

**Dr. Nosheen Rashid,**

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**Research interests- key words;** Raman spectroscopy, FTIR spectroscopy, Cancer diagnosis, Immunohistochemistry, cell-based assays, Multivariate data analysis techniques.

### **Job experience**

- Currently working as Assistant Professor at University of Central Punjab, Faisalabad Campus, Faisalabad.
- Worked as visiting faculty at Faisalabad Institute of Research science and Technology (Akhuwat-FIRST), Faisalabad, Pakistan.
  
- Worked as Assistant Professor from April, 2013 to April, 2014 at:

Health Biotechnology Division, National Institute for Biotechnology and Genetic Engineering (NIBGE) Faisalabad, Pakistan.

### **EDUCATION**

#### **Education:**

| Degrees obtained | Name and Place of University and college            | Years attended |      | Division/ CGPA           | Major Subjects                    |
|------------------|---|----------------|------|--------------------------|-----------------------------------|
|                  |   | From           | To   |                          |                                   |
| Matric           | Divisional Public School Faisalabad                 | 1995           | 1997 | 1 <sup>st</sup> Division | Physics, Chemistry, Biology, Math |
| F. Sc.           | Govt. College for Women Madina Town Faisalabad      | 1997           | 2000 | 1 <sup>st</sup> Division | Physics, Chemistry, Biology       |
| B. Sc.           | Govt. College for Women Madina Town Faisalabad      | 2000           | 2002 | 1 <sup>st</sup> Division | Chemistry, Botany, Zoology        |
| M. Sc.           | The University of Punjab Lahore                     | 2002           | 2004 | 1 <sup>st</sup> Division | Chemistry(Inorganic)              |
| M. Phil.         | Quaid e Azam University Islamabad                   | 2005           | 2007 | 1 <sup>st</sup> Division | Biotechnology                     |
| Ph. D            | FOCAS Dublin Institute of Technology Dublin Ireland | 2008           | 2013 | 1 <sup>st</sup> Division | Chemistry                         |

## **Research Experience:**

**PhD research project:** Raman micro spectroscopy for the characterization of cervical cancer.

**M.Phil research work:** Optimization of process parameters for tylosin production using solid-state fermentation by wild type *Streptomyces fradiae* NRRL2702 and its gamma irradiated mutant.

**M.Sc. research work:** Determination of total mineral profile of camel meat using spectrophotometer and atomic absorption spectroscopy.

## **Expertise**

- Tissue sample handling (tissue sectioning, dewaxing and staining)
- Cell culture
- Biological/cytotoxicity assays
- Confocal Raman Micro spectroscopy
- FTIR spectroscopy
- Multivariate data analysis techniques (MATLAB)
- Molecular Biology techniques
- Immunocytochemistry and Immunohistochemistry

## **PUBLICATIONS/Book chapter/CONFERENCES**

### **Publications:**

1. Tahira, M., Nawaz, H., Majeed, M.I., **NOSHEEN RASHID**, Tabbasum, S., Abubakar, M., Ahmad, S., Akbar, S., Bashir, S., Kashif, M. and Ali, S., 2021. Surface-enhanced Raman spectroscopy analysis of serum samples of typhoid patients of different stages. *Photodiagnosis and Photodynamic Therapy*, 34, p.102329. **(I.F=3.6)**
2. Tabbasum S, Majeed MI, Nawaz H, **NOSHEEN RASHID**, Tahira M, Mohsin A, Arif A, ul Haq A, Saleem M, Dastgir G, Batoool F. Surface-enhanced Raman spectroscopy for comparison of serum samples of typhoid and tuberculosis patients of different stages. *Photodiagnosis and Photodynamic Therapy*;35:102426. **(I.F=3.6)**

3. Batool F, Nawaz H, Majeed MI, **NOSHEEN RASHID**, Bashir S, Bano S, Tahir F, ul Haq A, Saleem M, Nawaz MZ, Almas F. Surface-enhanced Raman spectral analysis for comparison of PCR products of hepatitis B and hepatitis C. *Photodiagnosis and Photodynamic Therapy*. 2021 Jul 16:102440. (I.F=3.6)
4. S. Ahmad, M.I. Majeed, H. Nawaz, M.R. Javed, **NOSHEEN RASHID**, M. Abubakar, F. Batool, S. Bashir, M. Kashif, S. Ali, M. Tahira, S. Tabbasum, I. Amin, Characterization and prediction of viral loads of Hepatitis B serum samples by using surface-enhance Raman spectroscopy (SERS), *Photodiagnosis and Photodynamic Therapy*, (2021) 102386. (I.F=3.6)
5. Muhammad Kashif, Muhammad Irfan Majeed\*, Haq Nawaz\*, **NOSHEEN RASHID**, Muhammad Abubakar, Shamsheer Ahmad, Saqib Ali, Hamza Hyat, Saba Bashir, Fatima Batool, Saba Akbar and Munir Ahmad Anwar; Surface-enhanced Raman spectroscopy for identification of food processing bacteria *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* (2021). (I.F=4.09)
6. Bashir, Saba, Haq Nawaz, Muhammad Irfan Majeed, Mashkooor Mohsin, Ali Nawaz, **NOSHEEN RASHID**, Fatima Batool et al. "Surface-enhanced Raman spectroscopy for the identification of tigecycline-resistant E. coli strains." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 258 (2021): 119831. (I.F=4.09).
7. Batool, Fatima, Haq Nawaz, Muhammad Irfan Majeed, **NOSHEEN RASHID**, Saba Bashir, Saba Akbar, Muhammad Abubakar et al. "SERS-based viral load quantification of hepatitis B virus from PCR products." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 255 (2021): 119722. (I.F=4.09)
8. Bashir, Saba, Haq Nawaz, Muhammad Irfan Majeed, Mashkooor Mohsin, Sabahat Abdullah, Saqib Ali, **NOSHEEN RASHID** et al. "Rapid and sensitive discrimination among carbapenem resistant and susceptible E. coli strains using Surface Enhanced Raman Spectroscopy combined with chemometric tools." *Photodiagnosis and Photodynamic Therapy* 34 (2021): 102280. (I.F=3.6)
9. Rafiq, Sidra, Muhammad Irfan Majeed, Haq Nawaz, **NOSHEEN RASHID**, Umer Yaqoob, Fatima Batool, Saba Bashir et al. "Surface-enhanced Raman spectroscopy for analysis of PCR products of viral RNA of hepatitis C patients." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 259 (2021): 119908. (I.F=4.09).
10. Nasir, Saira, Muhammad Irfan Majeed, Haq Nawaz, **NOSHEEN RASHID**, Saqib Ali, Sidra Farooq, Muhammad Kashif et al. "Surface enhanced Raman spectroscopy of RNA samples extracted from blood of hepatitis C patients for

- quantification of viral loads." *Photodiagnosis and Photodynamic Therapy* 33 (2020): 102152. (I.F=3.6).
11. Bakkar, Muhammad Abu, Haq Nawaz, Muhammad Irfan Majeed, Ammara Naseem, Allah Ditta, **NOSHEEN RASHID**, Saqib Ali et al. "Raman spectroscopy for the qualitative and quantitative analysis of solid dosage forms of Sitagliptin." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 245 (2021): 118900. (I.F=4.09).
  12. Tahir, Muhammad, Muhammad Irfan Majeed, Haq Nawaz, Saqib Ali, **NOSHEEN RASHID**, Muhammad Kashif, Iram Ashfaq et al. "Raman spectroscopy for the analysis of different exo-polysaccharides produced by bacteria." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* (2020): 118408. (I.F=4.09)
  13. Bajwa, Jawad, Haq Nawaz, Muhammad Irfan Majeed, Abdullah Ijaz Hussain, Sidra Farooq, **NOSHEEN RASHID**, Muhammad Abu Bakkar et al. "Quantitative analysis of solid dosage forms of cefixime using Raman spectroscopy." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* (2020): 118446. (I.F=4.09)
  14. Ali, Saqib, Ayesha Riaz, Haq Nawaz, Muhammad Irfan Majeed, Muhammad Adnan Iqbal, Haq Nawaz Bhatti, **NOSHEEN RASHID** et al. "Raman spectral characterization of silver metal-based complexes of different benzimidazolium ligands." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 232 (2020): 118162. (I.F=4.09)
  15. Saqib Ali<sup>a1</sup>, AyeshaRiaz<sup>a1</sup>, Muhammad Irfan Majeed<sup>a</sup>, Muhammad Adnan Iqbal<sup>a</sup>, Haq Nawaz Bhatti<sup>a</sup>, **NOSHEEN RASHID**<sup>b</sup>, Muhammad Kashif<sup>a</sup>, Muhammad Tahir<sup>a</sup>, Saira Nasir<sup>a</sup>, Saifullah<sup>a</sup>, Sidra Farooq<sup>a</sup>, Ammara Naseem<sup>a</sup>, Haq Nawaz<sup>\*a</sup> (2019). **Raman spectroscopy along with Principal Component Analysis for the confirmation of Silver (I)-N-heterocyclic carbene complex formation.** *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, doi.org/10.1016/j.saa.2019.117851. (I.F=4.09).
  16. Ditta a, H. Nawaz\*, T. Mahmood, M.I. Majeed, M. Tahir, **NOSHEEN RASHID**, M.Muddassar, A.A. Al-Saadi, H.J. Byrne. Principal components analysis of Raman spectral data for screening of Hepatitis C infection. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 221 (2019): pp. (I.F=4.09).
  17. H.F. Nargis, H. Nawaz\*, A. Ditta, T. Mahmood, M.I. Majeed, **NOSHEEN RASHID**, M. Muddassar, H.N. Bhatti, M. Saleemd, K. Jilani, F. Bonnier, H.J. Byrne. Raman spectroscopy of blood plasma samples from breast cancer patients at different stages. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 222 (2019): pp. (I.F=4.09).

18. T. Mahmood<sup>a</sup>, H. Nawaz<sup>a\*</sup>, A. Ditta<sup>a</sup>, M. I. Majeed<sup>a</sup>, M. A. Hanif<sup>a</sup>, **NOSHEEN RASHID**<sup>b</sup>, H. N. Bhatti<sup>a</sup>, H. F. Nargis<sup>a</sup>, M. Saleem<sup>c</sup>, F. Bonnier<sup>d</sup> and H.J. Byrne<sup>e</sup>; **Raman spectral analysis for rapid screening of dengue infection; Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy** **200(2018) 136-142 (I.F=4.09).**
19. Hanif, Muhammad Asif, Shafaq Nisar, Muhammad Nadeem Akhtar, Numra Nisar, and **NOSHEEN RASHID**. "Optimized production and advanced assessment of biodiesel: A review." International Journal of Energy Research (2018). ;42:2070–2083 **(I.F=3.009).**
20. Haq Nawaz<sup>\*</sup>, Muhammad Asif Hanif, Muhammad Adnan Ayub, Faiqa Ishtiaq, Nazish Kanwal, **NOSHEEN RASHID**, Muhammad Saleem and Mushtaq Ahmad, Raman spectroscopy for the evaluation of the effects of different concentrations of Copper on the chemical composition and biological activity of basil essential oil. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy. 2017 (185), 130-138 **(I.F=4.09).**
21. Muhammad Asif Hanif, Haq Nawaz, Saima Naz, Rubina Mukhtar, **NOSHEEN RASHID**, Ijaz Ahmad Bhatti, Muhammad Saleem; Raman spectroscopy for the characterization of different fractions of hemp essential oil extracted at 130 °C using steam distillation method. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 182 (2017) 168–174. **(I.F=4.09).**
22. M.Asif Hanif, Haq Nawaz, Muhammad Adnan Ayub, Nayla Tabassum, Nazish Kanwal, **NOSHEEN RASHID**, Muhammad Saleem and Mushtaq Ahmad; Evaluation of the effects of Zinc on the chemical composition and biological activity of basil essential oil by using Raman spectroscopy, Industrial Crops and Products, 96, 2017, 91-101. **(I.F=5.64)**
23. Prediction of viral loads for diagnosis of Hepatitis C infection in human plasma samples using Raman spectroscopy coupled with Partial Least Squares Regression analysis, H. Nawaz, **NOSHEEN RASHID**, M. Saleem, I. Amin, M. Iqbal, M. Rahman, Ola Ibrahim, S.M. Baig, M. Ahmed, F. Bonnier and H.J. Byrne, Journal of Raman Spectroscopy. 2017 May;48(5):697-704. **(I.F=3.13)**
24. **NOSHEEN RASHID**, Haq Nawaz, Kelvin W.C. Poon, Helen Lambkin, Cara Martin, John J. O’Leary, Hugh J. Byrne, Fiona M. Lyng Raman microspectroscopy for the early detection of pre-malignant changes in cervical tissue. Experimental and Molecular Pathology, 97, (2014), 554-564. **(I.F=3.36)**
25. Khaliq S, **NOSHEEN RASHID**, Akhtar K, Ghauri MA. “Production of tylosin in solid-state fermentation by Streptomyces fradiae NRRL-2702 and its gamma-

irradiated mutant (gamma-1). *Lett Appl Microbiol.* 2009; 49(5):635-40. (I.F=2.85)

### **Book Chapters Authored:**

1. Haq Nawaz, Muhammad Irfan Majeed, Shumila Anwar, Arsalan Ali, Alina Khalid, **Nosheen Rashid**, Hugh J. Byrne; Chapter: Vibrational Spectroscopy for Food Analysis; *Advances in Noninvasive Food Analysis*; Taylor & Francis group; Boca Raton; doi.org/10.1201/9780429504877; ISBN:9780429504877.
2. Haq Nawaz and **Nosheen Rashid**; *Green Chemistry; Environmental Chemistry*, 2017.
3. Nawaz H, **Rashid N**, Byrne HJ, Lyng FM. **Techniques for cervical cancer screening and diagnosis**. *Applied Molecular Biotechnology: The Next Generation of Genetic Engineering*. 2016 Mar 23:345.
4. **Industrial Biotechnology: Its Applications in Food and Chemical Industries**. Syed Ali Imran Bokhari, Muhammad Sarwar Khan, **Nosheen Rashid**, and Muhammad Irfan Majeed. *Applied Molecular Biotechnology: The Next Generation of Genetic Engineering*. 2016 Mar 23:345.

### **Conference Presentations (Oral & Poster)**

1. **Nosheen Rashid**, K.W.C. Poon, Hugh J. Byrne and Fiona M. Lyng, "Compatibility of histological stains with Raman spectroscopy" Bio PIC 2010, October, 18-20, Dublin, Ireland (*Poster*).
2. **Nosheen Rashid**, K.W.C. Poon, Hugh J. Byrne and Fiona M. Lyng, "Comparison of the FTIR and Raman spectroscopy for the characterization of cervical cancer" 1st annual, DIT postgraduate research symposium (2010) (*Poster*).
3. **Nosheen Rashid**, K.W.C. Poon, Hugh J. Byrne and Fiona M. Lyng, "Characterisation of Cervical Cancer Progression by Raman Spectroscopy" Biospec (2010), June (26)-July (01) Manchester, U.K; (*Poster*).
4. **Nosheen Rashid**, K.W.C. Poon, Hugh J. Byrne and Fiona M. Lyng, Raman spectroscopy for the mapping of cervical cancer tissue samples; MSI (2010), August, 25-27, University of Ulster, Jordanstown, U.K; (*Poster*).
5. **Nosheen Rashid**, Hugh J. Byrne and Fiona M. Lyng, New technologies for the assessment of cervical cancer progression based on Vibrational spectroscopy. MSI (2012), September, 28-30, University college Cork, Ireland (*Oral presentation*).

## **REFEREES**

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