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GUNJAN TYAGI, PhD

Designation: Assistant Professor
Email: gunjan.tyagi@dpu.edu.in
Area of Specialization: Biospectroscopy
Research Interest: Bio spectroscopy for diagnostics and bio-molecular interactions

Academic Qualifications:

PhD in Biophysics, University of Delhi and CSIR-National Physical Laboratory, New Delhi, 2015

Thesis Title: Spectroscopic study of nucleic acid interaction of natural anti-cancer compounds and cytotoxic potential on cancer cell lines

M. Sc. (Honors) by research in Biochemistry, Panjab University, Chandigarh, 2006
Thesis title: "Effects of estrogen on hepatic and cardiac tissues following cyclosporin and pioglitazone drug interaction in ovariectomized rats"

B. Sc. in Biochemistry,
Kurukshetra University, 2003

Professional Experience:

- Assistant Professor, Dr. D Y Patil Biotechnology and Bioinformatics institute, Dr. D Y Patil Vidyapeeth, Pune, March 2018-till date
- Post Doctoral Fellow (SERB NPDF), Advanced Centre of Treatment Education and Research in Cancer (ACTREC), Tata Memorial Centre, Mumbai, India, April 2017-March 2018
Project: Single cell Raman Imaging/Mapping of cancer cells heterogeneity
- Guest Faculty, Deshbandhu College, University of Delhi, July 2014-november 2014
Primary responsibilities included teaching biophysics to under graduate students, scientific lab demonstration, conducting practical, graded assignments and exams

Awards:

1. National Post Doctoral Fellowship from SERB, DST, 2017
2. Research Associateship, from Council of Scientific and Industrial Research, 2017
3. Senior Research Fellowship from Indian Council of Medical Research, 2010-2013

4. Travel award, Dept. of Science & Technology (DST), Govt. of India for PITTCON, 2012, USA
5. Best presentation award in 'Basic sciences' on National Science Day, 2012
6. Best presentation award in 'Technology' on National Science Day, 2011
7. DST Project fellowship at National Physical Laboratory, New Delhi, 2008
8. Second prize, Research idea presentation, Biochemical Society, Panjab University, 2006
9. National Silver Medal in declamation contest, representing Punjab State in 11th National Youth Festival, 2006
10. Kurukshetra University best student award in literary events, 2003

Research support

- SERB, National Post-doctoral Fellowship, 'Single cell Raman Imaging for cancerous transformation and heterogeneity, ACTREC,TMC, Mumbai (April 2017-March 2018)
- Senior Research Fellowship, Indian Council of Medical Research, "Chemo-profiling of medicinal herbs and studies on their interaction with biomolecules: A vibrational spectroscopic approach" National Physical Laboratory, New Delhi. (December 2010-December 2013)

Publications:

1. Aditi Sahu, Arti Hole, **Gunjan Tyagi**, Aditi Sahu, Rubina Shaikh, Murli Krishna Chilakapati, Exploration of Raman Exfoliated Cytology for Oral and Cervical cancers, Accepted, Vibrational Spectroscopy, April 2018.
2. Aditi Sahu, Poonam Gera, Venkatesh Pai, Abhishek Dubey, **Gunjan Tyagi**, Mandavi Waghmare, Sandeep Pagare, Manoj Mahimkar and C. Murali Krishna, "Raman exfoliative cytology for oral precancer diagnosis", Journal of Biomedical Optics, 22(11), 1-12, 2017.
3. Ranjana Mehrotra, **Gunjan Tyagi**, Sonika Charak, Bhumika Ray, Geeta Kadayaprath and Chaturvedi, and Urmi Mukherjee, Biospectroscopic analysis of human breast cancer tissue: probing infrared signatures to comprehend biochemical alterations", Journal of Biomolecular Structure and Dynamics, Online March 2017.
4. Shweta Agarwal, **Gunjan Tyagi**, Deepti Chaddha, and Ranjana Mehrotra, Structural-conformational aspects of tRNA complexation with chloroethyl nitrosourea derivatives, Journal of Photochemistry and Photobiology B: Biology, 166, 1-11, 2017.
5. **Gunjan Tyagi**, Shweta Agarwal and Ranjana Mehrotra, tRNA binding with anti-cancer alkaloids-nature of interaction and comparison with DNA alkaloids adducts Journal of Photochemistry and Photobiology B: Biology 142, 250-256, 2015.
6. **Gunjan Tyagi**, Shrikant Pradhan, Tapasya Srivastava and Ranjana Mehrotra, Nucleic acid binding properties of allicin; spectroscopic analysis and estimation of anti-tumour potential, Biochemica and Biophysica acta, 1840(1), 350-356, 2014.
7. **Gunjan Tyagi**, Sonika Charak and Ranjana Mehrotra, Binding of an indole alkaloid, vinblastine to double stranded DNA: A spectroscopic insight in to nature and strength of interaction, Journal of Photochemistry and Photobiology B: Biology 108, 48-52, 2012.

8. Sonika Charak, Manish Shandilya, **Gunjan Tyagi**, Ranjana Mehrotra. Spectroscopic and molecular docking studies on chlorambucil interaction with DNA, International Journal of Biological Macromolecules. 51 (4) 406-11, 2012.
9. Sonika Charak, Deepak K. Jangir, **Gunjan Tyagi**, and Ranjana Mehrotra, Interaction studies of epirubicin with DNA using spectroscopic techniques, Journal of Molecular Structure 1000, 150-154, 2011.
10. **Gunjan Tyagi**, Deepak K. Jangir, Parul Singh and Ranjana Mehrotra, DNA interaction studies of an anti-cancer plant alkaloid, vincristine using Fourier transform infrared spectroscopy, DNA and Cell Biology, 29(11), 693-699, 2010.
11. Ranjana Mehrotra, **Gunjan Tyagi**, Deepak Kumar Jangir, Ramesh Dawar and Noopur Gupta, Analysis of tumor pathology by Fourier Transform Infrared Spectroscopy, Journal of Ovarian Reserach, 3:27, 2010.
12. Deepak K. Jangir, **Gunjan Tyagi**, Ranjana Mehrotra, Suman Kundu, Carboplatin interaction with Calf-thymus DNA: A FTIR spectroscopic approach, Journal of Molecular Structure, 969, 126-129, 2010.
13. Ranjana Mehrotra, **Gunjan Tyagi** and Deepak Kumar Jangir, DNA-Drug Interaction, SciTopics, 2010, July15. http://www.scitopics.com/DNA_Drug_Interaction.html
14. Parul Singh, **Gunjan Tyagi**, Ranjana Mehrotra and A.K. Bakhshi, Thermal Stability Studies of 5- Fluorouracil using Diffuse Reflectance Infrared Spectroscopy, Drug Testing and Analysis, 1, 240-244, 2009.
15. **Gunjan Tyagi**, Deepak Kumar Jangir, Parul Singh, Ranjana Mehrotra, R Ganeshan and E.S.R. Gopal, Rapid determination of main constituents of packed fruit juices by RP-HPLC: An insight in to commercial fruit drinks, Journal of Food Science and Technology, 51(3), 476-484, 2014. Doi:10.1007/s13197-011-0502-1.
16. Nisha Yadav, **Gunjan Tyagi**, Deepak K.Jangir and Ranjana Mehrotra, Rapid determination of polyphenol, vitamins, organic acids and sugars in bael fruit (Aegle marmelos) using Reverse Phase-High Performance Liquid Chromatography, Journal of Pharmacy Research 4(3), 717-719, 2011.
17. Ruchika Raghav, Nisha Yadav, **Gunjan Tyagi**, Deepak K. Jangir and Ranjana Mehrotra, Rapid determination of organic acids in commercially packed fruit juices: A reverse phase high performance liquid chromatographic approach, International Journal of Food Engineering, 8(4), DOI: 10.1515/1556-3758.1821, 2012.

Book Chapter

1. **Gunjan Tyagi**, Parul Mehrotra, Shweta Agarwal and Ranjana Mehrotra, DNA Interacting Molecules and cancer treatment, Chapter 19, Encyclopedia of Physical Organic Chemistry, wiley, February, 2017, ISBN: 978-1-118-47045-9

International Conferences

1. **Gunjan Tyagi**, Tapasya Srivastava and Ranjana Mehrotra, Nucleic acid binding properties of allucin: Spectroscopic analysis and estimation of anti-tumor potential, International Conference on translational cancer research, February 2014, New Delhi, India.
2. **Gunjan Tyagi**, Tapasya Srivastava and Ranjana Mehrotra, Probing nucleic acids

interaction with allicin, a natural anticancer compound, International Conference on Advances in Meterology (Admet), February 2013, New Delhi, India.

3. **Gunjan Tyagi** and Ranjana Mehrotra, FTIR studies on the interaction of allicin with DNA double helix, PITTCON 2012, March 2012, Orlando, Florida, USA.
4. **Gunjan Tyagi**, Deepak K. Jangir and Ranjana Mehrotra, Charecterization of ovarian malignancy by Fourier transform infrared spectroscopy, PITTCON 2011, March 2011, Georgia, Atlanta, USA.
5. **Gunjan Tyagi**, Deepak K.Jangir, Parul Singh and Ranjana Mehrotra, DNA interaction with an anticancer plant alkaloid, vincristine: A study by Fourier transform infrared spectroscopy, International conference on perspective in vibrational spectroscopy (ICOPVS) February 2010, Banaras Hindu University, Varanasi, India
6. Deepak K. Jangir, Ranjana Mehrotra, **Gunjan Tyagi** and Suman Kundu, FT-Raman spectroscopic studies of molecular interaction of a platinum containing anti-cancer drug with DNA, International conference on perspective in vibrational spectroscopy (ICOPVS) February 2010, Banaras Hindu University, Varanasi, India.

National Conferences

1. **Gunjan Tyagi**, Shweta Agarwal and Ranjana Mehrotra, Interaction studies of allicin with DNA duplex by Fourier transform infrared spectroscopy (Admet) February 2012, Pune, India.
2. **Gunjan Tyagi**, Deepak Kumar Jangir, Ranjana Mehrotra and H.C.Kandpal, Analysis of ovarian tumor pathology by infrared spectroscopy, National symposium/workshop on new trends of biosensor technology. January 2009, Farah, Mathura, India.
3. Deepak Kumar Jangir, **Gunjan Tyagi**, Ranjana Mehrotra, H.C.Kandpal, R Ganeshan and E.S.R. Gopal, Compositional analysis studies of the commercially packed fruit juices by infrared spectroscopy, National symposium/workshop on new trends of biosensor technology. January 2009, Farah, Mathura, India.
4. Participated in National Seminar on Characterization of Biomolecules at Lucknow University, August 2008, Lucknow, India.