

DR. HEENA TABASSUM



Designation: Assistant professor

Email ID: heena.tabassum@dpu.edu.in

Qualification: Ph. D.

Area of Specialization: Biotechnology

Research Interest: Plant and Animal Biotechnology, Cancer, Herbal Medicines, Bioinformatics, Chemoinformatic and Next generation sequencing

EDUCATIONAL QUALIFICATIONS:

Ph. D: Biotechnology

Supervisor: Dr. Iffat Zareen Ahmad, Professor, Department of Bioengineering Integral University, Dasauli, Kursi Road, Lucknow 226026, Phone No 91-0522-2890730(O) Fax: 91-522-2890809, E-mail: iffat@iul.ac.in. Mobile no 09919273517 (www.iul.ac.in).

Thesis title: "Study of anticancer potential of *Nigella sativa* L. sprout and its nanoformulation on liver carcinoma cell line".

Duration: 2014 to 2019.

M.Tech: Biotechnology

Department of Bioengineering

Integral University, Dasauli, Kursi Road, Lucknow 226026, Phone No 91-0522-2890730(O) Fax: 91-522-2890809 (www.iul.ac.in).

Duration: 2012 to 2014

B. Tech (Biotechnology) (2008-2012)

Integral University Lucknow

Department of Bioengineering

Integral University, Dasauli, Kursi Road, Lucknow 226026, Phone No 91-0522-2890730(O)

Fax: 91-522-2890809 (www.iul.ac.in).

Duration: 2008 to 2012

ACADEMIC AND RESEARCH EXPERIENCE:

1. **Assistant Professor:** Department of Biotechnology, Dr. D.Y. Patil Biotechnology and Bioinformatics Institute, Pune (July 2021 to Present)
2. **Application Scientist:** Application Scientist at RASA life science infotech Pune (Bioinformatics, Next generation sequencing) 2021 March
3. **Junior Research Fellow** :(JRF) from 2016 to 2019 in the project entitled “*In vitro* and *in vivo* study of hepatoprotective activity of *Nigella sativa* extracts in various germination stages.” Ministry of AYUSH, Govt. of India, Department of Bioengineering Integral University, Dasauli, Kursi Road, Lucknow 226026, Phone No 91-0522-2890730(O) Fax: 91-522-2890809 (www.iul.ac.in).
4. **Teaching Assistant:** 1.5 years teaching experience as Teaching Assistant at the Department of Bioengineering, Integral University, Lucknow, India (www.iul.ac.in).Duration: 2015-2016.

AWARDS AND ACHIEVEMENTS:

1. **Bioved Award**-2018 for Best paper presentation on comparative study of “*Nigella sativa* L extract Loaded Nanoformulation against Human Hepatocarcinoma cell line” on 17 and 18 February 2018 at bioved Krishi prodyogiki Gram at Allahabad.
2. **Award in Zonal Student Research Convention** “Anveshan” for best research Proposal was awarded with Third Prize in the Health Sciences and Allied subjects representing the North zone of India at Chitkara University, Punjab by Association of Indian Universities (AIU) from Jan 20th, 2017 to Jan 21st, 2017.

SCIENTIFIC COMMITTEE MEMBER:

Official membership of the Next Generation Scientist Club

PUBLICATIONS:

1. **Tabassum, H.**, & Ahmad, I. Z. (2021). Molecular Docking and Dynamics Simulation Analysis of Thymoquinone and Thymol Compounds from *Nigella sativa* L. that Inhibits Cag A and Vac A Oncoprotein of *Helicobacter pylori*: Probable Treatment of *H. pylori* Infections. **Medicinal chemistry** ; 17(2): 146 - 157. doi: 10.2174/1573406416666200302113729
2. **Tabassum, H.** and Ahmad, I.Z., (2020)"Molecular Docking and Dynamics Simulation Analysis of Thymoquinone and Thymol compounds from *Nigella Sativa* L. that Inhibits P38 Protein: Probable Remedies for Hepatocellular Carcinoma. **Medicinal Chemistry**;16(3):350-357. doi: 10.2174/1573406415666190416165732.
3. **Tabassum, H.** and Ahmad, I.Z., (2019). Evaluation of the anticancer activity of sprout extract-loaded nanoemulsion of *N. sativa* against hepatocellular carcinoma. **Journal of Microencapsulation**, 38(7-8) 643-656
4. **Tabassum, H.**, Ahmad, A. and Ahmad, I.Z., (2018). *Nigella sativa* L. and its bioactive constituents as hepatoprotectant: a review. **Current pharmaceutical biotechnology**, 19(1), 43-67.
5. Iffat Zareen Ahmad, Mohammad Kuddus, Asad Ahmad, **Heena Tabassum** and Abdul Mabood. Applications of surface modified nanoparticles in cancer theranostics, **Current Drug metabolism**, 2017; 18(11):983-999.
6. **Heena Tabassum**, Iffat Zareen Ahmad, Ulfat Fatima, Abdul Mabood, Asad Ahmad, Gaurav Srivastava and Mainak Das. Evaluation of the nutrient profile of *Trachyspermum ammi* L. seed under the influence of nanoparticles during germination, **Cellular and Molecular Biology (Noisy le Grand)**, 2017, 63 (6), 7-11
7. Farooqui, Arreba., **Tabassum, Heena.**, Ahmad, Asad., Mabood, Abdul., Ahmad, Adnan. and Ahmad, I.Z., 2016. Role of nanoparticles in growth and development of plants: a review. **International journal of Pharma and Biosciences**, 7(4), pp.22-37.
8. Bano, D., **Tabassum, H.**, Ahmad, A., Mabood, A. and Ahmad, I.Z., 2016. The medicinal significance of the bioactive compounds of trigonella foenum-graecum: a review. **International Journal of Research in Ayurveda & Pharmacy**, 7(4), pp.84-91
9. Ahmad IZ, Kuddus M, **Tabassum H**, Ahmad A, Mabood A. Advancements in applications of surface modified nanomaterials for cancer theranostics. **Current drug metabolism**. 2017 Nov 1;18(11):983-99

10. Ahmad, I.Z., Ahmad, A., Mabood, A. and **Tabassum, H.**, 2017. Effects of different metal stresses on the antioxidant defense systems of medicinal plants. In *Reactive Oxygen Species and Antioxidant Systems in Plants: Role and Regulation under Abiotic Stress* (pp. 215-256). **Springer, Singapore.**
11. Ahmad, S., **Tabassum, H.** and Alam, A., 2016. Role of microbial bioremediation of heavy metal from contaminated soils: an update. **International Journal of Biology, Pharmacy and Allied Sciences**, 5, pp.1605-1622
12. Syed Salman Abbas¹, Mohd Haneef, Mohtashim Lohani, **Heena Tabassum**, Ahamad Faiz Khan. Nanomaterials Used As A Plants Growth Enhancer: An Update. **International Journal of Pharma Research & Review**, July 2016;5(7):17-23
13. Urooj Bano, Ahamad Faiz Khan, Farina Mujeeb, Neeraj Maurya, **Heena Tabassum**, Mohd. Haris Siddiqui, Mohd. Haneef, Khwaja Osama and Alvina Farooqu. Effect of plant growth regulators on essential oil yield in aromatic plants. **Journal of Chemical and Pharmaceutical Research**, 2016, 8(7):733-739

BOOK CHAPTERS:

1. **Heena Tabassum** and Iffat Zareen Ahmad. *Trigonella foenum-graecum* and Its 1 Bioactive Compounds Having Potential 2 Antidiabetic Activity. **Springer Nature Singapore Pte Ltd.** 2021 M. Naeem et al. (eds.), Fenugreek, https://doi.org/10.1007/978-981-16-1197-1_19
2. **Heena Tabassum** and Iffat Zareen Ahmad Nanoformulations Loaded with Microalgal Bioactive Compounds for Disease Therapy, *Algal Nanotechnology* to be published by **Springer Nature, Switzerland.2020.**
3. Sidrah Parvez, Iffat Zareen Ahmad, **Heena Tabassum**. Cyanobacterial peptides with respect to anticancer activity: structural and functional perspective in "Studies in Natural Products Chemistry" (Bioactive Natural Products), edited by Prof. Atta-ur-Rahman, **FRS, published by Elsevier Science Publishers, The Netherlands, 2018.**
4. Ahmad, I.Z., **Tabassum, H.**, Ahmad, A. and Kuddus, M., 2018. Food Enzymes in Pharmaceutical Industry: Perspectives and Limitations. In *Enzymes in Food Technology* (pp. 41-62). **Springer, Singapore.**
5. Iffat Zareen Ahmad, Asad Ahmad, **Heena Tabassum**, Abdul Mabood and Mohammad Kuddus. A cosmeceutical perspective of engineered nanoparticles. In **'Handbook of Nanomaterials for Industrial Applications'**, Elsevier publishers, 2017.
6. Iffat Zareen Ahmad, Abdul Mabood, Asad Ahmad, **Heena Tabassum** and Mohammad Kuddus. Applications of Nanoparticles in the Treatment of Waste Water. In **'Handbook of**

Ecomaterials', L.M.T. Martínez et al. (eds.), **Springer International Publishing AG** 2017.
https://doi.org/10.1007/978-3-319-48281-1_37-1.

7. Iffat Zareen Ahmad, Asad Ahmad, Abdul Mabood and **Heena Tabassum**. Effects of different types of abiotic stresses on the antioxidant defence systems of medicinal plants, In 'Reactive Oxygen Species and Antioxidant Systems: Role and Regulation under Abiotic Stress', **Springer publishers**, 2017, 215-256.

CONFERENCE PROCEEDINGS:

1. Rashmi Singh, **Heena Tabassum** and Iffat Zareen Ahmad. Effect of graphene nanoparticles on the photosynthetic machinery of *Anabaena variabilis*: a step towards biosensor development. Proceedings of International Seminar on Modern Trends in engineering and Sciences (MTES) organized by Integral University, Lucknow, August, 2017
2. Iffat Zareen Ahmad, Naseema Khatoon, **Heena Tabassum**. "Treatment of groundwater from different regions of Lucknow by *Nostoc muscurum* for bioremediation of metals". In proceedings of National conference "Ground Water in Uttar Pradesh: Issues, Challenges & Management" organized by Central Ground Water Board, Govt. of India, Lucknow on 30 March 2016

CERTIFICATIONS:

- Certificate of official membership of the Next Generation Scientist Club.
- Soft Skills and Workplace Communication e learning initiative of *Indian Institute of Technology Bombay*
- Certification in Bioinformatics (CIB), *Institute of Biological Sciences, IBS*.

CONFERENCES (Abstracts/Oral/Poster):

Abstracts

1. Iffat Zareen Ahmad, **Heena Tabassum**, Abdul Mabood, Dilkash Bano, Syed Salman Abbas. A novel approach to evaluate titanium dioxide nanoparticle –enzyme interaction through docking: An insight into Diosgenin Synthesis International Conference on Emerging Trends in

Biomedical Sciences (March 6-8,2016) Organized by Department of Biochemistry faculty of life Sciences Aligarh Muslim University, in collaboration with DST-PURSE and DBT Welcome Trust funded Programme.

2. Aftab Alam, **Heena Tabassum**, Abdul Mabood, S Anand. S. Khatoon's Salman& I.Z. Ahmad. Effect of titanium and graphene oxide nanoparticles on the morphological and biochemical parameters of germinating *Traccyspermum Ammi L* Seed Advancing Frontiers in Biotechnology for Sustainable Agriculture and Health (AFBSAH-2016)" scheduled on 25.02.2016 – 26.02.2016.
3. Sayeed Ahmad, Mohammad Ajmal Humanism Khatoon, Abdul Mabood, **Heena Tabassum** and Flatscreen Ahmad. Effect of some heavy metals on Morphological parameters of components of *Trigonella frenum-graecum L.* during germination. Advancing Frontiers in Biotechnology for Sustainable Agriculture and Health (AFBSAH-2016)" scheduled on 25.02.2016 – 26.02.2016.
4. **Heena Tabassum**, Nida Fatima, Hera Chaudhry, Alisha Paul, Ulf at Fatima, Gaurav Srivastava and Iffat Zareen Ahmad. Effect of nanoparticles on the morphological parameters of different Indian spices during germinating In- National Level Conference nanoscience's, Nanotoxicology, and Nano Informatics" - Present and Future Prospective (2015-NANO-LSFI-IU, 14th & 15th, March, 2015) Organized by Department of Bioengineering and Biosciences, Integral University, Lucknow In collaboration with Department of Nanobiotechnology, Life Science foundation, Karnataka.
5. Nida Fatima, Hera Chaudhry, Abdul Mabood, **Heena Tabassum**, Rashmi Singh, Gaurav Srivastava and Iffat Zareen Ahmad. Effect of nanoparticles on Cyanobacterial efficacy as a biofertilizer In- National Level Conference on "NanoSciences, NanoToxicology, and NanoInformatics" - Present and Future Prospective (2015-NANO-LSFI-IU, 14th & 15th, March, 2015) Organized by Department of Bioengineering and Biosciences, Integral University, Lucknow In collaboration with Department of Nanobiotechnology, Life Science foundation, Karnataka.
6. **Heena Tabassum**, Abdul Mabood, Anupam Dhasmana, Mohtashim Lohani, Iffat Zareen Ahmad. Toxic effects of graphene nanoparticles on the biosynthesis of diosgenin: a cheminformatics approach in Bioinformatics Panorama in Agriculture and Health" jointly organized by Society of Bioinformatics and Department of Computational Biology and Bioinformatics, Sam Higginbottom Institute of Agriculture and Technology and Sciences held from Oct. 5-6, 2015.

7. Abdul Mabood, Ulfat Fatima, **Heena Tabassum**, Gaurav Srivastava, Iffat Zareen Ahmad. Evaluation of the nutrient profile of *Trachyspermum ammi* L. seed under the influence of nanoparticles during germination. International Conference on Translation Biotechnology (BIOSANGAM 2016) organized by Department of Biotechnology, MNNIT, Allahabad held on 4-6th Feb, 2016.
8. **Heena Tabassum**, Alisha Paul, Abdul Mabood, Gaurav Srivastava, Iffat Zareen Ahmad. Alterations in Phytochemicals and Antibacterial activities of *Trigonella foenum-graecum* L. seed under the influence of nanoparticles during germination International Conference on Translation Biotechnology (BIOSANGAM 2016) held on 4-6th Feb, 2016.
9. Abdul Mabood, **Heena Tabassum**, IffatZareen Ahmad, Effect of some heavy metals on nutritional components of *Trigonella foenum-graecum* L. during germination. Advancing Frontiers in Biotechnology for Sustainable Agriculture and Health (AFBSAH-2016)" scheduled on 25.02.2016 – 26.02.2016
10. Heena Tabassum, Abdul Mabood, Afroz Jahan, IffatZareen Ahmad. Effect of nanoparticles on the morphological and biochemical parameters of *Trigonellafoenum-graeaacum* L seed during germination" for presentation in the International Conference on Nanotechnology (Aligarh Nano V) to be held from 12-15 March, 2016.
11. Participated in National Conference on "Intellectual Property Rights: A Significant Tool For Sustainable Agriculture" organized by Intellectual Property Rights Management Cell (IPRMC), Integral University, lucknow from 2nd and 3rd April 2016.
12. Participated in International Conference on "Nanotechnology & STEM-ER" organized Department of Physics, Z.H College of Engineering & Technology, Aligarh Muslim University, Aligarh from March 12 to 15, 2016.
13. Participated in International Conference on "Translational Biotechnology (Biosangam 2016)" organized by Department of Biotechnology, Motilal Nehru National Institute of Technology Allahabad (MNNIT) from February 4th-6th, 2016.
14. Participated in National Conference on "Bioinformatics Panorama in Agriculture and Health (NCBPAH)" Organisedby society of bioinformatics and department of computational biology and bioinformatics, Jacob School of biotechnology and Bioengineering, Sam Higginbottom Institute of Agriculture Technology and Sciences, Allahabad from 5-6 October, 2015.

15. Participated in National Conference on “Innovation and Biopreneurship for sustainable & Rural Development” Organized by Council of Science & Technology-UP and Uttar Pradesh Technical university and hosted by S R Group of Institutions, Lucknow from 9th may, 2015.
16. Participated in National Conference on “Nanosciences, Nanotoxicology and Nanoinformatics Present and Future Perspectives” Organized by Department of Bioengineering and Biosciences, Integral University, Lucknow from 14-15 March, 2015.
17. Participated in Seminar on “Many Dimensions of Indian Atomic Energy Programme” Organised by University Institute of Engineering and Technology, Chhatrapati Shahuji Maharaj University, Kanpur in association with Bhabha Atomic Research Center (BARC), Mumbai from 25 February, 2015.
18. Participated in National Conference on “Nanoscience and Biotechnology – Present Future Prospectives” Organized by Department of Nano biotechnology, Life Science Foundation India, Karnataka In Collaboration with Department of Bioengineering, Integral University, Lucknow from 20 April 2013.

WORKSHOPS:

1. Hands on Workshop Detection of color fluorescence and chemiluminescence through CHEMI-DOCUMENTATION SYSTEM GE Healthcare workshop on Friday April 27,2018
2. Participated in workshop on Subtractive genomics approach-based identification and validation of novel drug targets in pathogens” held at Bioinformatics Infrastructure facility (BIF), Centre of Excellence in Bioinformatics (COEBI) Department of biochemistry, University of Lucknow, Lucknow from 6-7 January, 2016.
3. Participated in Workshop on “IPR and Related Issues: Present & Future Needs” organized by “GI, IPR’s and Organic Facilitation Cell” U. P. Council of Agricultural Research, Lucknow (U. P.) India. From 27-28 March 2015.
4. Participated in Workshop on “Nurture Biopreneurship” Organized by Associated of Biotechnology Led Enterprises from 10th March, 2015

BIOINFORMATICS AND BIOTECHNOLOGY SKILLS:

- Plant and Animal Biotechnology, Herbal Medicines, Bioinformatics, Chemoinformatic. Next genome sequencing.
- I have experience in preparation of different nanoformulation from plant extract apart from other *in vitro* and *in silico* studies
- Experience in Database search viz. BLAST, FASTA, Protein Modelling, Docking, Dynamics Simulation, Next generation sequencing etc. Software related to primer designing and Pharmacokinetics activity like ADMET, Pre ADMET. Statistical analysis by Graph Pad Prism and working knowledge of photo-editing software- Adobe Photoshop.
- I have working experience of HPLC, LC-MS, biological activities such as extraction and purification of secondary metabolites from plant extract, establishment and maintenance of animal tissue culture laboratory, handling & culturing mammalian cell lines, media preparation for mammalian cell lines, DNA & RNA isolation, fluorescence microscopy, cell viability analysis, cytotoxic analysis, genotoxic analysis, reactive species generation monitoring, TLC, SDS-PAGE and Agarose Gel Electrophoresis
- *In vitro* and *in vivo* study of hepatoprotective activity of Nigella sativa extracts in various germination stages
- Yeast expression of a Novel insecticidal protein toxic to Whitefly from done from *NBRI (CSIR LAB)*.
- Molecular docking studies and simulation of plant derived natural compounds as inhibitor of “Signal Transducer and Activator of Transcription
- Study of nature of venoms derived from poisonous animals with the help of tools of bioinformatic