

BIO-DATA

1. **Name and full correspondence address** : Dr Rajiv Arora
Department of Chemical Engineering
Shaheed Bhagat Singh State University
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2. **Email(s) and contact number(s)** : rajivarora@sbsstc.ac.in, rajiv_fzr@yahoo.com
+919463385619
3. **Institution** : Shaheed Bhagat Singh State University, India
(Formerly known as Shaheed Bhagat Singh State Technical Campus)
4. **Date of Birth** : 30.12.1972
5. **Gender** : Male
6. **Whether differently abled (Yes/No)** : No

7. **Academic Qualification (Undergraduate Onwards)**

	Degree	Year	Subject	University/Institution	% of marks
1.	B.Tech	1991-95	Chemical & Bio Engg	GNDU, Amritsar (NIT Jalandhar, India)	69 %
2.	M.Tech	2008	Chemical Engg	Punjab Technical University, Jalandhar, India	74%
3	Ph.D	2017	As per details below		

8. **Ph.D thesis title, Guide's Name, University, Year of Award.**

Title: PARAMETRIC STUDY ON BIODIESEL PRODUCTION FROM HIGH FREE FATTY ACID RICE BRAN & ALGAE *CHLORELLA MINUTISSIMA* USING HETEROGENEOUS CATALYST

Guide's Name: Prof Amrit Pal Toor, Prof R K Wanchoo

Institute/University: Dr S S B Univ Institute of Chemical Engg. & Tech., Panjab University, Chandigarh (India)

Year of Award 2017

9. **Work experience (in chronological order).**

S.No.	Positions held	Name of the Institute	From	To	Pay Scale (INR)
1	Sales & Service Technologist	Asian Paints (I) Limited (India)	08.07.1996	08.07.2000	20000
2	Assistant Prof & Associate Prof, Prof	Shaheed Bhagat Singh State Technical Campus, Ferozepur (India)	AP – 17.07.2000 Assoc Prof – 18.07.2014	AP – 17.07.2014 Associate Prof – till date	37400 – 67000

10. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.

S.No	Name of Award	Awarding Agency	Year
1.	Ist Prize – Paper Presentation	Chandigarh Science Congress, Panjab University, Chandigarh	2012
2.	2nd Prize – Paper Presentation	Chandigarh Science Congress, Panjab University, Chandigarh	2015
3.	2 nd prize – Project Presentation	TECHNO-OPUS-2014 SBSSTC, Ferozepur.	2014
4.	2 nd prize – Project Presentation	TECHNO-OPUS-2015 SBSSTC, Ferozepur.	2015
5.	Ist Prize – Paper Presentation	National Conference on Energy, Economy and Environment (ENERGY2016), National Institute of Technology, Calicut	2016
6.	Keynote Speaker - 8 th International Conference on Chemistry and Chemical Engg. – Barcelona, Spain	Chemical, Biological & Environmental Engineering Society, Hongkong	2017
7.	Expert Speaker - Bioprocessing India 2017	Indian Institute of Technology(IIT), Guwahati	2017
8.	Keynote Speaker - 3rd International Conference on Agricultural & Food Chemistry, Rome, Italy	EuroSciCon Limited, UK	2018
9.	Invited Talk - SLIETCON, 2019	Sant Longowal Institute of Engineering & Technology(SLIET), Longowal	2019
10.	Expert Talk – Short Term Training Program on Advances in Separation Processes and Purification Techniques (ASPPT-2019)	Sant Longowal Institute of Engineering & Technology(SLIET), Longowal	2019
11.	Keynote Speaker - International conference on Food Science and Nutrition' was held in Vienna (Austria)	Scientex International	2021
12	Invited participant in G-20 Summit in Amritsar (to show the latest product produced from waste Paddy Straw)	Government of India	2023

11. Publications

International Journals – 8

National Journals – 6

Conference Proceedings – 22

12. No of M.Tech Projects guided – 10**13. No of Ph.D students – 01****14. Detail of patents.**

S.No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status
1	A NOVEL PROCESS FOR EXTRACTING USEFUL COMPONENTS FROM RICE BRAN	Rajiv Arora	Provisional Patent filed	Pending (filed in 2021)	Controller General of Patents, Designs & Trade Marks, India	Request for Examination

15. Books/Reports/Chapters/General articles etc.

S.No	Title	Author's Name	Publisher	Year of Publication
1	Parametric Study of Esterification of High Free Fatty Acid Rice Bran Oil Using Heterogeneous Nano-Catalyst	Rajiv Arora, Amrit Pal Toor and R K Wanchoo	McGraw Hill (USA)	2015
2	Frontiers in Materials Research and Applications-2015	Rajiv Arora, Neel Kanth Grover	EXCEL INDIA PUBLISHERS NEW DELHI	2015

16. Other Information

- (a) My project 'Low cost nutrients from rice bran' has already been recognized by Millenium Alliance' (Joint group of Govt of India, USA and UK) among the top innovations of 2017. Please find below the video shoot by 'Millenium Alliance' which is available on youtube

<https://www.youtube.com/watch?v=6S6xLSDtxXg&t=4s>

- (b) **Developed a new Zirconia based heterogeneous catalyst** that has already been tested for the 'Esterification of Free Fatty Acids and other acids'. The efficiency of this nano-catalyst is much higher as compared to the existing catalysts. The catalyst is expected to work well in other reactions like cracking, alkylation, isomerization etc., the work is still pending. **This catalyst can work well in your work related to production of polyoxymethylene ethers (OME) as Zr-Alumina based catalyst has already been used for the production of OME***. This newly developed catalyst is highly acidic and it can be patented jointly.

I have already used 'Aluminum impregnated Sulfated Zirconia' for the production of Biodiesel/Fatty Acid Methyl Ester (FAME) in my Ph.D work and the catalyst gave excellent result. The newly developed catalyst is more efficient than the earlier used Aluminum impregnated Sulfated Zirconia.

*Zhang J, Fang D, and Liu D, Evaluation of Zr–Alumina in Production of Polyoxymethylene Dimethyl Ethers from Methanol and Formaldehyde: Performance Tests and Kinetic Investigations, Ind. Eng. Chem. Res. 2014, 53, 13589–13597

- (c) I have already developed and tested one novel process for simultaneous extraction and esterification/transesterification (for the production of biofuels) which I will be patenting soon. This process can be tested again in your lab before filing the patent.
- (d) Delivered Expert Talks/Keynote Lectures in various countries as per details in 10 above. Apart from this, I have delivered many expert talks in 'Faculty Development Programs' in India.
- (e) More than 23 years of teaching & research experience and 4 years of Industrial Experience.
- (f) Presently working on novel technique for the continuous production of biodiesel (hope for another patent) using heterogeneous catalysts.
- (g) I am using Gas Chromatograph, CHNS analyzer, BET Surface area analyzer and Spectrophotometer (available in my lab) since 2011. I have also used XRD and SEM-EDX but not having expertise.
- (h) Consultant to BLV Exports Pvt Limited, India (<https://www.blvexports.com>) for setting up new plant for the Production of Rice Bran Nutrients. This plant will be first of its type in the world to produce highly nutritious rice bran nutrition powder and other products. Expected completion of the project and industrial production is Dec 2022.
- (i) Worked as Head of the Chemical Engineering Department in Shaheed Bhagat Singh State University, Ferozepur (India) from June 2015 to June 2022. Earlier also from July 2006 to June 2009, I was Head of

the Chemical Engineering Department of my institute. I am Chairman/member of 'Board of Studies (Chemical & Petroleum Engg., Agriculture Science)' of various Universities in India.

17. Work style

- Willing to perform basic tasks and move on to solve complex problems
- Able to learn new knowledge and adapt to new environments quickly
- Strong passion for research and independent work style
- excellent teamwork skills
- Proficient in statistical analysis (DESIGN-EXPERT) and MATLAB software

18. References

(a) Dr Amrit Pal Toor

Professor

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(b) Dr S K Sharma

Prof Emeritus

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(c) Dr Susheel

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