

Muhammad Shahid Riaz, MS

Ph.D. Scholar

Key Laboratory for Space Bioscience and Space Biotechnology, School of Life Sciences, Northwestern Polytechnical University, Xi'an 710072, Shaanxi, People's Republic of China.

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Education

(2015-2018) **Ph.D. in Biomedical Science**

Dissertation: Identification, Characterization and probiotic potential of lactobacilli isolated from human breast milk and their effect on cancer cell lines

- Isolated 10 LAB strains from human breast milk
- Resistance of these LAB strains against various stress such as bile, pH, Lysozyme, Hydrogen Peroxide, Antibiotic resistance
- Antagonistic effect on human pathogens (E.coli, salmonella)
- Characterization of their metabolite and their effect on cancer cell lines
- Antioxidant and anticancer activity of isolated lactobacilli

Supervisor: Prof. Dr. Junling Shi

Key Laboratory for Space Bioscience and Space Biotechnology, School of Life Sciences, Northwestern Polytechnical University, Xi'an 710072, Shaanxi, People's Republic of China

(2013-2015) **MS in Biotechnology**

CGPA 3.96/4.00

Dissertation: In Vitro Evaluation of Lactic Acid Bacteria for Probiotic Safety Efficacy

- Isolated 33 LAB strains from dairy origin
- Resistance of these LAB strains against various stress such as bile, pH, Lysozyme, Hydrogen Peroxide, Antibiotic resistance
- Antagonistic effect on human pathogens (E.coli, salmonella)
- Adherence mechanism of these 33 LAB strains in Intestinal Epithelial cells
- Survival rate in cheese

Supervisor: Dr. Tayyaba Shaheen

Assistant Professor, Department of Bioinformatics & Biotechnology,
Government College University Faisalabad, Pakistan.

2007-2012 **BSc (HONS) in Biotechnology**

CGPA 3.50/4.00

Dissertation: Identification and Characterization of *Acetobacter aceti* From Papaya for Acetic Acid Production

- Isolation and Identification of *Acetobacter aceti* from Papaya
- Acetic acid production by using the fermentation system

Supervisor: Dr. Abid Nasar Ahmad

Professor, Department of Botany, University of Agriculture, Faisalabad,
Pakistan.

Research/Professional Experience:

05/2014-08/2015 **Research Associate**

Probiotics and Food Safety Research Group, National Probiotic Laboratory, Health Biotechnology Division, National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad Pakistan

2011-2012 **Biology Lecturers**

Department of Biology, Cadet College Okara, Pakistan

2012-2013 **Biology Lecturers**

Department of Biology, Divisional Model College Faisalabad, Pakistan

2010-2011 **Graduation Interns**

National Institute of Biotechnology and Genetic Engineering (NIBGE),
Faisalabad, Pakistan

Fellowships:

- **Research Fellow** at Department of Food Science and Engineering, College of Chemistry and Chemical Engineering, Shenzhen University, Shenzhen, Guangdong, People's Republic of China

Scholarships and Awards:

- Chinese Government Scholarship (4 year) Funded by Chinese Government at Key Laboratory for Space Bioscience and Space Biotechnology, School of Life Sciences, Northwestern Polytechnical University, Xi'an 710072, Shaanxi, People's Republic of China.
- **Merit Scholarship in M.Phil.** from Government College University, Faisalabad, Pakistan.
- **First Position in M.Phil. Biotechnology** from Government College University, Faisalabad, Pakistan.

Research Skills and Expertise:

- Lactic Acid Bacteria and their effect on host health
- *Acetobacter acti* Bacteria and their application in industry
- Probiotic Safety Assay, Antibiotic Resistance, Antimicrobial activity Assay, Biofilm Formation
- Expression profile of Lactobacilli and their metabolites treated cancerous cells.
- Bacterial protein expression and purification systems and analysis
- SDS-PAGE/ Western blotting analysis, RT-qPCR analysis, Luciferase assay

Current Research Interests:

- Evaluation of Probiotic potential of Lactic Acid Bacteria
- Immunity enhancement by Lactic Acid Bacteria
- Cancer treatment by using Probiotic Bacteria

Publications: (Total Impact Factors=41.9)

Journals Articles

- **Riaz Rajoka MS**, Jin M, Haobin Z, Li Q, Shao D, Jiang C, Huang Q, Yang H, Shi J, Hussain N (2018) Functional characterization and biotechnological potential of exopolysaccharide produced by *Lactobacillus rhamnosus* strains isolated from human breast milk. LWT 89:638-647. doi:<https://doi.org/10.1016/j.lwt.2017.11.034>. (IF: 2.7)

- **Riaz Rajoka MS**, Hayat HF, Sarwar S, Mehwish HM, Ahmad F, Hussain N, Shah SZH, Khurshid M, Siddiqu M, Shi J (2018) Isolation and evaluation of probiotic potential of lactic acid bacteria isolated from poultry intestine. *Microbiology* 87:116-126. doi:10.1134/S0026261718010150. (IF: 0.8)
- **M.S. Riaz Rajoka**, Junling Shi, Jing Zhu, Dongyan Shao, Qingshen Huang, Hui Yan, Mingliang Jin, (2017). Capacity of lactic acid bacteria in immunity enhancement and cancer prevention. *Applied microbiology and biotechnology*. 101:35-45. (IF:3.4)
- **M.S. Riaz Rajoka**, Hafiza Mahreen Mehish, Muhammad Siddiq, Zhao Hoabin, Jing Zhu, Li Yan, Dongyan Shao, Xiaoguang Xu, Junling Shi, (2017). Identification, Characterization and probiotic potential of *Lactobacillus rhamnosus* isolated from human milk. *LWT-food science and technology*. 84:271-280. (IF: 2.7)
- **Riaz Rajoka MS**, Shi J, Mehwish HM, Zhu J, Li Q, Shao D, Huang Q, Yang H (2017) Interaction between diet composition and gut microbiota and its impact on gastrointestinal tract health. *Food Science and Human Wellness* 6:121-130. doi:https://doi.org/10.1016/j.fshw.2017.07.003
- Hussain N, Zhu W, Jiang C, Xu J, Geng M, Wu X, Hussain S, Wang B, **Riaz Rajoka MS**, Li Y, Tian J, Meng L, Lu S (2018) Down-regulation of miR-10a-5p promotes proliferation and restricts apoptosis via targeting T-box transcription factor 5 in inflamed synoviocytes. *Bioscience Reports*. doi:10.1042/bsr20180003. (IF: 1.9)
- Li Y, Xu X, Qu R, Zhang G, **Riaz Rajoka MS**, Shao D, Jiang C, Shi J (2018) Heterologous expression of *Oenococcus oeni* sHSP20 confers temperature stress tolerance in *Escherichia coli*. *Cell Stress and Chaperones*. doi:10.1007/s12192-018-0874-5. (IF: 2.4)
- Zhao X, Zhou L, **Riaz Rajoka MS**, Yan L, Jiang C, Shao D, Zhu J, Shi J, Huang Q, Yang H, Jin M (2017) Fungal silver nanoparticles: synthesis, application and challenges. *Critical Reviews in Biotechnology*:1-19. doi:10.1080/07388551.2017.1414141. (IF: 6.5)
- Junjun Li, **M.S. Riaz Rajoka**, D. Shao, C. Jiang, M. Jin, Q. Huang, H. Yang, Junling Shi, (2017). Strategies to increase the efficacy of using gutmicrobiota for the modulation of obesity. *Obesity review*. DOI:10.1111/obr.12590. (IF: 7.6)
- Dongyan Shao, Linbo Yao, **M.S. Riaz Rajoka**, Jing Zhu, Junling Shi, Mingliang Jin, Qingshen Huang, Hui Yan, (2017). Simulated microgravity affect some biological

- characteristics of *Lactobacillus acidophilus*. *Applied microbiology and biotechnology*. DOI 10.1007/s00253-016-8059-6. (IF: 3.4)
- Zhao Hoabin, Dongyan Shao, Chunmei Jiang, Junling Shi, Li Qi, Qingshen Huang, M.S. Riaz Rajoka, Hui Yan, Mingliang Jin, (2017). Biological Activity of lipopeptides from *Bacillus*. *Applied microbiology and biotechnology*. 101:5951-5960. (IF: 3.4)
 - Zhenhong Gao, M.S. Riaz Rajoka, Jing Zhu, Zhiwei Zhang, Yan Zhang, Jinxin Che, Xiaoguang Xu, Junling Shi, (2017). Bioconversion of pinoresinol diglucoside from glucose using resting and freeze dried *Phomopsis* sp. XP-8 cells. *Journal of microbiology and biotechnology*. DOI:10.4014/jmb.1703.03056. (IF: 1.4)
 - Huyan T, Li Q, Wang Y-L, Li J, Zhang J-Y, Liu Y-X, M.S. Riaz Rajoka, Yang H, Li H-Q (2016) Anti-tumor effect of hot aqueous extracts from *Sonchus oleraceus* (L.) L. and *Juniperus sabina* L – Two traditional medicinal plants in China. *Journal of Ethnopharmacology* 185:289-299. doi:https://doi.org/10.1016/j.jep.2016.03.044. (IF: 3.2)
 - Riaz, M. S., Shaheen, T., Batool, N., Saleem, S., Haris, A., Hayat, F. and Riaz, R. (2015) Modulation of immune system by taking probiotic bacteria: especially focus on lactic acid bacteria. *Asian Journal of Agriculture and Biology*. 3(2), p74-77.
 - Shahid Riaz, M., et al., *Lactic acid bacteria as probiotic candidate and their application*. *Journal of Biology and Today's World*, 2015. 4(12): p. 209-216.
 - Shahid Riaz, M., et al., *In-vitro Assessment of Probiotic Potential of Lactic acid Bacteria*. *Journal of Biology and Today's World*, 2015. 4(10): p. 190-198.
 - Book Chapter: Tayyaba Shaheen, Mehmood ur rahman, Muhammad Shahid Riaz, Yusuf Zafar, Meboob Ur Rahman (2015), Soybean production and drought stress. <http://dx.doi.org/10.1016/B978-0-12-801536-0.00008-6>

Manuscripts Submitted:

- Muhammad Shahid Riaz Rajoka, Hafiza Mahreen Mehwish, Hafiz Fakhar Hayat, Nazim Hussain, Sobia Sarwar, Kamran Bashir, Ahmad Nadeem, Junling Shi. Characterization, the antioxidant and antimicrobial activity of crude exopolysaccharide isolated from poultry origin lactobacilli. *Current Microbiology*. (Under review) IF:1.4
- Muhammad Shahid Riaz Rajoka, Haobin Zhao, Na Li, Yao Lu, Ziyang Lian, Nazim Hussain, Dongyan Shao, Mingliang Jin, Qi Li, Liqing Zhao, Junling Shi. Induction of apoptosis in cervix cancer (HeLa) cell line via metabolites from *Lactobacillus rhamnosus* isolated from human breast milk. *LWT-Food Science and Technology*. (Under review) IF:2.4

- Muhammad Shahid Riaz Rajoka, Haobin Zhao, Na Li, Yao Lu, Ziyang Lian, Nazim Hussain, Dongyan Shao, Mingliang Jin, Qi Li, Liqing Zhao, Junling Shi. Anticancer potential against cervix cancer (HeLa) cell line of probiotic *Lactobacillus casei* and *Lactobacillus paracasei* strains isolated from human breast milk. Food & Function. (Under review) IF:3.4

Poster Presentation:

- Suleman Munir, Muhammad Shahid Riaz Rajoka, Waqas Ali, Ahmad Naeem, Dr. Ibrahim Rajoka (2014) “Isolation and Characterization of Microalgae for Biofuel Production” poster presented in three days international conference on “Energy Production from Agriculture Biomass and Domestic Wastes” at PMAS- Arid Agriculture University Rawalpindi, Pakistan from 15-17 April, 2014.
- Muhammad Shahid Riaz Rajoka, Nagina Batool, Dr. Romana Tabassum (2014) “ Identification and Characterization of *Acetobacter aceti* from Papaya for Acetic Acid Production” poster presented in three days first international conference on “Applied Chemical, Biological and Aquatic Sciences” at Government college university Faisalabad, Pakistan from February 18-20, 2014.
- Muhammad Shahid Riaz Rajoka, Tayyaba Shaheen, Fakhar Hayat, Junling Shi (2015) “Invitro Assessment of Probiotic Potential of Lactic Acid Bacteria” poster presented in three days international symposium on “Space Biology and Biomedical engineering” at School of Life Sciences, Northwestern Polytechnical University, 127 Youyi West Road,Xi’an, Shaanxi Province 710072, China, September 18-20, 2015.

National and International Conference:

- Three days international symposium on “Space Biology and Biomedical engineering” at School of Life Sciences, Northwestern Polytechnical University, 127 Youyi West Road,Xi’an, Shaanxi Province 710072, China, September 18-20, 2015. **(Invited Speaker)**
- 15th International Bhurban Conference on Applied Sciences and Technology (09th–13th January, 2018), CESAT, Pakistan. **(Invited Speaker)**
- International conference on Life science and human health system engineering, multidisciplinary and interdisciplinary approach, 2018, Air University Islamabad, Pakistan. **(Invited Speaker)**

- Attended and certified two days' workshop on "Potential Biotech Industry for Entrepreneur's in Pakistan" 18-19 April, 2012 At NIBGE Faisalabad, Pakistan.
- Attended two days' workshop on "scientific communication" organized by Government College University Faisalabad, Pakistan from April 07-08, 2014.
- Attended and presented research work on bio-fuel production from micro algae in three days international conference on "Energy Production from Agriculture Biomass and Domestic Wastes" organized by PMAS- Arid Agriculture University Rawalpindi, Pakistan from 15-17 April, 2014.
- Attended and presented research work on "Isolation and Characterization of Acetobacter acetii from Papaya for Acetic Acid Production" in three days first international conference on "Applied Chemical, Biological and Aquatic Sciences" organized by Government college university Faisalabad, Pakistan from February 18-20, 2014.
- Attended and certified one postgraduate training course on "Safety Measures & Application of Radiations & Isotopes in Agriculture, Health & Industry" in 2012 at NIAB Faisalabad, Pakistan.
- Attended and certified Six National Training Workshop on "Electron, Confocal and Atomic Force Microscopy" in November 17-21, 2014 at NIBGE, Faisalabad.

Nucleotide Sequences Published:

- MH037164, MH037165, and MH037166. Anticancer potential of probiotic Lactobacillus casei and Lactobacillus paracasei strains isolated from human breast milk against cervix cancer (HeLa) cell line (2018)
- KY679594, KY679595, KY679596, KY679597, KY679598, KY679599, KY679600, KY679601, KY679602, KY679603, KY679604, KY679605, KY679606. Isolation and Evaluation of probiotic potential of Lactic acid bacteria isolated from poultry intestine (2018).
- KY054573, KY054574, KY054575, KY054576, KY054577, KY054578, KY054579. Isolation of Lactobacillus rhamnosus from mother milk (2017).

Membership:

- American Society of Microbiology (Member)
- Chinese Society of Microbiology (Member)

References:

Prof. Dr. Junling Shi , Ph.D. (Ph.D. Supervisor)

Professor

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Dr. Tayyaba Shaheen (MS Supervisor)

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Prof. Dr. Romana Tabaasum (BS Supervisor)

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