
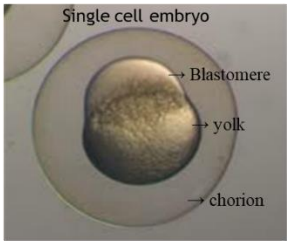
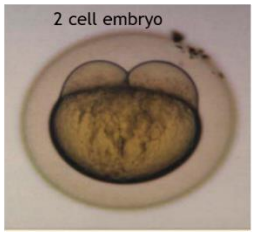
B-1
ZEBRAFISH EMBRYO AS A BIOSENSOR TO ASSESS HEALTH IMPACTS OF FOOD ADDITIVES
B-9




Single cell embryo
→ Blastomere
→ yolk
→ chorion


2 cell embryo