

**Dr. Faiza Rasheed**

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**Present Position**

Assistant Professor

Department of Biotechnology, Quaid-i-Azam University, Islamabad, Pakistan

**PROFESSIONAL EXPERIENCE** **Researcher June 2017-October 2020**

Homogeneous wheat gluten for renewable bio-based materials, KTH, Stockholm and SLU Alnarp, Sweden.

**Post-Doc Fellowship March 2015 June 2017**

Heterogeneous production of wheat alpha-gliadin proteins by transformation of gliadin genes in E.coli, SLU, Alnarp in collaboration with MAX IV, Lund and KTH, Stockholm, Sweden.

**PhD (Research Associate) Feb 2011-Feb 2015**

Thesis: Tailoring the Structure-Function Relationship in Wheat Gluten-Processing, Genotype and Environment Effects in Bio-Based Materials.

**RESEARCH PROJECTS**

- Ongoing; NRPU Competitive Research Grant from Higher Education Commission, Pakistan. 2021-2024 6.1 million
- URF, QAU: 0.05 million
- Research Funding from VINNOVA Sweden, 2017.
- Funding from Stiftelsen Edvard Nonnens Stipendefond. 2014.
- Scholarship from Wallenberg fund for the Oral presentation at Polymar, 2013 conference. 2013.
- Awarded one year research and development grant by Ministry of food and agriculture by Govt. of Pakistan. 2010

**PUBLICATIONS**

- 1- Sajjad, A., Sajjad, H., Hanif, S., **Rasheed, F.**, & Zia, M. (2023). Fabrication and characterization of wheat-gluten/hematite nanocomposite film with antibacterial and antioxidant properties for biological applications. *Biomass Conversion and Biorefinery*, 1-13
- 2- Sajjad, A., **Rasheed, F.**, Xiao, X., Olsson, R.T., Capezza, A.J. and Zia, M., 2023. Integration of Zinc Oxide Nanoparticles in Wheat Gluten Hydrolysates-Development of Multifunctional Films with Pliable Properties. *Journal of Inorganic and Organometallic Polymers and Materials*, pp.1-16.
- 3- Sajjad A., Zia M., Xiong X., Olsson T. R., Capezza J. A., **Rasheed F.** 2023. Wheat gluten hydrolysates with embedded Ag-nanoparticle; A structure-function assessment for potential applications as wound sorbents with antimicrobial properties. *118: 107896*.
- 4- Markgren J\*, **Rasheed F\***, Hedenqvist M, Skepö M, Johansson E. 2022. *International journal of Biological Macromolecules*. \*Markgren J and **Rasheed F.** are equal contributors.
- 5- **Rasheed F**, Markgren J, Hedenqvist M, Johansson E. 2020. Modeling to Understand Plant Protein Structure-Function Relationships-Implications for Seed Storage Proteins. *Molecules*. 25: 873.
- 6- Markgren, J., Hedenqvist, M., **Rasheed, F.**, Skepö, M. and Johansson, E., 2020. Glutenin and gliadin, a piece in the puzzle of their structural properties in the cell described through monte carlo simulations. *Biomolecules*, 10: 1095.

- 7- Kianersi, F., Abdollahi, M.R., Mirzaie-asl, A., Dastan, D., & **Rasheed F.** 2020. Identification and tissue-specific expression of rutin biosynthetic pathway genes in *Capparis spinosa* elicited with salicylic acid and methyl jasmonate. *Scientific Reports*, 10, 8884.
- 8- Kianersi, F., Abdollahi, M.R., Mirzaie-asl, A., & **Rasheed F.** 2020. Biosynthesis of rutin changes in *Capparis spinosa* due to altered expression of its pathway genes under elicitors' supplementation. *Plant Cell Tiss Organ Cult* 141, 619–631 (2020).
- 9- Mahmood, R., Kayani, W.K., Ahmed, T., Malik, F., Hussain, S., Ashfaq, M., Ali, H., Rubnawaz, S., Green, B.D., Calderwood, D. and Kenny, O., River, G.A., Mirza, B., **Rasheed, F.** 2020. Assessment of antidiabetic potential and phytochemical profiling of *Rhazya stricta* root extracts. *BMC complementary medicine and therapies*, 20: 1-17.
- 10- Das O, **Rasheed, F**, Kim N. K, Johansson E, Capezza A. J, Kalamkarov A. L, & Hedenqvist M. S. 2019. The development of fire and microbe resistant sustainable gluten plastics. *Journal of Cleaner Production*.
- 11- Diuk Andrade F, Newson WR, Bernardinelli OD, **Rasheed F**, Cobo MF, Plivelic TS, Ribeiro deAzevedo E, Kuktaite R. 2018. An insight into molecular motions and phase composition of gliadin/glutenin glycerol blends studied by <sup>13</sup>C solid-state and 1H time-domain NMR. *Journal of Polymer Science Part B: Polymer Physics*. 56: 739-50.
- 12- **Rasheed F**, Plivelic TS, Kuktaite R, Hedenqvist MS, Johansson E. 2018. Unraveling the Structural Puzzle of the Giant Glutenin Polymer-An Interplay between Protein Polymerization, Nanomorphology, and Functional Properties in Bioplastic Films. *ACS Omega*. 3: 5584-92.
- 13- Kuktaite R, Newson WR, **Rasheed F**, Plivelic MS, Hedenqvist MS, Gällstedt M, Johansson E. 2016. Monitoring nano-structure dynamics and polymerization in glycerol plasticized wheat gliadin and glutenin films: relation to mechanical properties. *ACS Sust Chem Engineer*. 4: 2998–3007.
- 14- **Rasheed F**, Kuktaite R, Hedenqvist MS, Gällstedt M, Plivelic T, Johansson E. 2016 The use of the plant as a “green factory” to produce high strength gluten-based plastics. *Green Chem*. 18: 2782–2792.
- 15- **Rasheed F**, Hedenqvist MS, Kuktaite R, Plivelic TS, Gällstedt M, Johansson E. 2015. Mild gluten separation – A non-destructive approach to fine tune structure and mechanical behavior of wheat gluten films. *Ind Crops Prod* 73:90-98.
- 16- **Rasheed F**, Newson WR, Plivelic TS, Kuktaite R, Hedenqvist MS, Gällstedt M, Johansson E. 2015. Macromolecular changes and nano-structural arrangements in gliadin and glutenin films upon chemical modification. *Int J Biol Macromol* 79:151-159.
- 17- Newson WR, **Rasheed F**, Kuktaite R, Hedenqvist MS, Gällstedt M, Plivelic TS, Johansson E. 2015. Commercial potato protein concentrate as a novel source for thermoformed bio-based plastic films with unusual polymerization and tensile properties. *RSC Adv* 5:32217-32226.
- 18- **Rasheed F**, Newson RW, Plivelic TS, Kuktaite R, Hedenqvist MS, Gällstedt M, Johansson E. 2014. Structural architecture and solubility of native and modified gliadin and glutenin proteins: non-crystalline molecular and atomic organizations. *RSC Adv* 4:2051-2060.
- 19- Johansson E, Malik AH, Hussain A, **Rasheed F**, Newson WR, Plivelic T, Hedenqvist MS, Gällstedt M, Kuktaite R. 2013. Wheat gluten polymer structures: The impact of genotype, environment and processing on their functionality in various applications. *Cereal Chem* 90:367-376.
- 20- Blomfeldt T, Kuktaite R, Plivelic TS, **Rasheed F**, Johansson E, Hedenqvist MS. 2012. Novel freeze-dried foams from glutenin- and gliadin-rich fractions. *RSC Adv* 2:6617-6627.
- 21- Iftikhar F, Arshad M, **Rasheed F**, Amraiz D, Anwar P, Gulfraz M. 2010. Effects of acacia honey on wound healing in various rat models. *Phytotherapy Research*. 24: 583-6.

#### CONFERENCES

1. Eva Johansson, Ramune Kuktaite, Joel Markgren, and **Faiza Rasheed**. Gluten proteins and their structure-function relationships. 2018. 13th International Gluten Workshop 14-17 March 2018, **Mexico**.

2. **Faiza Rasheed**, Genetic Impact on Protein Polymerization In Various Applications. International Wheat Genetic Symposium. 23-28 April 2017, Tulln, **Austria**
3. **Faiza Rasheed**, Macromolecular and nano-structured assemblies in gluten-based soft materials and their relationship to protein functional properties. Nano to Macrostructure characterization in soft materials, 2016, Strömstad, **Sweden**.
4. **Faiza Rasheed**, Options to tailor-made the structure and polymerization of gluten proteins in relation to functional properties for various end-use properties. 12<sup>th</sup> IGB 2015, 13-15th September, Perth, **Australia**.
5. **Faiza Rasheed**. Structural modeling of wheat gliadin protein in bio-based materials, International conference on biobased materials and composites, May13-16, 2014, Montreal **Canada**.
6. **Faiza Rasheed**. Structural and functional dynamics of gliadin and glutenin enriched films with additives, POLYMAR 2013, Barcelona **Spain**, November 3-7, 2013.
7. **Faiza Rasheed**. Structural and mechanical properties of compression-molded wheat gluten, gliadin and glutenin enriched films, 11th International Gluten Workshop, August 12-15, 2012, Beijing, **China**.
8. **Faiza Rasheed**. Sustainable production of bio-based plastic materials from wheat gluten, Nordic polymer days, 2011, June 15-17, 2011, Stockholm, **Sweden**.
9. **Faiza Rasheed**. Bio-based materials production from wheat gluten proteins involving pre-breeding, NOVA, Pre-Breeding course, 2012, January 22-29, 2012, Röstånga, **Sweden**.
10. Faraz Muneer, William. R. Newson, **Faiza Rasheed**, Mikael Hedenqvist, Mikael Gällstedt, Eva Johansson, "Hemp fiber reinforced wheat gluten, glutenin and gliadin based plastics; Evaluation of the mechanical properties and biodegradability", 11th International Gluten Workshop, **China**, August 12-15, 2012.
11. Eva Johansson, W.R. Newson, Tomas O.J. Blomfeldt, Hasan Türe, **Faiza Rasheed**, S-W. Cho, Mikael.S. Hedenqvist, Therese Johansson, Mikael. Gällstedt, Ramune. Kuktaite. BIOPOL, 2011, August 29-31, 2011, Strasbourg, **France**.
12. Ramune Kuktaite, Tomás S. Plivelic, William R. Newson, Thomas O. J. Blomfeldt, Hasan Türe, **Faiza Rasheed**, Mikael S. Hedenqvist, Salla Marttila, Mikael Gällstedt, and Eva Johansson, WCAB, 2011, October 28-30, 2011, Changchun, **China**.

#### POPULAR SCIENCE ARTICLES

1. Rasheed F, (2016) Green Machineries as Biochemical Modifiers for Efficient Agricultural Raw Materials. Green Chemistry: The Nexus Blog
2. 2. Kuktaite R, Newson WR, Rasheed F, Hedenqvist MS, Johansson E (2015) How the unuseful can be turned into sustainable and useful: Novel potato protein bioplastics with unusual strength. Fakta från Partnerskap Alnarp. Fakulteten för landskapsarkitektur, trädgårds- och växtproduktionsvetenskap, Info nr 18, 2015.
3. 3. Rasheed F, Plivelic TS, Newson RW, Johansson E, Kuktaite R (2012) Morphology of wheat gluten, gliadin and glutenin enriched proteins films by SAXS and WAXS. MAX IV Laboratory Beam line 1911-4 reports.

#### MONOGRAPHS

1. Rasheed F (2015) Tailoring the Structure-Function Relationship in Wheat Gluten-Processing, Genotype and Environment Effects in Bio-Based Materials. Dissertation (summary) Alnarp : Swedish university of agricultural sciences, Acta Universitatis agriculturae Sueciae. ISBN-978-91-576-8224-6. 2015:13.
2. Rasheed F (2011) Production of sustainable bioplastic materials from wheat gluten proteins. ISSN-1654-3580. 2011:4.

**Professional Skill Development**

Workshop on **Research Grant Proposal writing** by British Council, Training from Coventry University, UK and HEC Pakistan, 19<sup>th</sup>-22<sup>nd</sup> September 2022.

**PROFESSIONAL SUPERVISION TRAINING**

- Teaching in Higher Education
- Doctoral Supervision Courses
- Education for Sustainable Development
- Management Skills In Higher Education Teaching
- Scientific Writing
- Popular Science Writing
- Ethics in Science

**PhD students Supervised**

2022- Joel Markgren (co-supervised)- Aggregation of gluten proteins: from wheat seed biology to hydrogels, The Swedish University of Agricultural Sciences, Alnarp Sweden.

2020- Farzad Kianersi (Co-supervised)- Identification and Expression Analysis of some rutin biosynthesis genes in Caper (Capparis Spinosa L.) by different elicitors. Bu-Ali Sin University, Hamdan, Iran

**MPhil Students Supervised**

**2022**

Sara Fatima: Biobased Films with improved water resistivity; A sustainable solution to packaging Industry

Naushaba Nazli: Development of edible coatings enriched with pomegranate peel extract to extend shelf life of bananas

Ibrahim Khan: Assessment of Various Nutritional Components of Mango Kernel to Determine its Potential as a Food

Ayesha Asif: Wheat Proteins-based Bioplastics; Synthesis, Properties, and Applications

Hifza Zahid: Synthesis and Characterization of Cellulose Nanofibers from Wood Waste

**LEADERSHIP/ ADMINISTRATIVE SKILLS**

- QAU Executive Council member from Department of Biotechnology 2022
- Course coordinator, Department of Biotechnology, Fall 2022, Spring 2023
- HEC focal person, Department of Biotechnology, QAU Islamabad-2022
- During my PhD, Postdocs and current position, I have been very independent in conducting the assigned research activities, and generated my own ideas to run the projects in successful direction
- Worked as chair and vice chair for Ask- council, SLU, Alnarp
- PhD representative for three years in docent board (associate professor evaluation board), and internationalization board LTV-faculty, SLU Alnarp
- PhD representative from LTV faculty, Alnarp in FUR-board, SLU, Uppsala for two years.
- Organized several re-creational activities through Ask-PhD council at SLU Alnarp.
- Official representative from Department of Plant Breeding to brief south Korean officials for agricultural research and development projects at The Swedish University Agricultural Sciences, Sweden.