# **BIO-DATA**

# PREETISAGAR TALUKDAR

Qualification: PhD (Thesis Submitted) Chemical Engineering Indian Institute of Technology, Guwahati Email ID: preetisagar1891@gmail. Mobile number: +91-8876715692



## DESCRIPTIONS

- I am keen and prepared to work with determination, perseverance and dedication and to achieve organizational goals in the spirit of teamwork and cooperation as a working professional.
- I am looking for a challenging career that offers a learning curve and provides opportunities to develop and design solutions that impact society at large.
- I am a confident, continuous and enthusiastic learner with thorough interest in Food Engineering and Technology, Biotechnology and Food Science and Nutrition.
- Owing to my research related activities and zeal for its implementation, I will be able to **work in multidisciplinary academic fields and research teams.**
- I have experience in book chapter and paper writing, having **published both chapters** and papers.
- In the field of instrumentation, I am able to operate a various number of analytical instruments such as HPLC (list of instruments below in detail) and am always inclined towards learning new things.

# ACADEMIC QUALIFICATIONS

THESIS submitted for Ph.D. degree in CHEMICAL ENGINEERING from INDIAN INSTITUTE OF TECHNOLOGY, GUWAHATI, Assam.

# **EDUCATION QUALIFICATIONS**

June 2016	M. Tech in Food Engineering & Technology 8.71 CGPA, Department of Food Engineering & Technology Tezpur University, Napaam Tezpur, Assam, INDIA
June 2014	<ul> <li>B. Tech in Food Engineering &amp; Technology</li> <li>7.90 CGPA</li> <li>Department of Food Engineering &amp; Technology</li> <li>Tezpur University, Napaam</li> <li>Tezpur, Assam, INDIA</li> </ul>

June 2010	Intermediate (10+2) 76%, 1 <sup>st</sup> Division Cotton College, Guwahati, Assam Name of Council: AHSEC
June 2008	High School (10) 87.67 %, 1 <sup>st</sup> Division Don Bosco High School, Sonaighuli, Guwahati, Assam Name of Board: SEBA

#### M.TECH RESEARCH ASSIGNMENTS AND THESIS ENTITLED

1<sup>st</sup> Aug 2015 to 30<sup>th</sup> May 2016 'Analysis of temperature dependence of hydration process in legumes'

Supervisor: Associate Professor, Dr. Manuj Kumar Hazarika Department of Food Engineering & Technology, Tezpur University

Abstract: Experiments were carried out to estimate the equilibrium moisture content of bengal gram, black eyed peas, chickpeas, pea and kidney beans, at known relative humidity by the chemical method, at temperatures from 20°C to 60°C. The equilibrium moisture data is related to storage RH by GAB equation as well as by artificial neural network (ANN) model. The highest R value and the least MSE value correspond to the hidden neurons of 5 (for kidney bean and chickpeas) and 9 (black eyed peas, peas and bengal gram) with the neural network of 7-5-1 and 7-9-1 respectively. At a given moisture content, water activity value is estimated by the fitted GAB model in the moisture range from 5 to 20%, at all the temperatures. The generalized isotherm model involving isokinetic temperature and two other parameters viz., K<sub>1</sub> and K<sub>2</sub> were developed. The overall values were  $K_1 = 6237.907$  and  $K_2 = 0.8325$ . These two parameters were used for hydration kinetics study of the same product. For studying the kinetics of hydration of bengal gram, black eyed peas, chickpeas, pea and kidney beans at different temperatures, were carried out with measurement of moisture content at known intervals considering the principle of onedimensional mass transfer to spherical body. For expressing the dependence of the diffusivity value on temperature and moisture, the model involved an expression containing the parameters K1 and K2 and heat of sorption. Simulations were carried out to estimate a value of the preexponent of diffusivity expression (D<sub>o</sub>)

#### **B. TECH RESEARCH ASSIGNMENT AND THESIS ENTITLED**

1<sup>st</sup> Aug 2013- 30<sup>th</sup> May 2014 'Batch Mode of Refractance Window Drying System for better Quality Retention in Dehydrated food'

Supervisor: Associate Professor, Dr. Manuj Kumar Hazarika Department of Food Engineering & Technology, Tezpur University

Abstract: Carrots were dried in a refractance window drying method at 95°C for 70-75 minutes; the thickness of the carrot is 1.02-1.25 mm. To obtain the thickness in between this range a vegetable cutter is used. The temperature 95°C is the optimal temperature for drying in refractance window drying as this temperature has the wavelength which gives the highest energy that is required for drying. The drying studies were done by the application of Fick's second law of diffusion and the various thin layer models. Among the semi- theoretical models, the Midilli-

Kuccuk model was the best fitted model with a R<sup>2</sup> of 0.9788. Quality parameters of dried carrots like moisture content, ash content, fat content, color measurement, protein content, crude fiber content, water activity, rehydration ratio was determined by various experiments. Storage study was done and the various quality parameters were determined at an interval of 15 days. From the experimental values of water activity, moisture content, rehydration ratio it can be said that refractance window drying gives better results than any other conventional drying methods. It is also seen that the drying time of samples in refractance window drying is faster than any other conventional drying methods. Blanching of the sample was done prior to drying at 85°C for 1-2 minutes as a carrot pre-mix is created from the dried carrots. The pre-mixed product on cooking gave desirable texture profile analyses values and according to sensory analysis the acceptability of the product was positive.

# TRAINING/PROJECTS

- Training: Milk and Milk Products
   Organization: Purabi Diary, Guwahati
   Details: Training course during winter break
   From: 15<sup>th</sup> 31<sup>st</sup> December, 2011.
- Training: Agro Processing
   Organization: Central Institute of Agricultural Engineering (CIAE), Bhopal Details: Training course during summer break

   From: 1<sup>st</sup> 30<sup>th</sup> June, 2012.
- **Training: Milk and Milk Products** Organization: Delhi Milk Scheme (DMS), New Delhi Details: Training course during summer break From: 10<sup>th</sup> June – 10<sup>th</sup> July, 2013.

# TEACHING ASSISTANT DURING P.hD

- Delivered lectures on various topics and spearheaded **practical classes** of B.Tech and M.Tech students for courses like **Heat Transfer, Mass Transfer, Material Characterizations and Fluid Mechanics**.
- Conducted **theory classes** and doubt clearing sessions for P.hD enrolled JRF and SRF members for the course **Research Methodology and Scientific Writing**.
- **Prepared study materials and took theory classes** of M.Tech students for the course 'Advanced Food Processing' under International Joint Master of Technology degree (IMD) in Food Science and Technology (FST) (Jointly offered by IIT Guwahati, India and GIFU University, Japan).

# MENTORSHIP/IN-CHARGE DURING P.hD

• Mentored interns from Assam Engineering College, Guwahati in topics like: food product development and food product-process characterizations.

- In-charge of M.Tech student's final year project titled 'Parametric optimality of refractance window dried ginger'.
- Mentored and guided P.hD students on topics like: drying technology, model fitting, sample analysis and characterizations, food product development, process-product optimizations and food product evaluations and analysis.

# **BOOK CHAPTERS**

- Effect of non-conventional drying technique of food products *in*: Trends and Innovation in Food Processing and Technology (Pranjal Pratim Das, Preetisagar Talukdar, Manuj Kumar Hazarika) Volume-2, Apple Academic Press, New Delhi.
- Study of enthalpy-entropy compensation and adsorption characteristics of legumes using ANN modelling *in*: Food Product Optimization for Quality and Safety Control Process, Monitoring & Standards (Preetisagar Talukdar, Pranjal Pratim Das, Manuj Kumar Hazarika) Apple Academic Press.
- Study of refractance window dried shredded carrot and analysis of its physical properties *in*: Natural Food Products and Waste Recovery (Preetisagar Talukdar, Pranjal Pratim Das, Manuj Kumar Hazarika) Apple Academic Press.
- **Frozen foods: Science, shelf life and quality** *in*: Shelf Life and Food Safety (Hilal A. Makroo, Preetisagar Talukdar, Baby Z. Hmar, and Pranjal Pratim Das) CRC Press, Taylor and Francis.

# PAPER PUBLICATIONS

- **Process and product characteristics of refractance window dried** *Curcuma longa* Preetisagar Talukdar and Ramagopal V.S Uppaluri, Journal of Food Science, 86 (2) (2021), pp. 443-453.
- **Techno-economic efficacy of refractance window dried** *Curcuma Longa*, Preetisagar Talukdar, Imdadul Hoque Mondal and Ramagopal V.S Uppaluri, *Springer-Nature* (2022) (Accepted)
- **Parametric optimality of refractance window dried ginger,** Pankaj Kumar, Preetisagar Talukdar, Srimonti Dutta and Ramagopal V.S Uppaluri, *Springer-Nature* (2022) (Accepted)

# ACHIEVEMENT AND EXTRACURRICULAR ACTIVITY

- Secured '1<sup>st</sup> position (Branch level) and 3<sup>rd</sup> position (State level)' in Bharat Ko Jano quiz competition organized by Bharat Vikas Parishad in 2002.
- Secured '3<sup>rd</sup> position' in Talent Search Examination organized by Brahmaputra Educational Service & Trainings in 2005.

- Participated and won various competitions (Quiz, Extempore, Fancy dress, Art) at school level between 1996-2007.
- Recipient of 'Anundoram Borooah Award' in the year 2009.
- Qualified 'All India Engineering Entrance Examination' (AIEEE) in the year 2010, took admission in B.Tech thereafter.
- Participated and **won first prize** in poster presentation titled '**Batch mode of refractance window drying system for better quality retention in dehydrated food**' in the National Conference on Emerging technology trends in agriculture engineering, organized by North Eastern Regional Institute of Science and Technology (NERIST) in November, 2014.
- Successfully completed SCILAB test organized at Tezpur University, School of Engineering conducted remotely from IIT Bombay under the 'Spoken Tutorial Project, IIT Bombay', funded by National Mission on Education through ICT, MHRD, Govt. of India.
- Event Coordinator (Wrangle; Debate) of the annual Techno-Cultural fest TECHXETRA in Tezpur University for the session, 2012-2013.
- Head, Marketing section of the annual Techno-Cultural fest TECHXETRA in Tezpur University for the session, 2012-2013.
- Placement Coordinator in the Training and Placement Cell for the Department of Food Engineering and Technology in Tezpur University for the year 2013-2014.
- Actively involved in various Blood Donation Camp organized in Tezpur University.
- Active member of the National Social Scheme (NSS) of Tezpur University.
- Event volunteer in international conference on 'Indo-Japan Bilateral Symposium on Future Perspective of Bio-resource Utilization', organized by the Department of Chemical Engineering, Indian Institute of Technology, Guwahati and GIFU University, Japan on February 1-4, 2018.
- Control room coordinator for national conference 'North-East Research Conclave 2022 and Assam Biotech Conclave 2022', organized by Indian Institute of Technology, Guwahati, Science, Technology and Climate Change Department and Department of Education, Government. of Assam on 20 – 22 May, 2022.

# SEMINARS/CONFERENCES ATTENDED

- Participated in a workshop on 'Human Rights Awareness', organized by Equal Opportunity Cell, Tezpur University in November, 2011.
- Participated and won first prize in Poster presentation title 'Batch mode of refractance window drying system for better quality retention in dehydrated food' in a national conference on 'Emerging technology trends in agriculture engineering', organized by

North Eastern Regional Institute of Science and Technology (NERIST) in November, 2014.

- Participated in a national seminar on 'Innovative prospects in food processing', organized by the Department of Food Engineering & Technology, Tezpur University in March, 2015.
- Participated in a national seminar on 'Consultative cum awareness meeting on renewable energy application at North East India and interaction of finishing students with industry', organized by the Department of Energy, Tezpur University in November, 2015.
- Participated in a national seminar on **'Food processing and technology: Current status and future prospects'**, organized by School of Bioengineering and Food Technology, Shoolini University in February, 2016.
- Participated in an international workshop (GIAN) on 'Energy management and renewable energy intervention for industrial drying', organized jointly by the Department of Energy and Department of Food Engineering & Technology, Tezpur University on June 13 23, 2016.
- Participated in an international workshop (GIAN) on **'Bio-sensing Principles and Technologies'**, organized by the Department of Physics, Tezpur University on June 22 July 02, 2016.
- Participated in an awareness training programme on 'Full Agenda of ACS on Campus' organized by the American Chemical Society, IIT Guwahati on January 16, 2017.
- Participated and delivered poster presentation titled 'Comparative study of hot air drying and fluidized bed drying of carrot' in the national seminar on 'Trends and innovation in food processing and technology', organized by the Department of Food Engineering & Technology, Tezpur University on February 10-11, 2017.
- Participated in 'Advanced microscopy and imaging', programme organized jointly by DSS Imagetech Pvt Ltd, Olympus Medical System India Pvt Ltd and IIT Guwahati in April 18-20, 2017.
- Participated in a workshop on 'Aspen plus software', organized by Guwahati Regional Center of Indian Institute of Chemical Engineers and the Department of Chemical Engineering, IIT Guwahati on August 20, 2017.
- Participated in a workshop on **'IDEATHON: Youth innovation for a brighter Assam'**, organized by United Nations Development Programme and Center for Sustainable Development Goals along with Government of Assam in November 2-3, 2017.
- Participated and delivered poster presentation on title 'Modelling of moisture absorption isotherm of mung beans' in the international conference on 'Indo-Japan bilateral Symposium on Future Perspective of Bio-Resource Utilization', organized by the

Department of Chemical Engineering, Indian Institute of Technology, Guwahati and GIFU University, Japan on February 1-4, 2018.

- Participated and delivered poster presentation on title 'Comparative study between hot air drying and fluidized bed drying of carrot' in the international conference on 'Indo-Japan bilateral symposium on future perspective of bio-resource utilization', organized by the Department of Chemical Engineering, Indian Institute of Technology, Guwahati and GIFU University, Japan on February 1-4, 2018.
- Participated and delivered oral presentation on title '**Optimality of oven, tray and refractance window drying processes during processing of turmeric slices**' in the international conference on 'Technological innovations for integration of food and health: A focus on North-Eastern India', organized by the Department of Food Engineering & Technology, Tezpur University in Association with AFSTI during February 14-16, 2019.
- Participated and delivered oral presentation on title 'Application of instantaneous pressure drop system for treatment of food product' in the international conference on 'Technological innovations for integration of food and health: A focus on North-Eastern India', organized by the Department of Food Engineering & Technology, Tezpur University in Association with AFSTI during February 14-16, 2019.
- Participated and delivered poster presentation on title 'Modelling of moisture absorption isotherm of masoor dal' at the Research Conclave 2019 organized by the Students' Academic Board, Indian Institute of Technology, Guwahati on March 14-17, 2019.
- Participated and delivered poster presentation on title 'Studies on different types of dryers for food products' at the Research Conclave 2019 organized by the Students' Academic Board, Indian Institute of Technology, Guwahati in the year March 14-17, 2019.
- Participated and delivered poster presentation on title 'Drying kinetic characteristics of refractance window dried *Curcuma longa*' in the national conference on 'Raising agroprocessing & integrating novel technologies for boosting organic wellness', organized by AFST(I)-HQ and Tezpur Chapter at Tezpur University, Tezpur, Assam on 30 January 1 February, 2020.
- Participated in the survey 'Knowledge, attitudes, and practices (kap) of Indians towards Covid-19: an online' organized by Department of Biotechnology, College of Biological and Chemical Engineering, Addis Ababa Science and Technology University, Addis Ababa, Ethiopia during May, 2020.
- Participated in a national webinar on 'Impact of Covid-19 pandemic on food safety & future product development' organized by Department of Food Technology and School of Chemical Technology, Harcourt Butler Technical University, Kanpur, Uttar Pradesh on 15 May, 2020.

- Participated in a national webinar on **'Practical rheology for the food technologist'** organized by Department of Food Technology and School of Chemical Technology, Harcourt Butler Technical University, Kanpur, Uttar Pradesh on 29 May, 2020.
- Participated in **'Food Safety Quiz'** organized by Department of Food Technology, AKS University, Satna (M.P) on 7 June, 2020.
- Participated in a national webinar on **'World food safety week -2020'** organized by AFST(I) Kakinada Chapter, JNTUK Kakinada, Perkin Elmer & SR Consultancy from 1–7 June, 2020.
- Participated and delivered an oral presentation titled **'Optimization of process parameter for refractance window dried** *curcuma longa* **using response surface methodology**' in the national conference 'CHEMCON-2020', organized by Indian Institute of Chemical Engineers on 27 29 December 2020.
- Participated and delivered an oral presentation titled **'Techno-economic efficacy of refractance window dried** *curcuma longa*' in the international conference on '4<sup>th</sup> International conference on food and nutrition', organized by Universal Society of Food and Nutrition, Singapore on 23 24 September 2021.
- Participated and delivered a poster presentation titled **'Techno-economic efficacy of refractance window dried** *curcuma longa*' in the international conference on 'Recent trade in smart & sustainable agriculture for food security', organized by Lovely Professional University, Phagwara, Punjab on 21 22 January 2022.
- Participated and delivered an oral presentation titled 'Techno-economic efficacy of refractance window dried *curcuma longa*' in the national conference 'North-East Research Conclave 2022 and Assam Biotech Conclave 2022', organized by Indian Institute of Technology, Guwahati, Science, Technology and Climate Change Department and Department of Education, Government. of Assam on 20 22 May 2022.

#### **ORGANIZATION MEMBERSHIP**

- Heart Care Society of Assam.
  - Lifetime Membership.

The society envisages a scenario where everyone will become aware of the problems of heart diseases and the importance of preventive and timely measures to live better, longer and healthier lives. Towards that end, Heart Care Society carries out various awareness and training programmes, workshops, health camps, etc, at different places in the State from time to time.

#### • Association of Food Scientist and Technologist.

Lifetime Membership

The major objective of AFST(I) is to stimulate and advance knowledge based on various aspects of Food Science and Technology by organizing National and International Conferences and bringing out technical publications including prestigious journals - Journal of Food Science and Technology (JFST) and Indian Food Industry Mag (IFI Mag). The association recognizes talent and excellence in the profession of Food Science and Technology by conferring various Awards and Fellowship.

#### • Institute of Food Technologist

Student membership

The objective of IFT is to build a forum for food professionals and technologists to collaborate, learn, and contribute all with the goal of inspiring and transforming scientific knowledge into innovative solutions. IFT holds various international conferences along with publishing magazine like Food Technology and Scientific Journals like: Journal of Food Science, Comprehensive Reviews in Food Science and Food Safety and Journal of Food Science Education.

#### **REVIEWER**

#### • Journal of Food Science and Technology (JFST)

The Journal of Food Science and Technology (JFST) is the official publication of the Association of Food Scientists and Technologists of India (AFSTI). This monthly publishes peer-reviewed research papers and reviews in all branches of science, technology, packaging and engineering of foods and food products. Special emphasis is given to fundamental and applied research findings that have potential for enhancing product quality, extending shelf life of fresh and processed food products and improving process efficiency. Critical reviews on new perspectives in food handling and processing, innovative and emerging technologies and trends and future research in food products and food industry byproducts are also welcome. The journal also publishes book reviews relevant to all aspects of food science, technology and engineering.

#### • Indic Book Club

Indic book club is a reading club under Indica Academy. Indic book club is an online platform that showcase and distributes books related to the Indian civilizational knowledge and history. It also distributes books in various genre like fantasy, non-fiction, fiction, scientific, finances, military, mythology, historical fiction, science fiction, triller, suspense etc. The club mostly deals and give out books by Indian writers all the while aiming to build a global community of book lovers.

#### **IT-SKILLS**

- Operating systems: WINDOWS 7/8/10/11/XP/98
- Languages known: Basics of C
- Application software: MS Office, MATLAB, SCILAB, Curve fitting tool, Origin lab, Design expert, SPSS

# **INSTRUMENTATIONS**

- Dryers (Spray dryer, Tray dryer, Hot air oven, Rotary evaporator, Refractance window dryer, Fluidized bed dryer, Microwave oven)
- Milk pasteurizer
- Heat exchangers
- Centrifuge
- Incubator (Stationary and shaking incubator)
- Soxhlet apparatus
- Kjeldahl apparatus
- Muffle furnace
- Crude fiber flask
- Ultrasonicator
- pH-meter,
- Water activity meter
- Colorimeter
- Rheometer
- UV-Spectrophotometer
- Fourier Transform Infrared,
- High Pressure Liquid Chromatography,
- Delsa Nano,
- Thermogravimetric Analysis
- Differential Scanning Calorimeter,
- Texture analyser

# STRONG POINTS

- Hard working
- Quick learning curve
- Ability to work in a team
- Good analytical ability
- Keenness to learn
- Ability to adapt to new and difficult situations

# HOBBIES

- Reading novels (Non-fiction, fiction, fantasy and scientific)
- Review writing of novels
- Listening to music

# PERSONAL INFORMATIONS

Date of Birth:	18th October, 1991
Father's Name:	Mr. Sanatan Haloi
Mother's Name:	Mrs. Debajani Haloi
Languages known:	Assamese, Hindi, English, Bengali

Permanent Address &House No. 93, Ramdhenu Path, Dakshingaon, Sonaighuli, Guwahati,Present Address:Dist: Kamrup (Metro), Assam, Pin: 781040

### REFERENCES

Prof. Ramagopal Uppaluri Professor (Chemical Engineering) IIT Guwahati E mail: ramagopalu@iitg.ac.in Phone: 0361-2582260 Mobile No: +91-9957561840 Prof. Manuj Kumar Hazarika Professor (Food Engineering & Technology) Tezpur University E mail: mkh@tezu.ernet.in Phone: 03712-275706 Mobile No: +91-9435700993

#### DECLARATION

I, **Mrs. Preetisagar Talukdar** daughter of **Mr. Sanatan Haloi**, hereby declare that all the information provided here is correct to the best of my knowledge and belief. I promise to abide by all the norms laid down by your esteemed organization.

Date: February 1, 2023 Place: Guwahati Sincerely Preetisagar Talukdar